CARDIAC FIBROSIS AND HEART FAILURE IN MICE CARRYING GENETIC ABLEATION OF NAPRINETIC PEPTIDE RECEPTOR-A: ROLE OF TGF-BETA1 PATHWAY

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Purpose of study Mice carrying targeted-ablation of the natriuretic peptide receptor-A (NPRA) gene (Npr1) exhibit cardiac hypertrophy with increased collagen deposition and fibrosis. The goal of this study was to determine the underlying mechanisms that regulate the development of cardiac fibrosis and heart failure in Npr1 gene-knockout mice.

Methods used The Npr1 null mutant (Npr1−/−, 0-copy), heterozygous (Npr1−/+), 1-copy), and wild-type (Npr1+/+, 2-copy) mice were orally administered with transforming growth factor-β1 (TGF-β1) receptor antagonist, GW788388 (2 mg/kg/day) by gavage for 28 days. Together, systolic blood pressure (SBP), heart weight-to-body weight (HW/BW) ratio, left ventricular end-diastolic dimension (LVEDD), left ventricular end-systolic dimension (LVESD), and percent fractional shortening (FS) were analyzed. The heart was isolated and used for the analysis of fibrotic markers using quantitative reverse transcription-polymerase chain reaction (qRT-PCR) and Western blot.

Summary of results The HW/BW ratio, LVEDD, and LVESD were significantly increased in Npr1−/− and Npr1−/+ mice compared with wild-type Npr1+/+ mice. At the same time the fractional shortening was greatly reduced in Npr1−/− and Npr1−/+ mice compared with Npr1+/+ mice. The Npr1−/+ null mutant (0-copy) mice showed 6-fold induction of cardiac fibrosis as compared with wild-type (2-copy) control mice. Moreover, the expression of fibrotic markers such as connective tissue growth factor (CTGF), α-smooth muscle actin (α-SMA), TGF-β1, TGF-βRI, TGF-βRII, and SMAD proteins were significantly increased in Npr1−/+ and Npr1−/− mice hearts compared with age-matched wild-type control animals. The Npr1 gene-knockout (0-copy) mice also suffered with congestive heart failure at early adult age as compared with Npr1 wild-type (2-copy) mice. The treatment with TGF-β1 receptor antagonist, GW788388, significantly prevented the cardiac fibrosis and potentially down-regulated the expression of fibrotic markers and SMAD proteins in Npr1−/+ and Npr1−/− mice.

Conclusions The results of the present study indicate that, the induction and development of cardiac fibrosis and heart failure in Npr1 gene-disrupted (0-copy) and haplotype (1-copy) mice is regulated through the TGF-β1-mediated SMAD-dependent pathway.

INSULIN-LIKE GROWTH FACTOR-1 UPREGULATES JUNCTION PROTEINS, WHILE IT DOWNREGULATES ADHESION PROTEINS IN VASCULAR ENDOTHELIAL CELLS: POTENTIAL MECHANISMS FOR ANTI-ATHEROGENIC EFFECTS

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Purpose of study Insulin-like Growth Factor-I (IGF-1) is an anti-atherogenic growth factor, having anti-inflammatory effects on macrophages and pro-survival and profibrotic effects on vascular smooth muscle cells. However, its effects on vascular endothelial cells are not fully described. We assessed IGF-1 effects on expression levels of intercellular junction proteins and cell adhesion proteins in aortic endothelial cells.

Methods used Human aortic endothelial cells (hAoECs) are exposed to 0–100 ng/mL IGF-1, anti-IGF1 receptor (IGF1R) neutralizing antibody, or Picropodophyllin (PPP; IGF1R inhibitor), and protein expression levels were determined by Western blot. Small molecule permeability was assessed on monolayer of hAoECs by transwell permeability assay.

Summary of results IGF-1 elevated expression levels of junction proteins, namely CD31, VE-cadherin, Occludin, Claudin-5, and Jam-A, while IGF1R inhibition by neutralizing antibody or PPP decreased their expression levels. Intriguingly, IGF-1 decreased expression levels of adhesion proteins, ICAM-1 and VCAM-1. We next tested barrier function of monolayer of hAoECs. Transwell permeability assay showed that IGF1R inhibition by PPP elevated permeation of dextran-FITC by 4.8 ±0.4-fold (P<0.01), consistent with the downregulation of junction proteins. Meanwhile, IGF-1 decreased adhesion of THP-1 monocytes on monolayer of hAoECs by 34±5% (P<0.05), while IGF1R-inhibition by PPP increased monocyte adhesion by 3.1±0.2-fold (P<0.01). In aortas of endothelial IGF1R-deficiency mice (Cdh5-Cre/Igf1rfl/fl mice) we found Occludin, Claudin-5 and Jam-C were downregulated, which is consistent with the observation in hAoECs. Finally, the Cdh5-Cre/Igf1rfl/fl mice on Apoe-deficient background produced more atherosclerosis than control mice by 33±8% (P<0.05) on a high-fat diet, suggesting anti-atherogenic effects of IGF-1 in the endothelium.

Conclusions Our results suggest that IGF-1 supports endothelial barrier function by positively regulating junction proteins, while it suppresses leukocyte adhesion by negatively regulating adhesion proteins in endothelial cells, thereby exerting anti-atherogenic effects.
Purpose of study Preeclampsia (PE), a hypertensive disorder of pregnancy, is a leading cause of maternal deaths. It affects 2–8% of all pregnancies, and its pathophysiology is not fully understood. Recent studies in preeclamptic patients have suggested a role for the gut microbiome in the disease. We have characterized the Dahl salt-sensitive (Dahl S) rat as a spontaneous rodent model of superimposed PE. Here, our purpose was to test the hypothesis that preexisting chronic hypertension impairs maternal gut microbiome remodeling and contributes to the development and/or progression of superimposed PE.

Methods used Female Sprague Dawley (SD) and Dahl S rats were maintained in conventional caging in the same room and on the same diet (Teklad 7034, 0.3% NaCl). Half of the rats of each strain were mated to have pregnant and virgin groups (n=7–9/group). Fecal samples were collected at baseline (BL), gestation day 20 (GD20) and one-week postpartum (PP) to assess gut microbiome via 16S rRNA gene sequencing. Alpha diversity (Shannon index), beta diversity (Bray-Curtis index), and linear discriminant analysis effect size (LEfSe) were determined from the sequenced data to assess microbial differences. At BL, Dahl S rats had higher alpha diversity (P<0.0001) and distinctly clustered beta diversity (p<0.0001) compared to SD rats.

Summary of results Dahl S had higher proteobacteria abundance (665,980 vs 51,240, p<0.05), a marker of dysbiosis. In response to pregnancy, we observed significant differences among groups in both alpha and beta diversity during late pregnancy. Also, proteobacteria abundance in the SD rats rose from 0.56% (BL) to 13.46% (GD20) before subsiding to 7.36% (PP) suggesting that changes may be a normal adaptation to pregnancy. The Dahl S, however, showed no change in proteobacteria: 5.29% (BL) to 6.35% (GD20) and 7.8% (PP). In addition, the SD displayed elevations in pathogenic bacteria genera: 665,980 vs 51,240, p<0.05, but similar between Dahl S groups (p=0.87). The Bacteroides and treponema genera exhibited a similar pattern. We suggest that these may be impaired in PE.

Conclusions In this study, we have presented preclinical evidence for pregnancy-specific alterations in the gut microbiota, and we suggest that these may be impaired in PE.
skeletal muscle wasting, likely contributing to cachexia in CHF and CKD. We also demonstrated that Ang II inhibits proliferation of skeletal muscle stem (satellite) cells (SCs) and reduces muscle regenerative capacity. We hypothesize that Ang II type 1 receptor (AT1R) signaling in SCs plays a role in developing Ang II–induced muscle wasting.

**Methods used** We generated tamoxifen-inducible, SC-specific AT1R-null mice (SC-AT1R−/−) by crossing Pax7 CreER and AT1R-floxed mice. By introducing Cre-reporter gene in these mice, we labeled SCs and their progenies with EYFP. These mice were infused with Ang II (1.5 μg/kg/min), and muscle regeneration and wasting were analyzed by qRT-PCR, western blotting and immunohistochemistry.

**Summary of results** In hindlimb cardiotoxin injury model, Ang II reduced the number of regenerating myofibers (71.9% decrease, p<0.001) and the expression of SC proliferation/differentiation markers MyoD and myogenin (56.5% and 62.5% decrease, respectively, p<0.001). In contrast, SC-AT1R−/− mice were protected against these Ang II–mediated reductions in muscle regeneration. In vitro, Ang II inhibited primary cultured SC proliferation, whereas AT1R-deficient SCs generated higher number of newly formed/repaired myofibers (12.4±2.7% of total myofibers in SC-AT1R−/− and ND in control, p<0.001), resulting in the restoration of muscle mass and cross-sectional area in SC-AT1R−/− mice.

**Conclusions** These data indicate that inhibition of AT1R signaling in SCs could have a therapeutic potential to treat muscle wasting in chronic diseases with high Ang II, such as CHF and CKD.

**SMOOTH MUSCLE SPECIFIC GLYCERALDEHYDE-3'-PHOSPHATE DEHYDROGENASE REDUCES ATHEROSCLEROSIS AND PROMOTES THE STABLE PLAQUE PHENOTYPE**

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**Purpose of study** Glyceraldehyde-3'-phosphate dehydrogenase (GAPDH) is a glycolytic enzyme with a multiple glycolysis-unrelated functions. GAPDH protected smooth muscle cells (SMC) against apoptosis via upregulation of Apel endonuclease, the major DNA repair enzyme. GAPDH levels were reduced in atherosclerotic plaque SMC. We hypothesized that SMC-specific GAPDH overexpression will reduce atherosclerosis.

**Methods used** We generated Apoe-null mice with SM22α promoter-driven GAPDH overexpression (SM-GAPDH mice). Atherosclerotic burden was quantified using aortic valve H&E-stained cross-sections, plaque composition by IHJ with antibody for SMC, and macrophage markers; collagen by Trichrome, apoptosis by TUNEL, vascular reactivity by organ chamber assay, oxidative DNA damage by AP site ELISA, protein expression by Westerns (WB).

**Summary of results** GAPDH levels were increased >2-fold (WB, P<0.05) in aortas from SM-GAPDH vs. Apoe-null controls. SMC GAPDH did not change aortic pulse wave velocity (SM-GAPDH, 1.1±0.2 m/s, control, 1.2±0.3 m/s) (ultrasound imaging) as well as aortic ring responses to PE, Ach or SNP. High-cholesterol fed SM-GAPDH had reduced atherosclerotic burden (28±3% decrease, P<0.05), elevated plaque SMC (IHC, a-SM actin, 3.1-fold increase, P<0.01; IHC, calponin, 3.8-fold increase, P<0.05), increased plaque collagen (2.1-fold increase, P<0.05), reduced plaque SMC apoptosis (3.2-fold decrease, P<0.05) without changes in macrophages (IHC, Mac3). Aortas isolated from SM-GAPDH have increased Apel endonuclease (WB, 31±5% increase, P<0.05), reduced cleaved PARP (WB, 74±12% decrease, P<0.001) and decreased oxidative DNA damage (2.5-fold decrease, P<0.05; WB, pSer139 histone H2AX, 33±3% decrease, P<0.05) compared to controls. Plaques in SM-GAPDH had thicker SMC-rich fibrous plaque cap (3.5-fold increase, P<0.05) and decreased area of necrotic core (1.8-fold reduction, P<0.05) suggesting enhanced plaque stability.

**Conclusions** SMC GAPDH reduces atherosclerotic burden, DNA damage and cell apoptosis in atherosclerotic mice. Our data taken together with in vitro findings indicate that Apel upregulation mediates GAPDH effect on DNA and apoptosis. Stimulation of GAPDH/Ape1 axis is a novel potential anti-atherosclerotic therapy.

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**Purpose of study** Superconductivity (S.C.) is a concept of pushing materials to the extremes to get maximum results of these processes.

**Methods used** Applying this concept, experiments were done intracellularly in isolated heart cell pairs measuring intracellular electric conduction across junction gaps (G.I.) induced by Enalapril (E.) and Angiotensin II. E. (25 ug/ml) was injected rapidly up to a dose of 1 ug/ml in 4 minutes. Ang II was injected intracellularly at 1 ug/min.

**Summary of results** A reduction of G.I. with Ang II was 55% without a plateau. With E., an increase in G.I. (106%) was measured until a plateau was reached. We think the reason for the plateau seen with E. was a reduction of entanglement, due to a photon effect from an intracellularly electron cloud.

**Conclusions** All these entanglement processes were during a superconductivity state. The end of the entanglement process was due to a photon effect; probably this didn’t occur with Ang II. The effect of E. is an effective way to produce coupling of the heart cells and a reduction of coupling by Ang II. This is a very important electrical effect in congestive heart failure with improvement of left ventricular function (L.V.F.) by E. and by a reduction of coupling by Ang II, reducing L.V.F. Further studies are needed to clarify these concepts.
Coxsackie B infection, would you think the kidneys? A rare case of Coxsackie B-induced myopericarditis leading to severe acute heart failure and complicated by end-stage renal disease

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Introduction Coxsackie B virus is involved in 25–40% cases of acute myocarditis. Renal dysfunction due to Coxsackie is extremely rare and the mechanism is unclear. We present a case of Coxsackie B-induced myopericarditis with concomitant severe renal failure.

Case presentation A 26-year-old female with history anemia who presented with worsening fatigue, weakness, SOB, pleuritic chest pain, cough, epistaxis, and hemoptysis, tingling in her arms and reduced UOP for 3 weeks. Labs showed BUN/ sCr of 85/11.2 with FENa of 9.98 indicative of intrinsic renal process. UA positive for blood and protein, CK 432 and pro-BNP >70k. CXR showed pulmonary edema and cardiomegaly. US showed small kidneys consistent with chronic kidney disease. TTE showed LVEF 20–24% with global hypokinesia. The patient was started on hemodialysis and treated for CHF. Infectious disease work up was positive for Coxsackie-B antibody 2,5, and 6. Rheumatology work up was negative. Renal biopsy showed interstitial fibrosis and tubular atrophy consistent with extensive chronic kidney damage, with negative immunofluorescent study excluding autoimmune reaction. Myocardial biopsy showed active lymphocytic myocarditis. Renal failure never resolved and the patient was kept on intermittent hemodialysis. However, her LVEF recovered to 50–54% in about 2 months.

Discussion This patient presented with myopericarditis leading to acute heart failure with EF 20%. This was likely due to Coxsackie B infection given the positive serology and biopsy results. Rhabdomyolysis-induced renal failure is unlikely in this case as CK was only 432. The cause of renal failure was unclear. We believe it may have been due to Coxsackie B infection. Cardio-renal syndrome was unlikely as FENa was 9.98 and renal function never recovered even after the quick recovery of the heart failure. Unlike our patient, reported cases with renal dysfunction due to Coxsackie had higher chances of recovery.

Conclusion We recommend a high suspicion for Coxsackie B virus infection in young adults presenting with acute heart and kidney failure. More case studies are required to better understand the correlation between Coxsackie and renal failure.

Introduction Cholera has been woven into human history through numerous pandemics, with the most recent ongoing since 1961. Global rates of cholera continue to decline, but outbreaks continue to pose diagnostic challenges for clinicians, which delays initiation of treatment and prolongs the disease course. Despite millions of infections and thousands of deaths worldwide each year, cholera remains rare in the United States, with the few cases each year usually being the result of pathogen acquisition while the patient traveled abroad. This paper presents a unique case of cholera acquired in the United States, which emphasizes the necessary vigilance of symptom recognition, in the context of appropriate clinical investigation, in ensuring the patient had a full recovery.

Discussion Recognition and treatment of cholera in the United States is exceedingly rare, yet effective diagnosis with early initiation of treatment is known to reduce mortality and shorten disease course. While other more common diagnoses must definitely be excluded first, it is important for cholera to be kept on the differential for patients presenting with treatment refractory, watery diarrhea causing hypotension. This case of a patient with a recent travel history to Hawaii and infection with cholera underscores the importance of investigative medicine and clinical expertise in optimizing patient care, even when presented with rare illnesses.

FATAL PRIMARY CUTANEOUS ANAPLASTIC LARGE T-CELL LYMPHOMA PRESENTING AS SWEET SYNDROME

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Case report Primary cutaneous anaplastic large T-cell lymphoma (PC-ALCL) is a rare type of T-cell lymphoma that involves skin only without evidence of systemic disease. It has a favorable prognosis. We describe a case of a fatal PC-ALCL that masqueraded as sweet syndrome.

A 69-year-old woman presented with a painful rash on her forehead and temples for 2 months. She had extremely tender nodules on the frontal scalp and smaller lesions extending over the parietal scalp. She had a background of diabetes mellitus type 2, hypertension, and end-stage renal disease (ESRD) on peritoneal dialysis.

Initial biopsy showed a neutrophilic infiltrate with leukocytoclasis suggestive of sweet syndrome versus infectious etiology. Due to lack of clinical response a second biopsy was performed that showed an atypical lymphoid proliferation suggestive of T cell lymphoma. Whole body CT did not show...
other organ involvement. Bone marrow biopsy was normal as well. The diagnosis accordingly was PC-ALCL.

Due to end-stage renal disease (ESRD) and extensive head involvement, she was not eligible for systemic chemotherapy, surgery, or radiotherapy. Topical treatment with bexarotene gel, and oral bexarotene did not control the rapid spread within a few weeks with secondary ulcerations. The patient opted for no treatment and stopped dialysis. She was admitted to hospice and died within a few days.

PC-ALCL is diagnosed as a solitary or grouped nodules growing over few weeks to months with further ulceration. Pathology reveals dermal infiltrate that appears initially like sweet syndrome but it has CD30 positive cell infiltration.

Differential diagnosis is broad including other lymphomas and reactive lymphoid hyperplasia. Treatment options are numerous and discussed here. Generally, PC-ALCL has a good survival rate of about 90 percent over 10 years.

Our case represents an extremely aggressive case of PC-ALCL with rapid progression and a fatal outcome. We recommend repeating skin biopsy to revisit the diagnosis whenever sweet syndrome fails to respond to steroids.

**HANSEN’S DISEASE (LEPROSY) IN THE TEXAS PANHANDLE: A CASE SERIES**

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**Introduction**

Hansen’s Disease, also known as leprosy, is caused by *Mycobacterium leprae*, a slow-growing acid-fast bacillus that causes significant disease of the skin, peripheral nerves, mucosa of the upper respiratory tract, and the eyes. The long-term complications include type 1 reversal reactions, type 2 erythema nodosum leprosum (ENL), neuropathy, and blindness. Globally, leprosy continues to be a leading infectious cause of disability, with the majority of new cases from India, Brazil, and Southeast Asia. While leprosy is rare in the United States, we report 4 cases of lepromatous leprosy that presented with diffuse burning pain and prednisone for type 2 ENL. He received a total right hip replacement due to avascular necrosis of the right femoral head.

**Discussion**

This case series highlights the importance of recognizing leprosy and differentiating its recurrence from type 2 ENL reactions. Management with steroid therapy should involve appropriate tapering and monitoring for adverse effects. Leprosy patients should also be monitored for chronic neuropathic pain and ocular disease, which can lead to blindness. Early diagnosis and judicious treatment of leprosy and its complications are crucial in preventing permanent disability.

**12 HUMAN HERPESVIRUS 6 (HHV-6) MENINGITIS IN AN ADULT PATIENT**

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**Introduction**

By efficiently diagnosing HHV-6 meningitis, proper treatment protocols are able to be initiated earlier in order to reduce morbidity and mortality. Given the rarity of HHV-6 meningitis in immunocompetent adults, there is currently no established standard treatment guidelines; previous cases reported in the literature, as well as this case itself, seem to suggest that either IV ganciclovir or IV foscarnet are the most reasonable first-line treatment options.

**Case presentation**

A 62-year-old female presented to the hospital with status epilepticus and altered mental status, including visual hallucinations. An EEG showed significant abnormalities suggesting temporal lobe seizure activity, which resolved with administration of antiepileptics, but was followed by a postictal coma. An MRI was negative for any new cerebral infarcts, while cardiac monitoring was within normal limits. A lumbar puncture revealed no white blood cells, but was PCR tested for numerous viral agents and was only positive for HHV-6. Patient was therefore started on IV ganciclovir, and then gradually emerged from her coma. After fourteen days of inpatient ganciclovir, the patient had improved significantly and was recommended for discharge. Final assessment was HHV-6 meningitis, status epilepticus secondary to viral meningitis, postictal coma secondary to viral meningitis, and metabolic encephalopathy secondary to seizure disorder.

**Discussion**

Many cases of viral meningitis are idiopathic, in that clinicians are often unable to identify a particular viral etiology. However, increased utilization of PCR has enabled physicians to better recognize rare causes of viral meningitis – such as human herpesvirus 6 (HHV-6) meningitis in immunocompetent adult patients – and will likely continue to improve the rate of causative agent identification in seemingly idiopathic viral meningitis. In this specific case, the test was performed twice and found to be positive both times for HHV-6. In cases of viral meningitis in which the causative agent is unclear, it is important to keep rare causes such as HHV-6 on the differential. Evidence from prior case reports, as well as this case itself, seem to suggest that IV ganciclovir or IV foscarnet are the most reasonable treatment options for HHV-6 meningitis.
THE ROCKY ROAD TO MALIGNANCY IN AN ELDERLY PATIENT

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Case report Tonsils serve as a defense line against oropharyngeal infections. Tonsillitis is an inflammation of the palatine tonsils, self-limited and associated with viruses. Bacterial etiology are <10%. When inflammation is refractory further workup is warranted. Lymphoid malignancy is common but tonsillar malignancy is rare.

A 68 y/o woman with HTN, DM2, and hypothyroidism who presented with 3 mo of intermittent odynophagia and dysphagia. Tonsillitis without improvement. Patient developed acute respiratory distress that required endotracheal intubation. Neck CT revealed enlarged palatine tonsils with lymphadenopathy. The patient was started on broad-spectrum IV antibiotics for suspected peritonsillar abscess. In the OR prophylactic tracheostomy and oropharynx evaluation were performed. Right tonsil tissue was pale, friable, with multiple areas of necrosis. Right tonsillectomy was performed and tissue samples were sent to pathology. Results consistent with necrotic tissue.

The patient was admitted to ICU for persistent respiratory compromise which required ventilatory support. Initially, she remained afebrile but with increasing leukocytosis. She continued on broad-spectrum IV antibiotics for presumptive diagnosis of sepsis secondary to bacterial tonsillitis. After weaned from mechanical ventilation, she developed intermittent fever, chills, and hypotocicity. All infectious, rheumatologic, inflammatory, and metabolic workup was negative.

She continued with fevers. Recvaluation of extracted tonsil tissue was sent to the NIH pathology laboratory. Histologic resulted was Tonsilar Non-Hodgkin B Cell Lymphoma (NHL). Lymphomas commonly involve lymph nodes However, NHL may have between 24–48% extranodal sites of invasion, less than 10% invade the tonsils.

This case depicts the importance of proper clinical evaluation and follow up in elderly patients presenting with odynophagia, dysphagia, and tonsillar enlargement. Tonsillar B cell lymphoma is uncommon, it can present in the elderly population and be mistaken for infectious tonsillitis. The diagnosis possibility increases clinical awareness for identification and therapy.

IN CASE YOUR DOCTOR IS UNAWARE OF PICA

SYMPTOMS, EXCESS ICE CONSUMPTION CAN RUIN YOUR BRAIN FUNCTION

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Introduction Pica is described as an unusual condition in which patients crave and chew substances that have no nutritive values, such as ice, clay, soil or paper. Pagophagia (craving & chewing ice) is often associated with iron deficiency with or without anemia. Iron absorption can also be reduced in the presence of non-nutritive substances. It is commonly seen in pregnant women and pre-adolescent age group. We report a patient admitted to medical intensive care unit (MICU) due to hyponatremia and seizures found to have iron deficiency associated pagophagia as underlying cause.

Case summary A 54-year-old female transferred to our MICU from outside hospital due to altered mental status, seizures, and hyponatremia. On presentation to outside hospital, she was wean and had a grand mal seizure; her sodium was as low as 120 mEq/L. She was placed on normal saline and transferred to our medical center for a higher level of care. Upon further evaluation, she stated that she was recently craving and chewing too much ice. Her sodium was gradually corrected. Lab test showed hemoglobin 9.2 g/dl and MCV 75FL. Iron deficiency with pica was considered, and iron panel was done. Her iron level was 9 mcg/dl, ferritin 4.8ng/ml, and transferrin saturation 2%. CT of head and EEG were normal.

Patient was given parenteral iron infusion for 3 days. Craving for ice improved significantly. Patient was stable and had no more seizures. She was discharged with oral iron supplementation.

Conclusion Although pica has been noted since 6th centuries AD, it remains a mysterious and fascinating occurrence. Pica is strongly associated with iron deficiency and believed to be a symptom of deficiency rather than its cause. Studies showed that many physicians are unaware of the pica symptoms, and it can be missed unless specifically addressed. Thus, pica can have significant health risks, including electrolyte abnormalities and metabolic disorders like our patient. It is recommended to evaluate patient with pica for iron deficiency and it causes. Iron therapy can cure the pagophagia earlier than hemoglobin recovery.

FALSE NEGATIVE ADENOSINE DEAMINASE IN TUBERCULOUS PLEURAL EFFUSION

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Case report Pleural tuberculosis is the most common extra-pulmonary manifestation of Mycobacterium tuberculosis infection. Diagnosis of a tuberculous pleural effusion is challenging as patients commonly have negative acid fast cultures from the pleural fluid as well as sputum. Adenosine deaminase levels from pleural fluid have been widely used as a biomarker for infection with high sensitivity. Values less than 15–40 U/L are generally felt to exclude tuberculous pleural effusions.

A 26-year-old male from Panama presented after discovery of a positive Tuberculin Skin Test upon enlisting with the United States Army. He was found to have a unilateral left sided pleural effusion without any parenchymal disease. Thoracentesis performed identified a lymphocyte-predominant, exudative effusion with low glucose levels narrowing the most likely diagnoses to mycobacterial infection, malignancy, or autoimmune etiology. Quantiferon gold testing was negative. Pleural cultures were negative for acid fast organisms on 2 separate occasions and polymerase chain reaction (PCR) testing of pleural fluid was negative for Mycobacterium tuberculosis DNA. Adenosine deaminase level was 8 U/L. He subsequently underwent pleural biopsy which showed multiple necrotizing granulomas. Given these biopsy findings, Mycobacterium tuberculosis being highly endemic in Panama, and positive PPD, the patient was started on appropriate therapy. Although patient had negative acid fast smears on 5 separate occasions, tuberculosis was eventually identified on a single acid fast
sputum cultures confirming the diagnosis after therapy had been started.

This case illustrates the challenges in diagnosing tuberculous pleural effusion. Due to very poor sensitivity of pleural fluid cultures, many advocate for use of adenosine deaminase as a sensitive test to identify tuberculous pleural effusions. Using lower cutoffs for adenosine deaminase less than 15 U/L, multiple studies identify a negative predictive value of 100%. This patient demonstrates that even low cutoff values for adenosine deaminase still fail to adequately exclude a tuberculous pleural effusion. Recognition of false negatives is critical for appropriate diagnosis and management of this challenging clinical entity.

Case report Testicular cancer is the most common neoplasia in young men (90%) with ages ranging from 15–44 years of age. Germ cell-derived tumors are the most predominant. Screening examination is insufficiently used for early detection. Testicular cancer can cause developmental, endocrine and reproductive problems like precocious puberty, gynecomastia, or infertility. Pelvis feminization has never been reported with testicular cancers.

We report a case of an 18-year-old male with right-sided flank, found to have a right testicular mass on CT scan, with multiple retroperitoneal masses with compression of right ureter with secondary hyrond nephrosis, displacement of inferior vena cava and abdominal aorta, as well lungs and liver lesions. CT scan also showed a circular shaped-wide inlet pelvis with an obtuse angled pubis and an outwards-flared pelvic bone, consistent with gynecoid pelvis. Labs were remarkable for pancytopenia and elevation of the tumor markers alpha-fetoprotein, beta HCG and LDH. Liver biopsy confirmed metastatic yolk sac testicular tumor. The patient received chemotherapy followed by a partial orchiectomy and was discharged home with oncology and urology follow-ups.

Our patient’s right testicular tumor was missed due to his hesitation to report a testicular mass as well as the lack of the physician’s regular genital examination. In addition, we also report that pelvic feminization in our patient was directly linked to the testicular tumor. This radiological finding has never been reported before.

We believe that improving patient and physician education on genital exam as well as pelvis feminization along with precocious puberty and gynecomastia are valuable clinical tools to help detect testicular cancer early in order to reduce its mortality and morbidity. However, a retrospective radiological review of patients with testicular cancer is needed to establish a true association between testicular cancer and pelvic feminization.

Case report Spinal epidural abscess (SEA) is increasing in incidence, with a median onset age of 50 years and a maximum prevalence in males of 50–70 years of age. Early clinical recognition is often challenging with potential dramatic outcomes if not detected early. The classic diagnostic triad of fever, spine pain and neurological deficit is present only in 13% of patients, thus increasing the risk of a delayed diagnosis. Skip non-contiguous lesions represent 9% of SEA, with thoracolumbar region being the most common affected area.

We report a case of a 40-year-old female presenting with lower back pain and a history of methamphetamine abuse. Initial non contrast CT scan of the spine showed chronic degenerative changes and lumbar disk herniation. Neurological exam on admission was unremarkable except for altered mental status, attributed to drug overdose. Cultures showed MSSA bacteremia. During her hospital course patient rapidly developed quadriplegia, abdominal distention, and decreased rectal tone. MRI of spine with contrast showed skipped non-contiguous epidural abscesses in cervical and lumbar spine. Patient was treated with antibiotics and underwent staged drainage of epidural abscesses.

Skip noncontiguous SEA are rare Early detection is challenging. To properly screen emergency department patients for SEA recognition of risk factors like IV drug use, alcoholism, diabetes, HIV infection, trauma, tattooing, acupuncture, contigious bony or soft tissue infection may be more sensitive than the classic diagnostic triad of fever, back pain and neurologic deficit. One study concluded that physical signs may be very subtle, patients may be normothermic and have normal white count. Urgent surgery is more likely to get performed for patients with neurological deficit, while patients treated conservatively go undiagnosed and develop irreversible neurological deficit later. Having a high clinical suspicion of SEA in patients with drug use and early detection with an MRI-contrast of the whole spine to detect skip-lesions would result in early initiation of treatment, and in turn would reduce the morbidity and neurological deficits. Along with antibiotic treatment, early surgical decompensation within 24–36 hours is essential for ensuring a deficit free recovery.
Iliopsoas tendon rupture should be considered as an unusual cause of hip pain especially at risk population such as morbid obesity, older age, and patients with prolonged use of steroid or quinolones. Prompt diagnosis may lead to early recovery and better functional status.

Neonatal case reports
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HYPOTHYROIDISM AFTER PERCUTANEOUS PATENT DUCTUS ARTERIOSUS DEVICE CLOSURE IN AN EXTREMELY PRETERM INFANT: POSSIBLE ROLE OF IODINATED INTRAVENOUS CONTRAST
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Background Iodine-induced hypothyroidism has been described in preterm infants exposed to antiseptic agents and other iodine containing contrasts. Iodine induced hypothyroidism in preterm infants may be transient; however cases of persistent hypothyroidism requiring treatment until early childhood have been reported. Untreated hypothyroidism, even for a short period, can have detrimental effects on brain development and neurodevelopmental outcomes; especially in the preterm patient population. We are presenting a case of intravenous contrast induced hypothyroidism in an extremely preterm infant who underwent percutaneous device closure of a hemodynamically significant patent ductus arteriosus (PDA).

Case presentation Our patient is an extremely preterm infant born at 27 weeks gestation with birth weight of 715 grams. Catheter closure of hemodynamically significant PDA was performed on day of life 24 (weight at procedure date was 900 grams). During the procedure, patient received standard intravenous contrast (iodixanol, contains 320 mg iodine/ml). The dose of intravenous contrast received is within accepted previously reported ranges. Prior to the procedure the patient had normal thyroid function on multiple state newborn screens. After the procedure the patient was found to have elevated Thyroid Stimulating Hormone (TSH) of 48.66 uIU/ml and low free T4 (thyroxine) of 0.5 ng/dL. Confirmatory repeat thyroid studies were obtained and patient was subsequently started on levothyroxine.

Discussion To the best of our knowledge, this is the first report of contrast-induced hypothyroidism in extremely preterm infant undergoing percutaneous PDA device closure. As the use of percutaneous PDA device closure is more frequently utilized in extremely preterm infants, in comparison to surgical ligation, guidelines for screening thyroid function tests pre and post contrast requiring procedures may be warranted.

ACQUIRED DIAPHRAGMATIC HERNIA IN A NEONATE AFTER GROUP B STREPTOCOCCAL SEPSIS
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Introduction Right-sided congenital diaphragmatic hernia (CDH) may have a delayed presentation. Initial symptoms appear similar to pneumonia with respiratory failure and may delay diagnosis. Association with early onset Group B streptococcal (GBS) sepsis and delayed onset of right CDH have been reported previously. This case describes a neonate with GBS sepsis and delayed right CDH and attempts to raise awareness of necessary precautions and features.

Case description A male infant with birthweight of 3.465 kg was delivered at 39 weeks and 2 days to a GBS positive mother who was not treated prior to a precipitous vaginal delivery. The infant required escalation of respiratory support with intubation and mechanical ventilation after birth. He was started on Ampicillin and Gentamicin and initial blood cultures were positive for GBS. Initial chest X-rays (CXR) showed no infiltrates and normal lung patterns. His course was complicated by a 5-day course of inhaled nitric oxide for pulmonary hypertension. After treatment and resolution of pulmonary hypertension and sepsis, he failed multiple extubation trials. CXRs and a chest CT at 3 weeks showed right lung volume loss and atelectasis. Flexible bronchoscopy at 4 weeks showed mild bronchomalacia but no other abnormalities. A repeat chest CT and CXR, performed while the infant was off positive-pressure, showed no infiltrates and normal lung patterns. His course was complicated by a 5-day course of inhaled nitric oxide for pulmonary hypertension. After treatment and resolution of pulmonary hypertension and sepsis, he failed multiple extubation trials. CXRs and a chest CT at 3 weeks showed right lung volume loss and atelectasis. Flexible bronchoscopy at 4 weeks showed mild bronchomalacia but no other abnormalities. A repeat chest CT and CXR, performed while the infant was off positive-pressure, revealed a right diaphragmatic hernia. At one month, the infant underwent thoroscopy and open repair, which revealed a type-C diaphragmatic hernia without a sac and liver adherent to the lung.

Discussion Approximately 40 cases of late diagnosis of a right CDH occurring after GBS infection in neonates have been reported in literature. In this case, the initial CXR obtained...
ELEVATED ALKALINE PHOSPHATASE LEVELS ASSOCIATED WITH ISOLATED SPONTANEOUS INTESTINAL PERFORATIONS IN PREMATURE INFANTS

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Purpose of study Spontaneous intestinal perforation (SIP) is a common entity in the NICU leading to increased morbidity and mortality. At our institution, we noted elevated alkaline phosphatase (ALP) levels in premature infants with SIP. We aimed to investigate this relationship.

Methods used Infants followed by the Texas Children’s Hospital NICU Intestinal Rehabilitation team from 2014–2017 were reviewed and cases selected based on diagnosis. Demographic data, clinical characteristics, feeding history, alkaline phosphatase levels, surgical intervention, and patient outcomes were recorded.

Summary of results Seven premature infants with a diagnosis of isolated SIP were identified (See table 1 for clinical summaries). Mean ALP was 2170±2.8 IU/L prior to the date of diagnosis (n=2) and 1504.1±806.6 IU/L at the time of diagnosis. The values then normalized to 280.4±64.1 post-intervention (figure 1).

Conclusions Infants with isolated SIP appear to have significantly elevated ALP around diagnosis that rapidly normalizes after intervention. Further delineation of the use of ALP as a marker of intestinal inflammation or hypoperfusion injury could assist with early diagnosis and appropriate surgical management.

Abstract 21 Figure 1 Alkaline phosphatase levels surrounding SIP

Abstract 21 Table 1 Clinical presentation of seven infants with SIP

<table>
<thead>
<tr>
<th>Patient</th>
<th>Gestational Age/Weight (g)</th>
<th>Day of Life</th>
<th>Systemic Factors</th>
<th>Maximum feeding tolerance (cc/kg/d)</th>
<th>Surgical Intervention</th>
<th>Peak Alkaline Phosphatase (IU/L)</th>
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22 RHIZOPUS IN A PRETERM INFANT: NOVEL USE OF POSACONAZOLE

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Background Rhizopus species cause rapidly progressive and life-threatening infections. Treatment involves aggressive debridement and combination systemic antifungal therapy. Posaconazole is a triazole with activity against Rhizopus, but data on its use and pharmacokinetic profile in preterm infants is scarce.

Case The male patient was born at 24 4/7 weeks and 585 g to a 32-year-old mother with severe pre-eclampsia and cardioma of unclear etiology (carboplatin/paclitaxel given 5 days before delivery).

On DOL 14, an abrasion on the back near an adhesive probe was noted that evolved into a crusted eschar by DOL 16. Skin biopsy cultures resulted with ‘rare mold’ on DOL 17. The patient was started on IV amphotericin B deoxycholate and micafungin based on case reports of synergy in Mucor species. Lumbar puncture was deferred given the location of the lesion, but blood cultures were negative.

On DOL 20, the biopsy culture resulted with Rhizopus species, so debridement of the lesion was performed on DOL 22. The pathology showed angioinvasion, so coverage with amphotericin B and posaconazole was selected as optimal therapy for disseminated disease.

Enteral posaconazole suspension at 6 mg/kg every 8 hours was initiated on DOL 34 when enteral feeds were tolerated. A trough obtained at steady state after 7 days returned at 0.5 mcg/mL (goal >0.7 mcg/mL), so the dose was increased to 7 mg/kg every 8 hours. A steady state level on the new dosing regime was achieved, so micafungin was ceased.
discontinued with return of liver function to baseline. Posaconazole was otherwise well tolerated.

The patient completed 7 weeks of amphotericin B with 4 weeks of micafungin followed by 3 weeks of posaconazole. The patient has not had any recurrence, and the back excision is healing well. Abdominal ultrasound, ophthalmologic exam, and brain MRI showed no evidence of infection.

Conclusion This is the first report of posaconazole use in a preterm neonate with Rhizopus. This extremely premature infant was successfully treated with excision and combination therapy of amphotericin B and micafungin followed by enteral posaconazole. Posaconazole was well tolerated and may be considered for therapy in future neonatal Rhizopus infections.

THE ECHOES OF THE WOLFF- UNCOMMON AND IRREGULAR ARRHYTHMIAS IN A CASE OF NEONATAL WOLFF PARKINSON WHITE
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Case report The patient is a 10 mo male with multiple VSDs. He presented at 2 months with congestive cardiac failure. ECG showed Wolff Parkinson White (WPW) pattern. He had pulmonary artery banding and post operatively developed regular broad complex tachycardia as well as regular narrow complex tachycardia, unresponsive to adenosine. He was managed with amiodarone for the next 4 months. Two morphologies of delta wave were seen variably at different times (figure 1). After his VSD repair at 9 months, he developed narrow complex tachycardia requiring cardioversion. He was discharged on propranolol.

During follow up he presented with irregular broad complex rhythm- likely antidromic echo beats. The arrhythmia persisted despite high dose of propranolol, and flecainide was added.

He subsequently had sinus rhythm with intermittent preexcitation and no evidence of reentrant echo beats.

Discussion This was a rare case of narrow complex tachycardia (orthodromic reentrant tachycardia - ORT) and broad complex tachycardia (antidromic reentrant tachycardia - ART) in WPW. ART occurs with conduction of the sinus impulse via the accessory pathway in an antegrade fashion, and then retrograde via the normal AV node creating a reentrant circuit. ART is rarer than ORT.

The subsequent irregular grouped beating was also unusual. Single and double reentrant echo beats suggested the need for further rhythm control.

The presence of two different preexcitation patterns at baseline, the lack of response to adenosine, and the antidromic reentrant echo beats suggest presence of multiple accessory pathways.

Since flecainide (sodium channel blocker) is more selective for myocardium, it can slow accessory pathway conduction especially adjunctive to a beta blocker. The patient had a good response to flecainide.

MANAGEMENT OF A PIK3CA-RELATED OVERGROWTH SPECTRUM DISORDER IN A PRETERM INFANT
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10.1136/jim-2020-SRM.24

Case report Congenital overgrowth syndromes constitute a variety of diagnoses with many potential genetic mutations but often with similar clinical presentations. One category of malformations related to anomalies within lymphatic and low flow vasculature, along with the presence of overgrowth, is due to PIK3CA gene mutations, termed PIK3CA-Related Overgrowth Spectrum (PROS) disorders. This gene undergoes a gain of function mutation, leading to activation of the PI3K-AKT and mTOR pathway, followed by upregulation of cell proliferation. Sclerotherapy, mTOR inhibitors, and surgical debulking are treatment options. We present a case of a preterm infant with an extensive PROS disorder to review management and outcomes in this rare diagnosis.

This is a 31 6/7 week female infant born via C/S with prenatal diagnosis of suspected lymphatic malformation on fetal MRI. Multiple anomalies appreciated at delivery, most notably a massive cystic lesion encompassing the entire left arm and chest, and macrodactyly. Full body MRI and chest MRA/MRV described extensive multi-cystic lesions consistent with lymphatic malformation with a possible venous component, phenotype consistent with a PROS disorder. She underwent doxycycline sclerotherapy and drainage of cystic lesions and was treated with sirolimus. An overgrowth genetic panel encompassing PIK3CA, PTEN and AKT1 genes was negative. She had a normal microarray. The malformation progressively became smaller and firmer.

There are multiple overgrowth syndromes associated with PIK3CA gene mutations. Genetic testing to detect mutations in the PIK3CA gene may confirm the diagnosis, but often yields false-negative results given that most presentations are somatic mosaics and not detectable. A recent systematic review evaluating doxycycline sclerotherapy treatment outcomes in pediatric lymphatic malformations showed an 84% success rate with complete resolution. Sirolimus has also successfully treated complex lymphatic malformations in neonates. Surgical debulking is only recommended in extreme cases given risk for significant intraoperative bleeding. While patients may need frequent or lifelong management of cutaneous overgrowth, overall outcomes are related to co-morbidities.
Case report A 33 week gestation female was transferred to our institution for respiratory distress and given surfactant via endotracheal tube, but remained hypoxic with SpO2 70–80% on room air. A chest x-ray (CXR) showed right upper lobe atelectasis but a normal mediastinal silhouette. An echo on DOL 1 showed a patent foramen ovale (PFO) shunting left to right, mild tricuspid regurgitation, and a small patent ductus arteriosus also shunting left to right. Atelectasis resolved but patient remained hypoxic without tachypnea. A limited echo on DOL 10 showed no evidence of pulmonary hypertension, so a cardiology consult was requested. After being unable to identify the right superior vena cava (RSVC) drainage on review of the initial echo, a contrast echo via a vein in the right hand demonstrated contrast entering the left atrium (LA) and left ventricle (LV); it only entered the right atrium (RA) via a PFO. Infant was weaned off oxygen, tolerated full feeds, and held SpO2 >80%. Infant was discharged at 3 weeks with a plan for surgery after 1 year.

Discussion The hemodynamic effect of this anomaly is approximately one-third of systemic venous return causing left-sided volume overload with resulting hypoxia and the possibility of brain abscesses and strokes. The first case of a RSVC draining into LA was reported in 1956 in a 10 year old female who presented with cyanosis and dyspnea with normal CXR and left ventricular hypertrophy on ECG. Through our review, we found only 42 cases of RSVC to LA without other cardiac anomalies. Of these, 31 (74%) were diagnosed prior to 19 years of age with 8 (19%) prior to 1 month of age. 25 patients were female and 16 were male. 5 patients suffered a brain abscess. 3 patients had only idiopathic hypoxia. Additionally, 8 patients had cyanosis without other complaints. Other patients had dyspnea, cardiomegaly, and polycythemia. A contrast echo was used in 21 patients for initial diagnosis. This case emphasizes the importance of recognizing this anomaly as an infrequent cause of persistent unexplained hypoxia in the neonatal period.

Clinical course of an infant with Atelectogenesis type one

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Introduction Atelectogenesis type 1 (AO1) is a skeletal dysplasia notable for incomplete ossification of the bones and resultant organ pathogenesis. It is one of a number of skeletal dysplasias characterized by a pathogenic variant of the FLNB gene. The gene codes for Filamin B an essential protein for cytoskeletal structuring and endocardial ossification. The phenotype ranges from mild to perinatal lethal. The disorder is very rare and its prevalence is unknown. Most mutations occur de novo but can be inherited from mildly affected or asymptomatic parent due to somatic mosaicism. We report on a male infant with AO1 who survived the neonatal period.

Presentation Mother presented at 29 weeks gestation age (wga) with ultrasonographic evidence of polyhydramnios and micromelia. Mother was lost to follow up with representation of preterm vaginal delivery at 35.2 wga. The infant had micromelia without stippling, tapering of distal humerus, absent fibula, shortened ulna, coronal clefting, platyspondyly, deficient ossification of the tarsal and carpal bones, and dislocation of proximal radii. He required escalation of respiratory support initiated at birth and ultimately transitioned to tracheostomy tube and ventilator dependence. He had a mixed apnea and pulmonary hypoplasia. Parents withdrew care at 1 year of age. Diagnosis of a de novo heterozygous pathogenic FLNB gene variant was made via exome slice sequencing of infant and parents. Despite this information, it was a challenging diagnosis given the clinical overlap of FLNB-related disorders, however, based on patient’s phenotype, the diagnose of atypical AO1.

Discussion With a potential diagnosis of skeletal dysplasia it is important to distinguish perinatally if mutation is lethal or not, however, despite using various clinical and radiographic criteria, this remains challenging. The number of skeletal dysplasias is growing rapidly thanks to the advancement in genetic testing technology, and over 450 different types currently exist. A detailed description of this patient should contribute to medical literature to aid in ongoing differentiation of the dysplasia types. Early prenatal diagnosis helps to guide genetic and palliative discussions.

Abstracts

25 ISOLATED RIGHT SUPERIOR VENA CAVA DRAINAGE INTO THE LEFT ATRIUM: AN UNCOMMON CAUSE OF PERSISTENT HYPOXIA IN A NEONATE

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27 AN ATYPICAL PRESENTATION OF WAARDENBURG-SHAH SYNDROME WITH AN INCIDENTAL EDNRB MUTATION

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Case report Waardenburg syndrome is a group of four separate congenital neurocristopathies characterized by sensorineural deafness, characteristic pigmentation defects of the skin, hair, and iris, dystopia canthorum, and other defects of neural crest cell-derived tissues. Each of the four types of Waardenburg syndrome have their own diagnostic criteria with a few commonly mutated genes shared within each type. We report a case of a preterm newborn female presenting with swallowing difficulties, hypothyroidism, and failure to thrive who was subsequently discovered to have a mutation in the EDNRB gene which is commonly associated with Waardenburg syndrome type 4. This type, also called Waardenburg-Shah syndrome, presents with the same distinctive features of classic Waardenburg syndrome with the addition of gastrointestinal malfunction – most notably Hirschsprung’s disease. She later developed atypical facial abnormalities but lacked the characteristic hypopigmentation defects such as a white forelock or brilliant blue eyes. There was also the notable absence of any sensorineural hearing loss. She did, however, develop chronic constipation that begs further evaluation for possible intestinal motility defects. As of this writing, she is followed by the neurodevelopmental clinic in anticipation of expected neurodevelopmental delay. Ultimately, the patient’s presentation reinforces the phenotypic heterogeneity and variable expressivity associated with Waardenburg Syndrome. The goal of this report is to issue a challenge for the need for evaluation of diagnostic criteria, expansion of the genetic etiologies, and
increased prognostic prediction and ultimate prevention in those with Waardenburg syndrome. This patient is an indication that well-established syndromes may have an increased prevalence than previously established due to patients with subclinical manifestations.

**Case report** Haptic abscess (HA) related to malpositioned umbilical catheter is a rare but increasingly recognized cause of morbidity and mortality in premature neonates. We report an unusual case of hepatic abscess associated with ascites that presented remotely from umbilical catheterization in a growth restricted premature female infant born at 28 weeks with birth weight 450 g. Infant had unremarkable initial neonatal course requiring noninvasive continuous positive airway pressure (CPAP). Optimally placed umbilical venous catheter (UVC) was removed on day of life (DOL) 4 and replaced by peripherally inserted central catheter in the lower limb. Infant developed thrombocytopenia followed by clinical septic shock (blood culture negative) on DOL 14. Heterogeneous lesion in the liver measuring 1.6 × 1.4 × 1.4 cm with a hypoechoic periphery and circumferential blood flow consistent with HA and patent portal vein noted on ultrasound. Infant developed ascites requiring therapeutic paracentesis which may be secondary to lymphatic obstruction from mass effect of HA or inflammation related. Serum ascites albumin gradient was low indicating portal hypertension as unlikely cause of ascites. HA treated conservatively with 28 days of broad spectrum intravenous antibiotics including 1 week of fungal coverage. HA size was monitored weekly by ultrasound during treatment. Ultrasound at 46 weeks corrected age showed complete resolution of HA.

**Discussion** In our case, the patient appeared well on clinical exam but laboratory workup showed high anion gap metabolic acidosis with mild hypocalcemia. A diagnosis of intrauterine exposure to Acetazolamide induced metabolic acidosis was made.

According to the US Food and Drug Administration, acetazolamide is classified as a class C drug. This indicates that animal reproduction studies have shown an adverse effect of acetazolamide on the fetus, but there are no well-controlled studies in humans. Animal studies have demonstrated that acetazolamide given to pregnant rats caused limb defects. (1) There are no enough sample size human studies done on intrauterine exposure of Acetazolamide. Few Case reports describe Renal tubular acidosis type 2 like picture (2), hypocalcemia, hypomagnesemia (3), limb defects (4), Teeth agenesis (3,5), and teratoma (6).

**Conclusion** As a class C drug, acetazolamide should be prescribed only if the potential benefit justifies the potential risk to the fetus. This case draws attention to the neonatal effects of intrauterine acetazolamide exposure. More research and case reports are needed to investigate the long-term sequela from exposure.
30 SIROLIMUS FOR KAPOSIIFORM HEMANGIOENDOTHELIOMA IN A NEONATE

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10.1136/jim-2020-SRM.30

Case report Kaposiform Hemangioendothelioma (KHE) is a vascular tumor often complicated by Kasabach-Merritt Phenomenon (KMP). We present a baby who developed complications during treatment of KHE.

Case AR required delivery at 34 weeks for IUGR, dilated vena cava and reverse end-diastolic flow. He had a vascular tumor on the RLE. Coagulation labs showed KMP. He required many transfusions over 2 weeks and developed Grade 4 IVH. MRI found vascular channels in the mass without fascia involvement. Biopsy confirmed KHE. Sirolimus was started (0.8 mg/m²BID). He developed anasarca and acidosis requiring mechanical ventilation. DOL 6 echo showed EF=11%. It improved with fluid restriction and medications by DOL13. Sirolimus levels peaked at 48ng/mL (target=10–15ng/mL) requiring interruption of therapy. A lower dose was started on DOL 24. Levels were within range for the rest of treatment.

Discussion KHE can be associated with KMP. KHE is distinct from arterio-venous malformation. Historically, treatment was surgical excision. Current therapy is vincristine/steroids requiring central IV access. Sirolimus is used to treat vascular tumors with IV or PO options.

Our case highlights issues arising while treating neonates with KHE. Physicians should have a high index of suspicion for KMP in patients with KHE. Check platelet and coagulation studies early. Patients with KMP may require large volumes of blood products. Monitor strict I/Os. Watch for heart failure. The usual dose of sirolimus may be too large for neonates. Levels should be monitored until a steady-state in the target range is achieved.

Conclusion Patients with KHE can have complications from both the disease and treatment. Attention to platelets, coagulation studies, volume status, heart function and drug levels are required for successful treatment.

Abstract 30 Figure 1

31 WHAT’S THE DEFECT?

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10.1136/jim-2020-SRM.31

Case report We report a case of a preterm female born via vaginal delivery. At delivery, the neonate was noted to have a large right sided abdominal mass. Examination showed a large right sided para umbilical mass covered with discolored skin. The mass was minimally reducible and soft with palpable loops of bowel. Initial abdominal X-ray demonstrated a large herniation of the bowel to the right of midline with subsequent imaging showing dilatation of bowel loops concerning for bowel obstruction. Abdominal US confirmed herniation of multiple loops of bowel through a large anterior abdominal wall defect to the right of the umbilicus. Pediatric surgery was consulted for evaluation. Surgical exploration of hernia showed meconium staining and in utero perforation with obstruction in the mid jejunum, 1 cm of jejunum was resected and the hernia was repaired. Intestinal biopsy taken from the ileum demonstrated normal pathology. Post-op course was complicated by feeding intolerance and continued gaseous distention and paucity of stool. Barium enema showed a small caliber colon consistent with disuse. This defect is likely an isolated defect due to vascular disruption and similar to gastroschisis. Abdominal wall defects occur in approximately 4 in 10,000 live births. Although rare, case reports of para-umbilical wall hernias exist and should be considered in patients with abdominal wall defects that don’t fit the standard classification for gastroschisis or omphalocele.

Abstract 31 Figure 1
Case report A 24-day-old term, male infant born via uncomplicated C-section to a G7P7 mother with gestational diabetes was transferred to the emergency department for evaluation of emesis. The infant had new-onset non-bloody, non-bilious emesis for one day as well as non-bloody loose stools. The infant was ill-appearing with a pulse 190, blood pressure 55/25, respiratory rate 70, and saturation 94% on room air. The infant’s abdomen was notably distended, tender, and tense. The patient was placed on oxygen and resuscitated with 40 ml/kg of normal saline. Empiric antibiotics (pipercillin/tazobactam) were started to cover for common causes of neonatal and intraabdominal sepsis. Labs were remarkable for Hgb 7.7 gms/dL, Hct 22.7%, WBC 5.97 k/cumm, and platelets 83 k/cumm. CMP was remarkable for K 6.1 mmol/L, anion gap 17 mmol/L, BUN 25 mg/dL, and Cr 0.8 mg/dL. A venous gas showed pH 7.31, PCO2 35, PO2 31, Bicarbonate 18, and lactate 6.3 mmol/L. Blood and urine cultures were drawn, but CSF studies were deferred given the patient’s clinical instability. Respiratory and gastrointestinal viral PCR assays were both obtained and were ultimately negative. An abdominal radiograph showed diffuse gaseous distention of the bowel without evidence of obstruction or pneumatisis. Pediatric surgery was consulted and performed a digital rectal exam which produced a large volume loose stool that was hemocult positive. A nasogastric tube was placed for bowel decompression and intravenous fluid resuscitation was continued. The child was transferred to the PICU where he was intubated and started on pressor support. The most likely diagnosis at that point was felt to be malrotation with volvulus but an upper GI study was non-diagnostic. Given the patient’s rapid decompensation with continued concerns for volvulus, surgery performed an emergent exploratory laparotomy which revealed global ischemia of the small bowel consistent with diffuse necrotizing enterocolitis (NEC). Over the next 48 hours the child returned to the OR for two additional laparotomies without improvement in bowel perfusion. The infant transitioned to comfort care and died on hospital day 6. This case highlights the unique presentation of NEC in an otherwise healthy term neonate and the challenge of managing undifferentiated abdominal pathology in the neonatal period.
ANCA-associated vasculitides (AAV) have multi-organ involvement with necrotizing small-vessel vasculitis. These diseases can be severe and life-threatening if not appropriately managed. Prompt recognition and early treatment are important. The diagnosis of AAV is strongly suggested by a positive ANCA test; however, biopsy of the affected organ is the most definitive method to establish a diagnosis. Despite treatment, AAV carries considerable disease-related morbidity and mortality mainly due to progressive renal failure or aggressive respiratory involvement. Our case is unique as pediatric AAV are rare, and her rapid progression highlights the importance of thorough workup and monitoring.

**AN UNUSUAL OVERDOSE CAUSING METHEMOGLOBINEMIA AND ACUTE KIDNEY INJURY IN A 14 YEAR OLD GIRL**

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**Case report** Acute poisoning remains an important reason for admission in the pediatric emergency department. Often, determining the causative agent to guide the patient’s care can be very challenging. We present a 14 years old female who came to the pediatric emergency due to diffuse abdominal pain and non-bilious emesis along with red urine 12 hours after taking a large amount of an unknown medication at home as a suicide attempt. On arrival she had low oxygen saturations (88%) and dusky/cyanotic nail beds with an otherwise reassuring physical exam. Despite oxygen therapy, oxygen saturation remained low. Since the lungs were clear and her cardiac exam/perfusion were normal, the sat probe was moved to the ear lobe where oxygen saturation was normal. Workup revealed elevated methemoglobin (28.2%), lactate (2.5), creatinine (1.64), indirect bilirubin (1.81) and LDH (750). Urine drug screen, Acetaminophen, Aspirin and alcohol levels were all negative. Chest radiography, electrocardiogram and renal ultrasound were normal as well. After a very thorough investigation (including a home search for empty bottles) it was discovered that the patient had taken a large amount of Clarithromycin and Pyridium. Acute kidney injury/perfusion was normal, the sat probe was moved to the ear lobe where oxygen saturation was normal. Workup revealed elevated methemoglobin (28.2%), lactate (2.5), creatinine (1.64), indirect bilirubin (1.81) and LDH (750). Urine drug screen, Acetaminophen, Aspirin and alcohol levels were all negative. Chest radiography, electrocardiogram and renal ultrasound were normal as well. After a very thorough investigation (including a home search for empty bottles) it was discovered that the patient had taken a large amount of Clarithromycin and Pyridium. Methemoglobinemia and acute kidney injury, lead the team to identify Pyridium as the causative agent. The patient was subsequently treated with Methylene blue, Acetylcysteine and aggressive fluid rehydration. Her creatinine peaked at 2.54 but normalized after interventions. She was ultimately medically cleared and transferred to a Psychiatric facility for treatment of her depression and multiple suicidal attempts.

A variety of case reports describe the adverse effects caused by Pyridium. Acute kidney injury, Methemoglobinemia and hemolysis are common presentations. Almost all of these cases involve adults with pre-existing renal disease using therapeutic doses. Pyridium overdose is very rare. Our goal is to increase awareness of the potential toxic effects of this over the counter medication, as well as, to highlight the importance of conducting a thorough investigation towards finding the causative agents in pediatric drug intoxications.

**GROUP B STREPTOCOCCUS: A CULPRIT IN MORE THAN JUST INFANTS**

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**Case report** Introduction: Group B Streptococcus (GBS), S. agalactiae, is a bacterium often screened for in pregnant women and associated with neonatal infections. However, GBS disease is also rising among nonpregnant adults, especially among immunocompromised patients. The mean age of nonpregnant adults with invasive GBS disease is 60 years, and the associated mortality rate is 25%. It can present as skin and soft tissue infection, osteomyelitis, pneumonia, urosepsis, and meningitis. There is very limited data on GBS disease occurring in the pediatric population past the infancy stage.

**Case presentation** A 16 yr old African American male with history of fibroma of the right knee presented with 3 week history of right foot and knee pain that started after a febrile illness. Pain was severe and limited his ability to walk. Due to persistent right knee swelling, MRI of the knee was done. Lytic lesions were noted on imaging, so bone biopsy and knee aspiration were subsequently performed. He underwent debridement and irrigation of right knee in the operating room and then started on intravenous (IV) antibiotics. Joint fluid culture grew Group B Streptococcus. Bone biopsy showed acute on chronic osteomyelitis with infiltration of histiocytes and plasma cells. He was discharged on 4 weeks of IV ceftriaxone followed by 4 weeks of amoxicillin.

**Conclusion** While the incidence of GBS infections is rising, the percentage of those in non-pregnant adults who present with joint infections is 5.4%, with few cases reported in children greater than 2 years of age. GBS osteomyelitis most often occurs by contiguous spread or direct inoculation. Patients at increased risk for GBS include those with underlying medical conditions, immunocompromised states 10%, diabetes 41%, cardiovascular disease 36%, and underlying malignancy 17%. There is risk for recurrent infection in 4.3% of survivors. Given that it is an unusual pathogen for the adolescent presenting with osteomyelitis, pediatricians should rule out any underlying comorbidity that may have increased their patient’s chance of developing the disease. Since our patient had presence of lytic lesions with histiocytes on bone biopsy, he was referred to oncology for further workup of Langerhans histiocytosis.

**TRICYCLIC ANTIDEPRESSANT INDUCED BRUGADA PATTERN**

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**Case report** 16-year-old male presents with encephalopathy after suicide attempt. Toxicology labs notable for amphetamines, opiates, THC, and TCAs. Initial ECG was normal. Repeat ECG two hours after admission showed Brugada Type 1 pattern in V2 as did repeat ECG at eight hours (though in V3). Patient had a history of two syncopal episodes over the prior two months, with a history most consistent with postural orthostatic tachycardia syndrome (often a diagnosis of exclusion). Genetic testing showed variation of uncertain
A Lapse in Differential: Wrong Place, Wrong All That Scares Is Not Ringworm

Abstract 38 Figure 1  Colo-colonic intussusception involving the left colon

Case report  5 year old male presented to the emergency department due to intermittent cramping abdominal pain for 1 week. Associated symptoms included watery stools and nonbloody, non-bilious emesis. His abdomen was diffusely tender to deep palpation with no guarding or rebound tenderness. Work-up included a normal abdominal x-ray. Parents gave a history of recent constipation and withholding behavior.

Oral polyethylene glycol regimen was started and patient received an enema. The enema lead to partial rectal prolapse that spontaneously reduced. CT showed colo-colonic intussusception involving the left colon without obstruction or identifiable mass. Barium enema reduced the intussusception and revealed a filling defect at the splenic flexure. Pain returned and ultrasound confirmed recurrent intussusception. Colonoscopy, EGD, and laparoscopy did not reveal a lead point. Exploratory laparotomy discovered a ganglioneuroma, a rare slow growing, benign tumor.

80–90% of intussusception cases present in children under two years old, and 90% of cases are ileo-colonic. Intussusception is largely idiopathic, with pathologic lead points present in only 25% of cases. Our patient was at higher risk for delayed diagnosis due to atypical age range, with colo-colonic intussusception, caused by a lead point not visible on CT scan.

39  ALL THAT SCALES IS NOT RINGWORM

C Marbrey*, E Aitken, MN Frascogna. University of Mississippi Medical Center, Jackson, MS

Case report  Tinea capitis is a common pediatric condition characterized by hair breakage, lymphadenopathy (LAD) and scaly scalp lesions. Even routine treatment requires weeks of antifungal therapy. We present a case involving a 17-month-old healthy male who initially presented to his pediatrician with what seemed to be a stubborn case of tinea capitis, which despite several months of treatment failed to resolve. He was transferred to the pediatric emergency department (PED) for severe, worsening scalp lesions and LAD, with new onset fever and anemia.

Seven months prior to presentation, the patient was started on a prolonged course of Griseofulvin for presumed tinea capitis. Over the next 6 months he developed left post auricular and large right preauricular swelling, worsening scalp lesions and was ultimately hospitalized for intravenous (IV) antifungal, antibiotic and steroid therapy. His scalp had good response to IV therapy, however shortly after discharge the lesions returned. A few days prior to arrival in the PED, he developed fever to 105 and increased LAD. He was taken to an outside hospital where laboratory tests showed an elevated white blood cell count (15), anemia (8.5), normal platelets (445) and was transferred.

In the PED, he was afebrile and vitals were stable. He had thick scaly plaques throughout his scalp, swelling with tender fluctuance to the left post auricular area and swelling with overlying bruising and petechiae to the right preauricular area. He also had bilateral otitis media. Ultrasonography was concerning for bilateral, complex head/neck abscesses. Further investigation with computed tomography revealed aggressive, osseous destruction of the bilateral temporal bones with invasion into the right zygoma and LAD, concerning for Langerhans Cell Histiocytosis (LCH). Lung nodules were also noted. The diagnosis of LCH was confirmed with biopsy of the head/scalp lesions and he was started on chemotherapy.

Treatment remains ongoing with resolution of the lung nodules and overall good response to therapy. LCH is an incredibly rare childhood illness with a poorer prognosis in
children under 2 years of age. This case highlights the varying presentations of this rare illness, as well as our own anchoring biases that can lead to delays in diagnoses and potentially dangerous therapies.

**Introduction**

Pleural effusions are uncommon in the pediatric population. Fifty to seventy percent of pleural effusions are caused by infectious etiologies: pneumonia, lung abscesses, or bronchiectasis. The incidence of pleural effusions associated with pneumonia has been increasing, with a current estimated incidence of 3.7 per 100,000 children.

**Case summary**

This case describes a 19-month-old African American female with a history of recent influenza infection who developed respiratory distress. Initial labs showed evidence of acute liver failure with significant elevations of her liver enzymes and an elevated INR at 2.3. A chest x-ray (CXR) demonstrated a right upper lobe pneumonia and a right-sided pleural effusion. A chest tube was placed and revealed sanguineous drainage. The patient was presumed to have a pleural effusion and acute liver failure secondary to sepsis as her blood cultures were positive for GAS. However, upon review of her initial chest X-ray, she had a displaced fracture of the posterior lateral right eighth rib. Both the pleural effusion and the acute liver failure were determined to potentially be caused by blunt trauma. This was concerning for non-accidental trauma (NAT), so a skeletal survey and ophthalmology exam were completed and were both normal. The patient’s respiratory status and liver function improved, and she was discharged to home after DCFS involvement.

**Discussion**

NAT can present in various ways. Examples of initial physical exam findings include bruises in various stages of healing, skeletal fractures in non-ambulatory children, and immersion burns. Risk factors for NAT can be grouped into three categories: parental, child, and social. This patient had multiple social risk factors for NAT. It is important to have a high index of suspicion for NAT in children with risk factors. Not every pleural effusion is caused by the most common etiology.

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**Case reports in cardiovascular medicine**

2:00 PM

**Thursday, February 13, 2020**

**41**

**ACUTE PERICARDITIS COMPLICATED BY ATRIAL FLUTTER AND ACUTE STROKE: A MANAGEMENT DILEMMA**

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10.1136/jim-2020-SRM.41

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**Purpose of study**

A 62-year-old very healthy gentleman with a history of seasonal allergies presented to the hospital with stroke symptoms. Initial complete blood count showed an eosinophilic count of 44 thousand. The patient’s transthoracal echocardiogram showed a left atrial appendage with thrombus. For initial concern of cardiac embolic phenomenon, anticoagulation therapy was started but a subarachnoid hemorrhage soon developed. His course complicated quickly to include renal failure. The patient was transferred to a tertiary center where he was dialyzed and improved significantly. Despite improvements and steroid treatment, he remained in critical condition.

**Methods used**

Patient chart and literature review of ‘Eosinophilic Myocarditis with Thrombosis’, 1, 2

Summary of results His cardiac magnetic resonance imaging (MRI) and biopsy both suggested confirmatory diagnosis of eosinophilic myocarditis with left ventricular ejection fraction of 35% with acute congestive heart failure symptoms. He received a dose of cyclophosphamide and heart failure...
medications. Eosinophilic myocarditis with thrombotic phenomena is a very rare condition and presents as a stroke phenomenon and often found to have a left atrial appendage clot. There are 3 stages of eosinophilic myocarditis progression: inflammatory, thrombotic and fibrotic.

Conclusions The patient is doing very well on cyclophosphamide to date.

REFERENCES

43 PULMONARY EMBOLISM MIMICKING AS ACUTE MYOCARDIAL INFARCTION; SEARCHING FOR A NON-ISCHEMIC CAUSE OF TROTONIN ELEVATION
RD Silva-Cantillo*, J Escabi-Mendoza. VA Caribbean Healthcare, San Juan
10.1136/jim-2020-SRM.43

Case report Most patients with type-1 acute myocardial infarction (AMI) have evidence of obstructive coronary artery disease (CAD) on coronary angiography. However, in the absence of obstructive CAD, the remaining patients can be separately termed as myocardial infarction (MI) with non-obstructive CAD (MINOCA) after excluding other ischemic and non-ischemic etiologies. We present this case as an example of the appropriate diagnostic work-up.

A 66-year-old man with history of hypertension and previous appendectomy for acute appendicitis. On this presentation, he was found to have chest pain and shortness of breath (SOB) that resolved after treatment with nitrates and morphine. His physical examination was unremarkable. Arrival electrocardiogram (ECG) revealed inferior ST segment depressions, and serial cardiac troponins were positive for AMI. He was admitted to the coronary care unit with a diagnosis of non-ST segment elevation MI. A coronary angiography was performed within 24-hours with evidence of non-obstructive CAD. In view of echocardiographic evidence of mild right ventricle dilatation and initial complaints of SOB, D-dimers were requested for assessment of pulmonary embolism (PE). Despite a Wells’ score of 0, the reported D-dimer were markedly elevated. Prior to a diagnostic chest CT angiography (CCTA) the patient became clinically unstable with respiratory failure and hemodynamic compromise requiring emergent endotracheal intubation and vasopressors. His ECG showed new onset atrial fibrillation and right bundle branch block. After stabilization, CCTA confirmed the presence of a large saddle PE. He was treated with alteplase and full anticoagulation, and despite a prolonged hospital stay, he was finally discharged on chronic anticoagulation.

This case illustrates an atypical presentation of PE mimicking as AMI, highlighting the importance of a thorough evaluation prior to assuming a diagnosis of MINOCA which should be kept as a diagnosis of exclusion. Expert opinion recommends a stepwise diagnostic approach that should start by promptly excluding alternative causes of non-ischemic myocardial injury for pertinent time sensitive diagnosis and care.

44 STEMI OPENS EYES TO RIGHT ATRIAL METASTATIC RENAL CELL CARCINOMA
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10.1136/jim-2020-SRM.44

Introduction Renal cell carcinoma (RCC) represents about 3% of all cancers in the United States. While the incidence of RCC has been increasing, there has been a steady decline in the size of tumors and a rise in the 5-year survival, which may be due to increased utilization of improved imaging and curative surgery.

RCC is a highly vascular tumor which tends to metastasize early. Up to 10% of patients with RCC have tumor thrombus involving the renal vein and inferior vena cava (IVC) and up to 1% of patients have tumor thrombus extending into the right atrium. Hematogenous spread of the tumor to the heart is much more common than lymphatic spread and associated with a better prognosis.

Case A 62-year-old female presented to an outlying facility with paresthesia of the left arm, lightheadedness, and nausea, and was found to have ST elevations in the inferior leads with sinus bradycardia and elevated troponin of 0.184 ng/mL. She was administered alteplase, placed on heparin and nitroglycerin drips, and transferred to our facility. Echocardiography showed normal left ventricular function and a right atrial inferior wall mass. She underwent coronary angiography, which showed significant 3-vessel disease with significant left main disease and was referred for coronary bypass grafting, during which the mass was excised and sent for pathology and found to be clear cell renal carcinoma. CT imaging revealed a 5 cm right kidney lower pole lesion with no enhancement, filling defects within the infrahepatic IVC and right inferior renal vein extending into the IVC, and no pulmonary or intracranial metastasis.

Discussion The typical symptoms of RCC include flank pain, a palpable mass and hematuria, however with increased utilization of imaging this has become more the exception rather than the rule. This is the only documented case of a patient diagnosed with RCC incidentally during MI, as cardiac metastasis is asymptomatic until coronary compression or outflow tract obstruction.

The median survival period of patients with metastatic RCC is 6 to 12 months, and the 5-year survival rate is only 9%. In the non-emergent setting, it may be warranted to investigate a new mass which may be associated with a poor prognosis prior to undergoing any invasive operations.

45 CARDIAC TAMPOONADE FROM METASTATIC APPENDICEAL ADENOCARCINOMA: FIRST REPORTED CASE
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10.1136/jim-2020-SRM.45

Case presentation A 69 year old female presented with worsening dyspnea for a month. She had a history of moderately differentiated non-mucinous appendiceal adenocarcinoma, diagnosed 10 months prior on pathology from an emergent appendectomy for acute appendicitis. On this presentation, echocardiography revealed a large pericardial effusion with tamponade physiology (figure 1A). Emergent pericardial
window was successfully performed. Pericardial fluid cytology and tissue histology with immunostaining was consistent with metastatic adenocarcinoma (figure 1B). Investigations for an alternative primary were unremarkable including mammography and computerized tomography imaging of the chest, abdomen, and pelvis. The patient was referred to oncology for further management.

Discussion: Apppendiceal adenocarcinoma accounts for less than 1% of all gastrointestinal neoplasms. There are rare reports of metastases to the liver, lung, thyroid and genitourinary system. However, cardiac involvement has never been reported. The rarity of metastatic appendiceal cancer portends a paucity of high quality evidence behind management strategies. Whilst select cases may be suitable for solely appendectomy, most experts recommend right hemicolecotmy to reduce the risk of poorer outcomes, as in our case. There are promising data supporting systemic chemotherapy, usually combination fluorouracil and platinum based regimens, that have shown improved overall survival even in patients with metastatic disease.

Learning points: Incidentally diagnosed appendiceal cancer on pathology should prompt case specific consideration for aggressive management given the risk of late distant metastasis.
Corrected to prevent such life threatening sequelae. Although ECGs do not reliably indicate hyperkalemia in every situation, in cases of marked hyperkalemia, changes found on ECGs may be the first warning. Here, we report a case of hyperkalemie cardiac suppression manifesting as a conduction delay. This case demonstrates that ECGs are a useful tool for early recognition and treatment of hyperkalemia even in the absence of labs.

Abstracts

48 ARE IMPLANTABLE CARDIOVERTER DEFIbrillATORS APPROPRIATE AMONG PATIENTS WITH CHRONIC KIDNEY DISEASE?

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10.1136/jim-2020-SRM.48

Purpose of study To investigate whether the use of implantable cardioverter defibrillators (ICDs) among patients with chronic kidney disease (CKD) or end stage renal disease (ESRD) is appropriate for primary or secondary prevention of sudden cardiac death (SCD).

Methods used We conducted a systematic review of studies that have investigated the use of ICDs among patients with CKD or ESRD in PubMed. The following MeSH terms were used: (‘ICD’ OR ‘Implantable cardioverter defibrillator’ OR ‘defibrillator’) AND (‘CKD’ OR ‘Chronic kidney disease’ OR ‘Kidney failure’ OR ‘ESRD’ OR ‘End stage renal disease’ OR ‘Renal Failure’) AND (‘appropriate’). We then compared the rates of anti-tachycardia pacing (ATP) or shock and mortality among patients with versus those without CKD or ESRD.

Summary of results We identified 57 studies out of which we selected 18 studies that had data on the use of ICDs among CKD/ESRD patients and ATP/shock and/or mortality. Most of these studies were either prospective or retrospective cohort in design. Patients with CKD/ESRD tended to be older and had more comorbidities. Patients with CKD/ESRD were more likely to get ATP or shock and they had higher cardiac and/or all-cause mortality compared to patients without CKD/ESRD. Moreover, studies showed that these associations had an inverse dose-response effect with worse outcomes with decreasing kidney function. Our search revealed only one small randomized controlled trial (n=188) that investigated the use of ICDs in ESRD among patients with left ventricular ejection fraction ≥35% and showed no mortality benefit.

Conclusions Our review findings show that the use of ICDs in CKD/ESRD is associated with increased ATP/shocks and mortality suggesting that their routine use in this patient population may be associated with more adverse outcomes than benefits. Large and better designed studies to further investigate the usefulness of ICDs in CKD and ESRD are warranted.

49 TESTICULAR PAIN: IT’S THE HEART OF IT ALL

P Snyder*, A Watson, EB Crawford, C Tan. UAB, Birmingham, AL

10.1136/jim-2020-SRM.49

Case report A 12-year-old male presents to the emergency department with four days of abdominal pain and vomiting. A few days prior, he was diagnosed with dehydration after reassuring abdominal x-ray and basic screening labs. In the interim, his symptoms worsened including progressive exhaustion with activity. On exam, he was tachycardic to 112, tachypneic to 40, and hypotensive to 91/64 mmHg. His abdomen was diffusely tender to palpation with guarding, and he endorsed right-sided testicular pain without swelling, skin color changes, or abnormal testicular lie. Initial workup included a testicular ultrasound negative for testicular torsion followed by a contrasted abdominal and pelvic CT scan notable for small bowel to small bowel intussusception and hepatomegaly. Upon further review, imaging also identified incidental cardiomegaly. Labs noted significantly elevated liver transaminases with synthetic dysfunction, acute kidney failure with associated electrolyte disturbances, and a brain natriuretic peptide >3,000. Echocardiogram revealed grossly dilated cardiomegaly with an ejection fraction of 23%, significantly enlarged left atrium, and severe mitral regurgitation. Patient was admitted to the CVICU for further management of dilated cardiomyopathy (DCM) with associated decompensated heart failure. He then required a prolonged course of veno-arterial extracorporeal membrane oxygenation for persistently low cardiac output in addition to continuous renal replacement therapy for renal failure. Once decannulated, he required both right and left ventricular assist devices to bridge him until a successful heart transplantation.

Discussion The etiology of congestive heart failure in pediatrics varies by age group, and DCM tends to be the most common cause. Clinical features include abdominal pain, anorexia, respiratory distress, poor weight gain, and hepatomegaly. In DCM, abdominal complaints are the most common presenting symptoms across all pediatric age groups, and occur more frequently than respiratory symptoms in adolescents. With isolated GI complaints, heart failure is often recognized late and picked up incidentally on imaging.

Conclusion Unlike adults, children can present with a myriad of nonspecific symptoms when in heart failure. Recognition of these symptoms is critical in timely diagnosis and treatment.

Moving your clinical case presentation into a published manuscript

2:45 PM

Thursday, February 13, 2020
MYSTERIES OF CARDIAC TAMPOANDE

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10.1136/jim-2020-SRM.50

Case report Cardiac tamponade (CT) is a potentially fatal medical emergency caused by the accumulation of fluid in the pericardial space. We report a case of low-pressure CT of unknown etiology, where PR segment depressions in 12-lead EKG could help with early recognition of this condition.

A 44-year-old female referred from outside facility with chest pain and dyspnea. Initially, she received tPA for a possible ST-segment elevation myocardial infarction. However, upon arrival to ED, her EKG showed PR depressions in inferior leads along with troponin elevation. Left heart catheterization was normal, as was the work up for pulmonary embolism. Echo showed underfilling of the left ventricle, small right ventricle with collapse of right atrium, small pericardial effusion and respiratory variations on mitral valve inflow. While being worked up, she went into PEA cardiac arrest. Emergent pericardiocentesis was performed with 140cc of serosanguineous fluid aspirated, but patient could not be revived.

Among various types of CT, low-pressure tamponade is often seen in patients with severe volume depletion. These patients often have abnormal findings on ECHO, such as chamber compression, IVC dilation and respiratory variations in flow and volumes. However, they lack the classic physical presentations of elevated JVD or pulsus paradoxus. In an acute setting, 150cc of pericardial fluid is enough to cause severe hemodynamic instability. Presence of PR depression on EKG was found to be 86% specific with 95% negative predictive value. Early diagnosis and treatment are keys to reducing mortality. European Society of Cardiology (ESC) Working Group on Myocardial and Pericardial Diseases developed a scoring system, which is used to stratify patients who need immediate intervention. CT is a fatal condition without prompt intervention. Early detection of low-pressure CT is challenging due to lack of classic clinical signs. Careful examination of other indirect evidence like PR depressions on EKG may aid with early recognition of this fatal condition. We conclude that combining abovementioned EKG findings with ECS Working group scoring system helps with early recognition and prevention of potentially fatal outcome.

Adolescent medicine and pediatrics

Joint plenary poster session and reception

4:30 PM

Thursday, February 13, 2020

NOT JUST ANOTHER VIRUS: LEUKOPENIA AND TRANSAMINITIS IN AN 18-MONTH-OLD MALE

1F Ajmal*, 1M Goldstein, 1F Levent, 1F Laham, 1S Carroll, 1AdventHealth Orlando, Orlando, FL; 2Orlando Health Arnold Palmer Hospital, Orlando, FL

10.1136/jim-2020-SRM.51

Case report Human Immunodeficiency virus (HIV) is a relatively uncommon diagnosis in the United States since 1985 as a result of highly effective screening assays and protocols. Since the mid-1990s the number of reported pediatric Acquired Immunodeficiency Syndrome (AIDS) cases has significantly decreased because of prevention of mother-to-child transmission of HIV, and implementation of antenatal HIV testing. Early diagnosis and treatment are essential, as the prognosis for survival is poor in untreated infants. Untreated infants may develop AIDS-defining conditions during the first 6 months of life, including pneumocystis pneumonia, progressive neurologic disease and severe wasting; all poor prognostic markers.

Case presentation We present a case of a previously healthy 18-month-old male who presented for evaluation of leukopenia and worsening transaminitis, with recurrent vesicular rash. He underwent extensive evaluation, all unremarkable, however nasal polynuclear chain reaction swab was positive for rhinovirus/enterovirus. HIV screen was positive with DNA qualitative PCR resulting HIV 1 Ab positive. Further evaluation revealed a high viral load of 988,009 copies/ml, and low CD4 count of 185cell/uL and CD4 helper cells 8.2%, consistent with a diagnosis of AIDS. Additional work up of the vesicular rash included a positive serum varicella zoster PCR, and he was initiated on Acyclovir. He improved clinically and was discharged home to continue treatment with Zidovudine, Lamivudine and Raltegravir, with Acyclovir, Pentamidine and Azithromycin prophylaxis. Maternal intrapartum screening seven months prior to delivery was reported as negative, however after diagnosis parental evaluation was performed which yielded a positive HIV screen in both parents. The transmission is thought to be from breastfeeding.

Conclusion Our goal is to emphasize the importance of HIV testing in the setting of unexplained transaminitis and leukopenia, with a reminder that an AIDS defining illness such as varicella zoster may be the initial presentation.

RELATIONSHIP OF DEPRESSION WITH BLOOD PRESSURE AND PULSE RATE

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10.1136/jim-2020-SRM.52

Purpose of study The purpose of this study is to determine if there is a relationship between depression on blood pressure and pulse for adolescents over 13 years attending an Adolescent Medicine clinic.

Methods used A database was created of adolescents diagnosed with a depressive disorder. A control group without depressive diagnosis was used for comparison. Outcomes were systolic and diastolic BP percentiles and pulse rates.

A two-way type III ANOVA using transformed variables was used to analyze systolic and diastolic BP percentiles and pulse rates as dependent variables and sex (male/female) and depression status (depressed/non-depressed) entered as fixed factors.

Summary of results On two-way type III ANOVA using transformed variables, there was a significant main effect of depression with higher systolic blood pressure percentiles in depressed patients vs. non-depressed (F (DF 1) =4.48, p=0.036) but not with sex of patient. There was no sex by depressed interaction. There was no main effect of
A CASE REPORT OF MERCURY POISONING PRESENTING WITH NEUROLOGIC MANIFESTATIONS, DESQUAMATING RASH, TACHYCARDIA, AND HYPERTENSION

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Purpose of study Mercury poisoning can present with multisystem involvement. Without an obvious history of exposure it can be challenging to diagnose and even harder to treat.

Methods used Chart review.

Summary of results A previously healthy 13-year-old male who was exposed to elemental mercury found in a home garage developed multiple sequelae over the course of several weeks. His symptoms included weakness, anorexia, neuropathy, acro-dynia, tachycardia, hypertension, and new onset seizures. Heavy metal screening labs were finally obtained seven weeks after exposure, which were significant for a blood mercury level of 9 ug/L and a 24-hour urine mercury level >72 ug/d. He also had an elevated 24-hour urine normetanephrine level (725 ug/d), which explained his pheochromocytoma-like manifestations. Our patient was started on chelation therapy with DSMA Succimer. Despite initiation of chelation and additional symptomatic supportive care, he had a fluctuating clinical course with an ongoing long-term recovery.

Conclusions This case represents the complex presentation of mercury poisoning in children. We hope that promoting screening for heavy metal exposure leads to earlier recognition and treatment, which can potentially mitigate toxic effects. At this time, long-term sequelae are not fully understood.
17 YEAR OLD WITH SERIOUS LIVER DISEASE PRESENTING WITH MILDLY ELEVATED LIVER ENZYMES

JJ Burns*, S Durganna, University of Florida, Pensacola, FL

Case report A 17-year-old morbidly obese female presented for evaluation of abdominal pain in the epigastric, and right and left upper quadrant area, with 7/10 intensity that was worse with eating fatty foods accompanied with some dyspepsia. She also had nausea/vomiting, 3–4 times a week and recurrent weekly fevers of 101–102 F for years. She denied history of constipation, diarrhea, hematochezia, dysphagia, perianal disease, polyuria/polydipsia or dysuria. She has past medical history of anxiety, depression and migrane headaches. She was on Omeprazole 20 mg daily, Phenergan PRN nausea, Sertraline 100 mg daily and Topamax 25 mg daily.

On review of systems, she had fatigue, fever, shortness of breath, nosebleeds, headache, and dizziness, no snoring, and she had regular menstrual periods.

Social history was positive for depression and anxiety; she had suicidal thoughts in the past but none at time of presentation.

On physical exam, vital signs were remarkable for a weight of 291 pounds, BMI of 43.7 (>99th percentile). Blood pressure was 144/79 mmHg. She was not in acute distress, her lungs were clear to auscultation, heart sounds normal, abdomen was soft with no organomegaly. Fundi were normal and she had a normal neurological exam.

Liver enzymes were elevated with AST of 60 with repeat 3 months later of 70, ALT was 40 with repeat 3 months later of 53, CBC was normal. Her ESR 38, HbA1C was elevated at 6.4. Lipid profile revealed elevated LDL of 153 and triglycerides 187, with a low HDL. Tissue transglutaminase antibody, hepatitis serology, alpha 1- antitrypsin, ceruloplasmin, TSH, Vitamin B12, Folate, smooth muscle antibody and immunoglobulin levels were all normal.

An abdominal ultrasound showed an enlarged liver and spleen with findings suspicious for fatty liver. Further workup included an upper GI endoscopy which showed esophageal varices indicative of portal hypertension. A liver biopsy was later obtained which showed cirrhosis of the liver due to Nonalcoholic Steatohepatitis (NASH).

Nonalcoholic fatty liver disease (NAFLD) is found in 10 percent of children, with 23 percent of those with NAFLD having NASH. This patient presenting with early cirrhosis and portal hypertension, illustrates presentations can occur early in life with only mild elevations in liver enzymes.

Purpose of study Point-of-care ultrasound (POCUS) in pediatric emergency medicine (PIM) has been in use for more than 10 years. However, there is lack of recent data about POCUS in PEM fellowship programs. We assessed the current state of POCUS in PEM including POCUS use, methods of training, and perceived barriers to a structured POCUS program.

Methods used A survey link was emailed to 80 PEM fellowship directors (FD) and 4 reminders were sent from October 2018 to January 2019. The survey included questions about POCUS use in their program, POCUS training, credentialing and perceived barriers to a structured program. Incomplete responders were included in the analysis. We used descriptive statistics to calculate frequencies and proportions.

Summary of results Of 80 FD, 43 (53.8%) responded to the survey and 40 (50%) were complete. All responders reported that an ultrasound machine is available in the Pediatric Emergency Department (PED). Only 34% of FD reported performing POCUS in the past 6 months. All FD reported that PEM
Fellows receive some form of POCUS training of which 25% reported that fellows receive POCUS training from PEM physicians or general EM physicians and 26/39 (66%) of programs provide dedicated shifts for POCUS training. 25/40 (62.5%) reported having an US credentialing process; of those, 15/24 (62.5%) reported using criteria based on the 2016 American College of Physicians guidelines. 26/39 (66%) reported that lack of infrastructure and training was the most common barrier to a structured POCUS program at their institution.

Conclusions The type of POCUS training and the credentialing process varies widely among fellowship programs. This suggests the need for a standard curriculum for POCUS education in PEM fellowship training as well as recommendations for a specific credentialing process.

58 DIFFERENCES IN LEVELS OF INFLAMMATORY CYTOKINES AND PSYCHOLOGICAL ASSESSMENT OF OBESE AND HEALTHY ADOLESCENTS: IMPACTS OF SEX

S Helfley*, A Hernandez, T Vasyleva. Texas Tech University Health Sciences Center, Amarillo, TX

Purpose of study Obesity in adolescents is increasing at an alarming rate, as the CDC estimates that 1 in 5 adolescents is obese. The gut microbiome has been shown to contribute to obesity. Importantly, dysbiosis of the gut microbiome can lead to an increase in inflammatory cytokines, leading to the development of chronic diseases. In this study, we collected blood and urine for assessment of levels of the inflammatory cytokines, markers of endothelial dysfunction, and stool for gut microbiome. Furthermore, we evaluated mental health status of our participants. The goal of the study was to assess sex impacts on those parameters.

Methods used Twenty-two adolescents (10 males, 12 females) ages 8–18 (BMI >25) were recruited into the study. Blood, urine, and stool was collected from obese adolescents, while urine and stool were collected from participants with BMI <25. We obtained IRB approval and informed consent from the parents and participants. Blood and urine samples were analyzed for TNF-α, IL-6, and ET-1 by ELISA. Lipid profile and HbA1c of obese adolescents was analyzed by Quest Diagnostics. A self-assessment PSC-Y questionnaire was administered to all enrollees to evaluate mental health. Stool analysis includes V3–V4 regions of bacterial 16S rRNA genes amplified by PCR with a bacterial universal primer set containing Illumina adaptors.

Summary of results Interestingly, obese males were more likely to have high blood pressure and larger hip-to-waist ratios compared to females while lipid profile evaluation revealed differences between male and female obese adolescents, as we noted that males had increased triglycerides and HDL compared to females. Levels of TNF-α and ET-1 in obese adolescents were increased compared to healthy controls. Obese female adolescents were more likely to exhibit symptoms associated with depression and anxiety, while obese males were more likely to exhibit externalization and attention problems. Gut microbiome analysis in currently underway.

Conclusions This data suggests that adolescent obesity increases inflammatory cytokines and that sex impacts not only physiological parameters in response to elevated weight, but also psychological perceptions.

59 DESCRIPTIVE ANALYSIS OF PEDIATRIC DROWNINGS SEEN IN EMERGENCY DEPARTMENT


Purpose of study Drowning is the #1 cause of injury death in children aged 0–4 years. The objective of our study was to describe the pediatric drowning cases seen in the emergency department (ED).

Methods used We reviewed medical records of all patients presenting to the Pediatric ED between January 2016 through June 2019 with the diagnosis of drowning identified using ICD-9 and ICD-10 codes. Demographics (gender, age, race), Emergency Severity Index (ESI) level (ESI is stratified from level 1 to level 5 with 1 most severe), drowning body of water (pool, pond, hot tub/bath tub, septic tank, creek, river, lake), whether cardiopulmonary resuscitation (CPR) was performed and outcomes including disposition and length of hospital stay were reviewed. We performed descriptive analysis including frequencies and proportions, mean (± SD) and median (interquartile range).

Summary of results 110 patients were identified with a mean age of 4.6 (± 1.2) years. 66 (60%) were male, 70 (63.6%) were Caucasian, 37 (33.6%) Black, and 3 (2.7%) Other. In 83 (75.3%) cases, pool was the drowning body of water. About 60% of drowning cases were seen during the summer months (May–June). Median ESI level was 3 (2.75 to 4). CPR was performed by medical professionals in 48 (43.6%) cases and CPR was given by non-professionals in 43 (39.1%) cases. 58 (52.7%) were discharged home and 50 (45.5%) were admitted to the hospital including 8 cases admitted to the Intensive Care Unit. One patient expired. One patient left the ED without being evaluated. Mean length of stay was 23 (± 9.7) hours.

Conclusions Despite efforts to prevent drowning, the number of pediatric drowning events is significant leading to increased hospital burden. Drowning prevention education, especially with regard to pools and pre-school aged children, should be a focus of our injury prevention efforts.

60 MORAXELLA CATARRHALIS INFECTIOUS ARTHRITIS AS AN INAUGURAL EVENT IN THE DIAGNOSIS OF SYSTEMIC LUPUS ERYTHEMATOSUS

1SP Holt*, 2S Parkhurst. 1University of Tennessee Health Science Center, Memphis, TN; 2UTHSC, Memphis, TN

Purpose of study Moraxella catarrhalis is a rare pathogen, which can cause chronic musculoskeletal and neurologic infections, including arthritis. In this case-report, we describe a case of chronic moraxella arthritis associated with systemic lupus erythematosus (SLE). SLE is a systemic autoimmune disease characterized by inflammation, immune complex deposition, and tissue injury.

Case report A 15-year-old girl presented with 2 days of right elbow pain and swelling and fatigue and pre-school related activities. Workup included CBC significant for pancytopenia and elevated inflammatory markers. Ultrasound of the right elbow revealed a complex joint effusion containing debris and subsequent arthrocentesis showed a neutrophilic–predominant white blood cell count of only 18,500/mm³. As this was well-below
the diagnostic criteria of infectious arthritis, antibiotics were
not initially started until the patient became febrile without
another source of infection. Her synovial fluid grew Moraxella
catarrhalis, which in conjunction with her pancytopenia
prompted an autoimmune workup. Based off the SLICC cri-
teria (positive ANA and dsDNA, low complements, hemolytic
anemia, and leukopenia), she was diagnosed with mild-moder-
ate systemic lupus erythematosus. Once treated for septic arthritis, she was then started on pulse-dose steroids and
hydroxychloroquine.

Conclusions While infectious arthritis has been described in
patients with SLE, it typically manifests in patients with pre-
existant joint disease with a significant delay following the ini-
tial diagnosis. Additionally, the most commonly cited organ-
isms are S. aureus and Salmonella species rather than a
typically commensal respiratory organism, Moraxella catarrhal-
is, as this pathogen’s ability to cause invasive infection is
exceedingly rare. To our knowledge, there is only one other
reported case of Moraxella infectious arthritis in a lupus pa-
tient, but this patient was previously diagnosed with lupus
and was on immunomodulators for advanced lupus nephritis.
This demonstrates that lupus should be considered in demo-
graphically appropriate patients presenting with infectious arthritis as we present a rare case of infectious arthritis sec-
dary to M. catarrhalis as the inaugural event in the diagnosis of
SLE.

Purpose of study Sexually transmitted infections (STIs) are a
group of infectious diseases that can cause acute illness and
life-long health effects. Nearly half of all diagnosed cases
occur in adolescents and young adults, ages 15–24. The Amer-
ican Academy of Pediatrics and Centers for Disease Control
provide guidelines for routine STI screening for all sexually
active adolescents. Despite these recommendations, screening
rates in adolescents admitted to our hospital are low. The pur-
pose of this study is to use quality improvement methodology
to improve screening for HIV, gonorrhea, chlamydia, and
syphilis in adolescent patients in an inpatient setting.

Methods used Eligible patients included all adolescents ages
14–18 admitted to our hospital over 12 months. Following
baseline data collection, we introduced three interventions;
rates of sexual history documentation and STI screening were
recorded after each one. Interventions included providing resi-
dent education on the importance of STI screening, introduc-
ing prompts for sexual history taking in the History and
Physical form, and providing residents with a ‘badge buddy’
as a sexual history taking template.

Summary of results Prior to the intervention, 50% of patients
ages 14–18 were asked questions regarding their sexual histor-
ies; 30% of patients were tested for STIs. After three inter-
ventions, sexual history taking improved to 70%, and STI
screening rate improved to 53%. This represents an improve-
ment in the rate of STI screening by 23%.

Conclusions Simple interventions targeted at improving sexual
history taking and knowledge of STI testing recommendations
led to a significant increase in STI screening in an inpatient
adolescent population.

Purpose of study Despite safe sleep education provided to care-
givers, the overall infant mortality rate in the US remains
comparable to those of developing countries. In 2015, the
infant mortality rate in Tennessee was higher than the national
average, at 7/1000 live births, with Shelby County having the
second highest infant mortality rate in the state at 8.2/1000
live births. Nearly 92% of these infant deaths occurred in the
first six months of the infant’s life, and while cause of death
in many children cannot be explained, most of the sleep-
related deaths occurred while the infant was sleeping in an
unsafe sleep environment.

Methods used Infant sleep practices among caregivers with
infants less than 6 months of age were assessed through a
self-reported questionnaire administered in an academic gen-
eral pediatrics clinic setting. 13 multiple choice and 4 true/
false questions were used to obtain data on topics such as
demographics, sleep location and position, access to safe sleep
location, and bed sharing frequency.

Summary of results Surveys were collected and analyzed from
91 respondents, of which 84% were African American and
51% had completed a high school education or less. 93% of
caregivers reported owning a crib used solely for their infant.
While 39% of caregivers reported never placing their child in
a sleeping area other than a crib/bassinet at night, the remain-
ing 61% admitted to at least sometimes placing their child
elsewhere. Among these, 31% stated their children slept out-
side the crib less than 20% of the time. 41% of caregivers
reported their infant sleeps with another child or an adult in
a bed/chair at night at least some of the time. The majority
(88%) of caregivers place their infants on their backs to sleep.

Conclusions Though the majority of caregivers surveyed own
a crib for their infant and place the infant on their back to
sleep, many still report unsafe sleep practices such as co-sleep-
ing and not always utilizing their dedicated safe sleep
location. The larger issue in the surveyed population was not access
to safe sleep location, but unsafe sleeping practices despite
adequate materials. Physicians should ensure adequate parent
education regarding risks of unsafe sleep practices and its rela-
tion to high infant mortality rates, and stress safe infant sleep
practices for every sleep.

Purpose of study New Orleans Adolescent Reproductive Health
Project (NOARHP) teaches evidence-based sexual education to
high school students in Orleans and Jefferson Parishes.
Evidence suggests reproductive health education reduces teen pregnancy rates and STI/HIV transmission. The Centers for Disease Control and Prevention (CDC) ranked Louisiana sixth in the nation for teen birth rate and second for STI and HIV diagnoses. Our project focuses on developing a sustainable education model for students that contributes to reducing these rates.

Methods used Our curriculum was evaluated by an adapted CDC Health Education Curriculum Analysis Tool: Module Sexual Health guidelines. Students were administered a 47-question test before and after the 9-lesson instructional intervention to determine mastery in Healthy Behavior Outcomes (HBO). Using a pretest-posttest design, we compared learning across four charter schools and determined the effects of curricular modifications. Additionally, pretest results were compared across schools to determine any significant difference of baseline knowledge before intervention. Improvement in test scores was also stratified based on HBO group, and improvement in each HBO category for each school was determined.

Summary of results Average pretest grades showed significant difference in prior knowledge of sexual health between most schools. G.W. Carver (Spring 2014) scored 20.6%, Sci Academy 37.2%, G.W. Carver (Spring 2015) 26.6%, Kipp Renaissance 42.5%, and Lusher Charter 65.7%. Only the pairs G.W. Carver (Spring 2014)/G.W. Carver (Spring 2015) and Sci Academy/Kipp Renaissance did not show significant difference in pretest scores (p 0.382, p 0.502 respectively). The differences between pretest and posttest performance among the schools were: G.W. Carver (Spring 2014) 6.9% p 0.177, Sci Academy 18.1% p 0.001, G.W. Carver (Spring 2015) 0.001, KIPP Renaissance 7.1% p 0.013, Lusher Charter 11.2% p 0.001. Learning was also stratified based on HBO group. Increases in scores were observed in almost all questions across schools.

Conclusions Improved knowledge on reproductive health were observed in all participating schools. NOARHP continues to refine the existing curriculum and educate adolescents with the goal to improve adolescent sexual health and normalize a culture of disease prevention.

64 MORE THAN WEAK BONES: A CASE OF VITAMIN-D DEPENDENT RICKETS WITH 1-ALPHA HYDROXYLASE DEFICIENCY

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Case report A 7-month-old male who presented with respiratory distress and difficulty swallowing. He quickly underwent direct laryngoscopy, bronchoscopy, and frenectomy; however, he ultimately required endotracheal intubation. Initial chest x-ray showed diffuse osteopenia and multiple rib fractures suggestive of underlying rickets. Labs at admission: serum cal 7.1 mg/dL, ica0.95 mmol/L, PTH 1463pg/mL, alkaline phosphatase 4086units/L, 25OHD of 36.7 ng/mL, and 1,25(OH)2D of <10pg/mL. Pt was started on calcium, phosphorous, and calcitriol. Genetic testing was significant for CYP27B1 mutation. A diagnosis of vitamin D-dependent type I rickets secondary to 1-alpha hydroxylase deficiency was made.

Vitamin D-dependent rickets type 1A (VDDR 1A) is a rare autosomal recessive disorder associated with mutations in CYP27B1 gene which encodes 1-alpha hydroxylase. This enzyme converts 25-OHD to 1,25(OH)2D. Pts are healthy at birth and develop symptoms around 6 months of age. It is characterized by hypotonia and growth retardation. On imaging, individuals display enlarged metaphases, long bone bowing, and other signs of diffuse osteopenia. As in our patient, lab findings include hypocalcemia, low 1,25(OH)2D, elevated PTH, and increased to normal serum 25OHD. Treatment of VDDR 1A is calcitriol—better known as 1,25(OH)2D. With adequate treatment, children are seen to have restoration of muscle tone, improvement of radiographic findings, and achievement of milestones.
the healthy patients). In the obese patients 68% of the blood pressures were abnormal (22% in the healthy patients), 40% of the obese patients had an abnormal echocardiogram (25% in the healthy patients). The mean blood pressure load was 37.7% in the obese patients (20.4% in the healthy patients).

Of the patients already on blood pressure medication, 17 had abnormal ABPMs. They all subsequently had their medications increased by cardiology. We therefore conclude that ABPM can help optimize the treatment of pediatric hypertension. ABPM may be especially valuable in obese patients due to their risk of cardiac remodeling.

Conclusions Isolated blood pressure measurements at clinic visits are not sufficient to diagnose or optimize the treatment of pediatric hypertension. 24-hour blood pressure monitoring is a somewhat expensive test and may not always be covered by insurance; however there is no doubt that in these patients this test led to a significant improvement of the management of their hypertension. We therefore conclude that ABPM can help optimize the treatment of pediatric hypertension and may be especially valuable in obese patients due to their risk of cardiac remodeling.

Case report Kikuchi-Fujimoto disease is a rare and self-limiting condition with unknown etiology that is most commonly seen in young Asian women. It usually presents with low grade fever that varies from one week to one month, cervical lymphadenopathy between 2–7 cm, and other non-specific symptoms including rash, arthralgias, fatigue, night sweats, and weight loss. Histopathology of the involved lymph node typically differentiates it from more serious, life-threatening conditions that mimic similar clinical features, such as lymphoma.

Case Description We present the case of a previously healthy 15-year-old, African-American male, with a two week history of fatigue, low grade fever, and cervical lymphadenopathy with a prominent right supraclavicular lymph node. Lab work was significant for leukopenia, anemia of chronic disease, and mildly elevated ESR and LDH. Monospot testing was initially negative; however, EBV titers (both IgM and IgG) were found to be elevated. CT scan of the neck was consistent with bilateral cervical chain lymphadenopathy with a right supraclavicular lymph node measuring 2.5 x 1.6 cm. Peripheral smear was negative for blasts and immunotyping by flow cytometry was negative for lymphoid population. Supraclavicular lymph node excisional biopsy showed focal areas containing lympho-histiocytic infiltrate and immunohistochemistry stained with CD68 of the lymph node was positive for histiocytes, consistent with proliferative phase of Kikuchi-Fujimoto lymphadenitis.

Discussion Here is a very rare case of Kikuchi-Fujimoto disease preceded by EBV in a young African-American male. Etiology is unknown but preceding viral etiology has been proposed, such as EBV, HHV-6, HIV, Parovirus, or Parainfluenza, or even bacterial etiology with Yersinia enterocolitica or Toxoplasma. Although it is a self-limiting condition, patients should be followed within one to four months for recurrence and increased risk of developing systemic lupus erythematosus. This intriguing case of an uncommon cause of right supraclavicular lymphadenitis prompts investigation and recognition by physicians and pathologists for commonly misdiagnosing it as lymphoma and initiating treatment with cytotoxic agents.

Purpose of study Eating disorders are a heterogeneous group of psychiatric illnesses that occur in 1–7% of adolescents. They are associated with many medical comorbidities and have the highest likelihood of death among all psychiatric disorders. Despite these risks, they are under-diagnosed in adolescents both at the national level and in our local clinic setting. The purpose of this study is to establish the feasibility of screening in our clinic, estimate our population’s prevalence, and identify high-risk groups for further studies.

Methods used Patients ages 10–21 years presenting to our general pediatric or gastroenterology clinics were screened for eating disorders using the SCOFF questionnaire, a validated 5-question survey targeting food-related behaviors and body image. After identifying patients with positive screens, we performed a retrospective review of secondary characteristics, such as BMI percentile, gender, age, and chief complaint for office visit. Each patient with a positive screen was notified and referred to adolescent clinic.

Summary of results Of the 452 patients surveyed, 43 (9.5%) had positive screens with an average age of 13.7 years and average BMI of 28.4 (BMI percentile of 83.8). 16 of the positive screens were male (37%). The most common chief complaint was well-child visit; there were 4 positive surveys with the chief complaint of abdominal pain. Of the positive screens, the mean number of ‘yes’ answers was 2.3, most commonly ‘do you worry you have lost control over how much you eat.’ Less predictably, a third of positive screens were from males and half were from obese patients.

Conclusions The SCOFF questionnaire was successfully implemented into both clinics, and the percentage of positive screens surpassed the national average of eating disorders. This study proves feasibility and usefulness of SCOFF screening in our clinics and indicates the likelihood of under-diagnosis of eating disorders in our patient population. Further, it prompts providers to recognize that these patients may not have a low BMI, be female, or have food-related behaviors such as restriction but rather bingling. Additional investigation is needed into long-term follow up in adolescent clinic and eventual diagnosis.
Adult Case Reports/Aging/Geriatrics

Joint plenary poster session and reception

4:30 PM

Thursday, February 13, 2020

DE NOVO PULMONARY EMBOLISM IN A NURSING HOME RESIDENT AFTER DISCONTINUING ASPIRIN: A CASE REPORT

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10.1136/jim-2020-SRM.68

Case report An 86 year old Caucasian female, resident in a nursing home, with history of Parkinson disease, dementia related to Parkinson’s disease, and age-related osteoporosis, has decreased mobility and dependent edema in her lower limbs. She started to complain of blood oozing from her lower limbs. She discontinued Aspirin after taking it for many years. Ten days later, while working with the physiotherapist, the patient developed sudden-onset shortness of breath, her O2 saturation was 82% on room air, BP 158/99, HR: 92, RR: 30. Her chest and heart examination was unremarkable, except for the tachypnea.

Laboratory workup showed hemoglobin level 10.9 g/dL, platelet count 210/mcL, the metabolic profile was unremarkable, however, BNP level was 878. CT chest showed sub massive pulmonary embolism in right main pulmonary artery. Her EKG also showed right axis deviation and incomplete right bundle branch block, and the echocardiogram showed systolic flattening of interventricular septum consistent with right ventricular pressure overload, and severe right ventricular enlargement with mild to moderate tricuspid regurgitation and PA pressure of 75 mm Hg. Doppler ultrasound of bilateral lower limbs showed no evidence of DVT in lower extremities. She was given rivaroxaban and discharged on 4 L/min oxygen via nasal cannula.

In elderly population, bed rest is the most frequent risk factor for DVT and PE (15 – 67%). DVT is detected in only 15–50% of patients with PE, which means that older adults are at increased risk of developing de novo PE even in the absence of DVT. Despite the paucity of data regarding the use of aspirin as a prophylaxis for VTE and PE in high-risk patients, it is worthy to study the benefits and risks of using aspirin, low dose vs. high dose, in elderly population as prevention for thromboembolism.

ALL HIP PAIN IS ARTHRITIS...OR IS IT?

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10.1136/jim-2020-SRM.69

Case report Complaints of hip pain seem ubiquitous. Causes include trauma, arthritis, gout, bursitis, synovitis and osteonecrosis. This case presents an unusual diagnosis for hip pain. An 80 y/o M with a history of hypertension, IBS-D, and mild dementia presented to his PCP with hip pain. The pain was in the right anterior, upper thigh. It worsened after initiating a new walking regimen. It was worse at night and with leg rotation. He denied any swelling, knee pain, gait changes, weakness, or parasthesias. Exam was unremarkable: no edema, negative straight leg, strength 5/5, full range of motion and sensation intact in bilateral lower extremities, patellar reflexes 2+, negative Babinski. He was initially managed with physical therapy, and gabapentin. Due to persistent pain, we referred him to Orthopedics. He received a steroid injection without relief. EMG studies and x-ray were normal. Hip MRI showed a large mass (11 × 13 cm) in the right retroperitoneum adjoining the psoas muscle and displacing the kidney, concerning for a neoplastic process. CT chest/abdomen showed no evidence of distant metastasis. He had neo-adjuvant radiation and surgical resection of the tumor and right nephrectomy. Pathology showed well-differentiated liposarcoma. Repeat CT 5 months later showed no recurrence. This patient presented with hip pain due to lumbosacral nerve compression from a large retroperitoneal liposarcoma. These malignant tumors typically have vague presentations: abdominal/flank pain, early satiety, and lower extremity swelling. Local compression causes musculoskeletal, neurologic, and obstructive GU symptoms, however, the majority are asymptomatic and found incidentally.

MESENCHYMAL STEM CELL THERAPY FOR ROTATOR CUFF INJURY: A META-ANALYSIS OF ANIMAL AND HUMAN STUDIES

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10.1136/jim-2020-SRM.70

Purpose of study To systematically review and investigate the impact of mesenchymal stem cell (MSC) therapy on function and repair of rotator cuff injury (RCI).


Study selection: Human and animal studies examining MSC treatment for RCI. Three authors independently screened articles, titles, and abstracts. The protocol was registered with CAMARADES and adheres to the SYRCLE guidelines.
Primary outcomes: Preclinical: biomechanical metrics (ultimate load at failure, stiffness), Clinical: re-tear rates and shoulder imaging.


Statistics: Continuous data was pooled and expressed as standardized mean difference (SMD) with 95% confidence interval (CI).

Summary of results 858 abstracts were screened.

Preclinical: 19 animal studies were included; three-fourths of the MSCs were derived from adipose/bone-marrow tissue. All studies administered a single dose of MSCs at the time of surgical tendon detachment. Dose ranged from 500k to 300M cells. MSC treatment improved ultimate load failure [SMD 0.43, 95%CI (0.24, 0.62), p<0.01] and trended towards improved stiffness [SMD 0.20, 95%CI (0.42, -0.01), p=0.06].

Subgroup analysis favored autologous administration of adipose-derived MSCs; post surgical biomechanic assessment within two weeks; >10 million cell dose; and the rat animal RCI model. In general, MSC’s abated genes/proteins involved with inflammation, fibrosis, and improved wound healing.

Human studies: Six studies were included in the review comprising 319 patients. MSC tissue sources included adipose, bone marrow, and umbilical cord blood. All studies administered a one-time local dose of MSCs at the time of surgical repair. Overall, MSC therapy was safe, decreased rotator cuff re-tears, and in some studies decreased pain and improved functional outcome.

Conclusions Use of MSCs for rotator cuff injury suggests a promising role in biomechanical metrics and wound healing. Despite these findings, decreasing heterogeneity, risk of bias, and optimizing MSC characteristics may encourage translational success.

71 HIGH-GRADE B-CELL LYMPHOMA PRESENTING AS CHRONIC OSTEOMYELITIS

HR Cintón-Colón*, WD Marreto, V Fonseca-Ferrer, JG Rodriguez Velez, CR Rivera-Franceschini, M Miranda. San Juan City Hospital, San Juan - Puerto Rico. 10.1136/jim-2020-SRM.71

Case report A 64 y/o male patient w/medical history of chronic left leg ulcer presented to the emergency department complaining of further progression in ulcer size noticed more drastically during the past few months. He refers increase on burning abdominal and flank pain with associated nausea and vomiting.

Physical examination was unremarkable except for mild CVA tenderness. Lab results revealed a drug screen positive for methamphetamine abuse presented with three days of worsening abdominal and flank pain with associated nausea and vomiting. Obtained Bone biopsy showed changes consistent with chronic osteomyelitis. A few days later, patient started presenting with shortness of breath and new chest X-ray was obtained, demonstrating large bilateral pleural effusion and a small speculated lesion abutting from pleura. Thoracentesis was performed and exudate without neoplastic cells was obtained. Biopsy from speculated lesion was also obtained and immunohistochemistry was positive for c-myc, bcl-6, CD45, CD20, CD79a, and Ki-67, consistent with High-Grade B-Cell Lymphoma.

Chronic osteomyelitis unresponsive to appropriate management should raise concern for an alternate diagnosis as the main etiology for presentation. It is important for physicians to be aware of the possible association between chronic inflammation and HGBCL since prompt identification will lead to early initiation of appropriate medical management, thus, resulting in better prognosis.

72 IT’S NOT MY IMMUNITY! A CASE OF SYPHILITIC MEMBRANOUS GLOMERULONEPHRITIS

1,2EM Clark*, 1,2P Hirachan. 1LSU Family Medicine Residency – Alexandria, Alexandria, LA; 2Rapides Regional Medical Center, Alexandria, LA; 3Cenla Kidney Specialists, Alexandria, LA 10.1136/jim-2020-SRM.72

Case report A 22-year-old white female with a past medical history of celiac artery stenosis, renal calculi, herpes, and methamphetamine abuse presented with three days of worsening abdominal and flank pain with associated nausea and vomiting.

Physical examination was unremarkable except for mild CVA tenderness. Lab results revealed a drug screen positive for methamphetamine. Urinalysis showed >500 mg/dL protein. Serum creatinine 1.4.

Abstract 72 Figure 1 Renal biopsy of patient. Subepithelial deposits visualized, evidence of membranous glomerulonephritis.
creatinine peaked at 4. An abdominal ultrasound revealed enlarged bilateral echogenic kidneys. Immunologic studies were 
unremarkable. A kidney biopsy revealed membranous glomerulo-
nephritis with negative PLA2R suggesting secondary etiology. 
Infectious studies showed RPR titers at 1:128. FTA/BAS was 
confirmatory for syphilis.

She received three doses of steroids before kidney biopsy for 
possible glomerular pathology. Due to the patient’s known 
penicillin allergy and history of noncompliance, the patient 
derived penicillin desensitization and treated for secondary 
syphilis. Renal function continued to improve.

In the handful of reported patients with this particular pre-
treatment, all were immunologically suppressed. This should be 
a differential for patients despite immunologic status.

**A CURIOUS CASE OF ANEMIA**

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2Central Arkansas Veterans Healthcare System, Little Rock, AR

10.1136/jim-2020-SRM.73

Case report Anemia is commonly encountered in the outpa-
tient setting with a prevalence of roughly 15 million cases in the 
United States. Though internists frequently encounter iron 
deficiency anemia, we must remain vigilant to accurately diag-
nose more complex cases.

This is the case of a 33-year-old Hispanic man who pre-
sented to the ED from his primary care clinic for further 
evaluation of anemia. He reported daily nausea, vomiting, 
nonbloody diarrhea, and fatigue for the past month. His 
trial of Bismuth subsalicylate did not provide relief. He 
related a 35lb unintentional weight loss over the same time. 
Additionally, he reported non-productive cough and intermit-
tent 5-minute episodes of achiness, nonradiating, peri-prandial 
chest pain present for one month. The patient was diagnosed 
with iron deficiency anemia 2 weeks prior and had been 
begun on ferrous sulfate. He was also diagnosed with H. 
pylori and started on triple therapy. On exam, T 99.9 F BP 
110/68 HR 106 RR 25 SpO2 100% on room air. The 
patient appeared thin, but well with the exception of pale 
110/68 HR 106 RR 25 SpO2 100% on room air. The 
patient appeared thin, but well with the exception of pale

**A CASE OF OCULOMOTOR NERVE PALSY IN AN 
UNCONTROLLED DIABETIC**

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Sciences Center, Lubbock, TX

10.1136/jim-2020-SRM.74

Case report Up to 1% of diabetic patients may experience cra-
nial nerve mononeuropathy, characterized by abrupt onset, 
pain, and spontaneous recovery in 3–12 months. Cranial 
nerve III, IV, VI, and VII are most commonly affected. How-
ever, because the extraocular muscles are often only partially 
paralyzed, the clinical presentation is often diverse and identi-
fication of affected cranial nerve (CN) is a challenge [1]. The 
differential diagnosis includes giant cell arteritis (GCA) and 
posterior communicating artery (PCA) aneurysm, which must 
be ruled out. Treatment consists of strict glucose control and 
medication adherence. A thorough history, along with com-
plete neurological and ophthalmological assessments is critical 
to diagnosis. An isolated pupil sparing CN III, IV, or VI palsy, 
in a patient age >50 years, erythrocyte sedimentation rate 
(ESR) <30 and normal c-reactive protein (CRP) with pre-
existing vascular risk factors favors a microvascular cranial 
nerve neuropathy.

Case presentation A 63-year-old female with a history of type 
2 diabetes, migraine, hypertension, and dyslipidemia who pre-
vented with left-sided ptosis, diplopia headache, and facial 
pain. Vital signs were within normal limits. Physical exam was 
significant for near-complete ptosis of the left eye, slight 
abduction with markedly reduced supraduction, adduction, 
and no innervation. Her blood glucose was significantly elevat-
ed at 485 and hemoglobin A1C was 11.6. Lipid panel showed total cholesterol 381, LDL 136, and triglycerides 904. 
ESR and CRP were within normal limits. Neuroimaging stud-
ies including CT, CTA, MRI, and MRA were unremarkable. 
She was treated with butalbital/acetaminophen/caffeine and 
Verapamil however, pain remained refractory. Based on her 
symptoms and diagnostic test, she was diagnosed with CN III 
palsy secondary to ischemic vascular disease from uncontrolled 
diabetes. She was started on a long and short-acting insulin 
regimen as well as an oral sulfonlyurea and counseled on 
medication adherence.

Conclusion Cranial nerve neuropathies are rare complicat-
ions of type 2 diabetes, secondary to microvascular ischemia. Care-
ful history taking, neuroimaging, or biopsy is essential to diag-
nosis. Spontaneous recovery is seen within months with strict 

**MULTIPLE CAVITIES POST INFLUENZA NOT 
RESPONDING TO TREATMENT. WHAT CAN IT BE?**

1NRust*, 1MF Habib, 1AA Kamat, 1R Hazam, 1N Elzubeir, 1T Naguib. Texas Tech Univ HSC 
Amarillo, Amarillo, TX; 2Amarillo Cardiovascular Center, Amarillo, TX

10.1136/jim-2020-SRM.75

Case report Influenza increases mortality and morbidity 
through complications such as acute lung injury and secondary 
bacterial pneumonia. We report a case of multiple cavitary 
lesions with Influenza A not responding to usual treatment.
A 58-year-old homeless female with chronic obstructive pulmonary disease presented with upper respiratory tract infection symptoms. Computed Tomography (CT) showed extensive bilateral consolidative changes. She required noninvasive ventilation for oxygenation. She was treated with vancomycin, piperacillin/tazobactam and oseltamivir for influenza A positive lung consolidation. After initial improvement, she developed respiratory distress and fever. Repeat CT scan showed extensive bilateral necrotizing lung lesions. Bronchoscopy revealed bilateral purulence. A diagnosis of community acquired methicillin resistant staphylococcus aureus (CA-MRSA) necrotizing pneumonia in the setting of Influenza A was made, based on sensitivity to clindamycin and trimethoprim/sulfamethoxazole (TMP/sulfa) of the organism isolated from both blood and respiratory secretions. Antibiotics were changed to linezolid. The overall condition improved, and she was discharged to a long-term acute care facility.

Necrotizing pneumonia due to CA-MRSA is rare and fatal disease in combination with influenza. It is important to keep a high suspicion for CA-MRSA pneumonia in influenza cases with rapid decline in their respiratory status. Hence, we suggest empiric treatment with linezolid instead of vancomycin in patients with suspected PVL toxin producing CA-MRSA.

**Conclusion**

Foley catheters have an often-overlooked risk of bladder perforation. Bladder rupture has high morbidity and mortality; so prompt diagnosis and management are imperative. Large bladder ruptures require surgical correction. Successful conservative, nonsurgical management of small intraperitoneal bladder ruptures have been reported previously and was demonstrated in our case.

**Case report**

Foley urinary catheters are commonly used in hospitals across the country; important complications include infection. Foleys have also been rarely reported to cause bladder rupture. Bladder rupture is typically associated with trauma or a complication from surgery or endoscopy. Only 1.6% of blunt abdominal traumas result in bladder injury, and spontaneous injury is even more rare. Risk factors for spontaneous injury include carcinoma, chronic cystitis, chronic catheterization, and outflow obstruction. We present here a case of Foley catheter-induced bladder rupture.

### Summary of results

A 67-year-old Hispanic male nursing home resident with history of HTN, HLD, CAD, and stroke who is dependent on indwelling Foley for incomplete bladder emptying presented to emergency room with 2-day history of decreased responsiveness noticed by the caretakers at his nursing home. His initial workup suggested sepsis. Previous Foley was improperly placed, and possibly inflated in the urethra. Computed tomography scan on admission showed a Foley deeply inserted and pushing against the dome of the bladder. Urology was consulted and said no intervention was necessary unless the Foley stopped working. The patient soon decompensated and required central line placement for vasopressor support and intubation. The patient’s hemoglobin trended downward, so a repeat CT scan was ordered to assess for bleeding. The CT scan indicated the Foley catheter tip and bulb were extralumenal and superior to the bladder. Urology was again consulted and suspected small perforation in the dome of the bladder caused by the Foley. The Foley was repositioned and attached to intermittent wall suction. For the rest of his hospital stay, the patient was treated for sepsis with *Escherichia coli* and *Proteus mirabilis*. He steadily improved and did not require surgery.

**Case report**

A giant bladder stone is a rare urinary tract stone not commonly seen in clinical practice. It is defined as a stone weighing more than 100 grams and measuring more than 4 cm along its longest dimension.

We are reporting a case of a giant bladder stone (measuring 8 cm × 6 cm × 6 cm) associated with bilateral hydronephrosis, renal insufficiency, left renal staghorn stone, and septic shock.

**Case summary**

A 57-year-old male without significant past medical history was transferred to our hospital and admitted to the MICU with the diagnosis of urosepsis and septic shock. He presented with fever, chills, dysuria, and left flank pain.

Upon evaluation, he was pale and acutely sick looking. His blood pressure was 99/55 mmHg, heart rate 102 beats/minute and temperature of 38 C.

Laboratory testing revealed WBC count 27,000 cells/mm³, serum creatinine 2.8 mg/dl. Urinalysis was positive for nitrates, it showed WBC count of >182/HPF and RBC 32/HPF. Urine and blood cultures grew methicillin-sensitive Staphylococcus aureus.

CT renal stone protocol revealed bladder stone 8 cm × 6 cm × 6 cm, bilateral hydronephrosis, and a left kidney staghorn stone filling the left renal collecting system. Transthoracic echocardiogram showed aortic valve vegetation and abscess.

He was started on IV fluids, vasopressors and broad-spectrum IV antibiotics for septic shock. Bilateral decompressive nephrostomy tubes were placed, and cardiothoracic surgery planned intervention after controlling the sepsis. But patient remained critically ill and died of uncontrolled sepsis and persistent shock.
Abstracts

Conclusion Giant bladder stones have virtually disappeared from modern literature due to increased awareness of conditions leading to urinary tract stone formation.

This report aims to showcase that this rare clinical presentation can develop in the absence of clear predisposing factors related to bladder outlet obstruction, and in an area where patients have access to medical facilities.

Accurate diagnosis along with relieving any urinary obstruction, eliminating the infection, and meticulous surgical technique are essential to proper treatment.

Case report A 64 year old man with a history of hypertension, anxiety, treated hepatitis C, and a previous cervical spine fusion was evaluated in the emergency room for chest pain that began the morning of his presentation. He experienced a sudden onset of substernal crushing chest pain that radiated to his left arm when he stood up. He endorsed feeling diaphoretic, nauseous, and his colleague described his appearance as pale. Rest did not improve the symptoms, walking did not worsen the pain, and after 20 minutes the symptoms completely resolved without intervention. On evaluation, his vital signs, physical exam and lab findings were unremarkable. BNP was completely resolved without intervention. On evaluation, his three vessel coronary artery disease. A 64 year old man with a history of hypertension, anxiety, treated hepatitis C, and a previous cervical spine fusion was evaluated in the emergency room for chest pain that began the morning of his presentation. He experienced a sudden onset of substernal crushing chest pain that radiated to his left arm when he stood up. He endorsed feeling diaphoretic, nauseous, and his colleague described his appearance as pale. Rest did not improve the symptoms, walking did not worsen the pain, and after 20 minutes the symptoms completely resolved without intervention. On evaluation, his vital signs, physical exam and lab findings were unremarkable. BNP was 49, initial troponin was <0.006, and his EKG showed normal sinus rhythm with no T wave or ST changes. TTE was showed normal EF with no wall motion abnormality or diastolic dysfunction. Treadmill stress test was inconclusive as he was unable to participate for greater than 2 minutes due to shortness of breath and his inability to achieve the targeted heart rate. Cardiology was consulted due to his significant risk factors and performed a left heart catheterization that demonstrated 40% occlusion of his proximal LAD, 70-80% occlusion of his mid LAD, 70-80% occlusion of his left circumflex, and 80% occlusion of his RAD. No stents were placed at that time, and he was referred to Cardiothoracic Surgery. He opted to not undergo surgical intervention and elected to have drug eluting stents placed. He has remained asymptomatic since his presentation.

Discussion In a medical world that continues to evolve with ease of access to laboratory studies and imaging modalities, it is still important for any physician to obtain an adequate history. Despite a serial of normal EKGs and non-elevated troponins, our patient’s clinical scenario was a ‘classic’ story for acute coronary syndrome. Without an adequate history and exam, treatment based off of laboratory findings could have resulted in our patient being discharged without diagnosis of his three vessel coronary artery disease.

Allergy/Immunology/Rheumatology/Inflammation

Joint plenary poster session and reception

4:30 PM

Thursday, February 13, 2020

79 A CASE OF ISOLATED OCULOMOTOR PALSY IN SYSTEMIC LUPUS ERYTHEMATOSUS

G Mariani, R Dean*, I Ilyanskiy, N Davey-Ranasinghe, R Chandra, M Saadalbin, M Souliman, T Naguib, Texas Tech Univ HSC Amarillo, Amarillo, TX

10.1136/jim-2020-SRM.79

Case report Systemic lupus erythematosus (SLE) is a systemic autoimmune disease of unknown etiology, though genetic and environmental factors are widely believed to play a role in the pathogenesis. When it affects the central nervous system (CNS) as neuropsychiatric systemic lupus erythematosus (NPSLE), it typically presents as headaches, mood disorders, cognitive impairment, and even seizures. Isolated cranial nerve palsies are rare. Recognition and management of such cases can present a diagnostic challenge to clinicians. We present a case of isolated CN III palsy in a patient with previously quiescent SLE.

Case presentation A 47-year-old woman with lupus in remission presented with diplopia and ptosis of two days duration. Only other symptoms were headache and fatigue. She had previously refused therapy with hydroxychloroquine due to concerns of retinopathy as an adverse effect. Her disease was thought to be in remission due to mild symptoms earlier. CTA and MRA were negative for any significant abnormalities. ANA was positive with low titer dsDNA, and low C4 with +1 proteinuria suggestive of SLE. Treatment with pulse steroids followed by oral steroids taper was utilized. A noticeable improvement followed. However after five days no further improvement took place. She was then discharged on hydroxychloroquine therapy and oral steroids, with outpatient rheumatology care.

Discussion Diagnosis of neuropsychiatric manifestations in SLE requires clinical suspicion upon the development of CNS symptoms in the context of existing SLE. Upon exclusion of other etiologies, the neurological work-up with CSF analysis, neuroimaging via CT/MRI, and serum studies can aid in the diagnosis of NPSLE. Previous studies suggest treatment of NPSLE CN III palsy with pulse corticosteroid therapy. Our patient had clinical clear improvement upon administration of high dose pulse methylprednisolone. This case emphasizes the importance of clinical recognition in NPSLE, even when faced with exceedingly rare CNS manifestations of the disease such as isolated CN III palsy.
Case report  Alpha Gal Syndrome (Tick Induced Meat Allergy) is a rare cause of delayed anaphylaxis that develops weeks to months after a tick bite following ingestion of mammalian meats.

Case A 28-year-old woman without significant past medical history presented to the Allergy/Immunology clinic with concerns of having alpha gal syndrome. Three months prior she was bitten by a tick while hiking in Northwest Georgia. She reports about four hours after ingestion of a pepperoni pizza, she woke up experiencing wheezing, shortness of breath, and hives all over her body. She took Benadryl and by the morning her symptoms had completely resolved. A few weeks later, she ate a cheeseburger, and approximately four hours later, developed similar symptom. Coincidentally, she heard a podcast about meat allergy and the symptoms described matched her symptoms, prompting her to seek medical evaluation. As her history and presentation were consistent with Alpha Gal syndrome, a specific IgE level to Alpha-Gal was ordered and found to be elevated at 46.3 IU/mL. A diagnosis of Alpha Gal syndrome was confirmed, and she was instructed to avoid beef, pork, lamb and other mammalian meats.

Discussion The diagnosis of alpha gal was initially discovered in 2006. Approximately three months after a Lone Star tick bite, there is a immunoglobulin class switch that is thought to occur in the skin that leads to the development of an IgE antibody to alpha-1,3-galactose, a carbohydrate found on mammalian meats. Through the use of public awareness regarding tick bites, various news outlets and social media platforms have increased awareness of this rare disease. When produced correctly and factually accurate, social media can be a powerful tool to help raise awareness to rare diseases.

Case report Os styloideum is an accessory wrist bone at the base of the third metacarpal that can cause chronic pain from development of osteoarthritis and tendon irritation. A 29-year-old surgical resident and golfer presented to clinic for a firm dorsal hand mass at the base of the third metacarpal. The mass had been present for 18 months and slowly enlarged causing chronic pain worsened by tendon excursion across the mass during motion and was unimproved by conservative management with splinting and steroid injections. CT revealed 1 cm os styloideum. The patient was taken to OR for mass resection. Closure was performed with buried Monocryl followed by Dermabond and a volar resting splint. On POD#6 the splint was removed, and the patient was found to have a well-demarcated, severe dermatisis with erythema and bulla formation overlying the incision site extending across the dorsal surface of the hand. The skin sloughed along much of the surface revealing full thickness injury over the incision and deep partial thickness injury to the ulnar aspect of the hand. Remaining glue was removed and the patient was treated with methylprednisolone dose pack and local wound care with xeroform dressing changes. A secondary closure was performed on POD#25.

The presented case demonstrates two unusual diagnoses: a rare cause of hand mass and the severe contact dermatis to Dermabond. Resection is treatment for a symptomatic os, but caution should be used when applying Dermabond under a splint. Removal of glue and steroids should be considered for severe contact allergy.

Recumbent Thromboembolism in Antiphospholipid Syndrome Patient Despite Anticoagulation with Direct-Acting Oral Anticoagulants

Introduction Available evidence suggests DOACs like Apixaban may be less effective than warfarin in the secondary prevention of thrombotic events in high-risk antiphospholipid syndrome patients.

Case presentation A 69-year-old male with a past medical history of mild interstitial lung disease, Antiphospholipid syndrome (APS), cerebrovascular accident and chronic kidney disease stage III-IV. Patient presented with dyspnea, pleuritic chest pain for 3 days, has no cough or sputum production or fever. Vital signs, oxygen saturation of 86% in room air other vital sign were within normal. Physical exam and Labs were unremarkable. Chest x-ray showed slight worsening of left lower lobe fibrotic changes. Patient was diagnosed with acute hypoxic respiratory failure secondary to community acquired pneumonia. He required a venti mask. Patient was diagnosed with APS in 1980s. Since then he was maintained on warfarin for secondary prevention. Three months prior to this admission, he was switched to apixaban, with lack of clinical findings of pneumonia and despite being on apixaban suspicion for pulmonary embolism (PE) was raised. V/Q scan showed high probability for PE. Apixaban and Antibiotics
were discontinued and the patient was started on warfarin. Patient improved clinically, and his oxygen requirement decreased down to 2 liter of nasal cannula.

**Discussion** The available evidence suggests that DOACs are less effective than warfarin for thrombosis prevention in patients with APLS, particularly among patients who are considered high risk; patient tested positive for all three antiphospholipid antibodies and those with a history of arterial thrombosis like our patient.

In our case the PE diagnosis was made with V/Q because of elevated creatinine. Although a normal chest radiograph is usually required prior to V/Q scanning scan interpretation, our patient had a high clinical probability and paired with a high-probability scan we had a 96 percent chance of the patient to have a PE.

In patient with APLS on DOAC, the clinician should not rule out PE as clinical suspicion raised.

**LUPUS NEPHRITIS IN A YOUNG MALE PRESENTING WITH ARTHRITIS**

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10.1136/jim-2020-SRM.84

**Case report** A 28 year old male with no medical history presented to the hospital with knee pain and swelling that had progressed over the last week with associated fever and chills. His physical exam was significant for joint swelling and erythema. He was febrile at 103.3. Labs were significant for a leukocytosis of 28, serum creatinine of 1.8, and hematoma on urinalysis. Arthrocentesis revealed a WBC of 13 with absence of crystals. Infectious work up was negative. ANA screen was positive with a homogenous pattern and a titer of 1:320. Anti-DNA DNA antibody level was over 300. Renal biopsy showed endothelial tubuloreticular inclusions in the glomerular tuft with full house immune deposits along with small segment of fibrinoid necrosis in the tufts suspicious for class V disease. The patient was started on steroids and hydroxychloroquine.

Systemic Lupus erythematosus (SLE) is a systemic autoimmune disease resulting in production of nuclear antibodies resulting in end-organ damage; most commonly affecting the kidneys, skin, heart, and joints. Lupus nephritis (LN) is present in 30–75% of cases. It is most common in women of child-bearing age but in very rare cases (4–22%) it can affect males. Because of how rare SLE is in the male population it is poorly understood. LN is a common manifestation in men, usually presenting as a nephrotic syndrome with histology consistent with class IV disease. To diagnosis LN you must first establish a diagnosis of SLE with kidney dysfunction. Kidney biopsy is diagnostic and can differentiate the histopathological class of LN, which is important to determine management and prognosis. Treatment involves high dose steroids during flares along with ant-malaria drugs and cyclophosphamide; however different histopathological classes are treated differently. Prognosis can be affected by delay in treatment, which makes a high index of suspicion vital especially in males as it can be overlooked.

LN causes significant morbidity and mortality in SLE patients. Timely diagnosis and treatment is important in order to help delay progression. Given the rarity of SLE in males, this diagnosis can often be delayed leading to worse outcomes. A high index of suspicion is vital, especially in males so that accurate and timely diagnoses can be made.

**CAN SARCOIDOSIS BE ACUTE? LOFGREN’S SYNDROME IN A FARM WORKER**

A Kunnumpurath*, S Singh. White River Health System, Batesville, AR

10.1136/jim-2020-SRM.85

**Case report** Sarcoidosis is a multi system granulomatous disease with an unknown etiology. Lofgren’s syndrome is an acute sarcoid arthritis, which presents as acute symmetric polyarthritis,
bilateral hilar lymphadenopathy with or without erythema nodosum.

**Case 41**

A 68-year-old Caucasian male, farm worker was referred by his primary care physician for acute onset joint pain involving bilateral ankles, left knee and left ankle swelling which did not respond to NSAID's. He also had a rash on his legs, which was diagnosed as cellulitis, treated with multiple course of antibiotics without much improvement. In the rheumatology clinic, he reported symmetric polyarthritis involving bilateral ankles and erythematous rash involving bilateral knees. His review of systems was positive for new onset cough, mild wheezing and myalgia. On exam - he had multiple tender subcutaneous nodules on shin and back of right leg consistent with erythema nodosum along with swelling and tenderness in left wrist and bilateral ankle’s. Laboratory work up including CBC and CMP were normal. He had a high positive ANA titer, ESR – 74 mm/hr and SACE elevated at 88U/L but negative RF, Anti CCP, Anti ds DNA, Anti SSA and SSB antibodies, Anti ScI 70 antibodies. Chest radiograph showed bilateral hilar and paratracheal lymphadenopathy. Infectious work up was negative for CMV and EBV. Patient was started on Prednisone 60 mg daily to which he responded with symptom resolution. His ESR the following month improved to 40 mm/hr and SACE trended downwards. He was treated with tapering dose of prednisone, with complete resolution of his symptoms.

**Discussion**

Loefflanger’s syndrome is diagnosed based on the clinical triad of symmetrical polyarthritis, bilateral hilar lymphadenopathy and erythema nodosum. It presents with acute onset symmetric oligoarthritis which can be confused with pseudogout, gout, rheumatoid arthritis. The erythema nodosum can be confused with cellulitis as in our patient. High degree of suspicion in a young patient presenting with symmetrical polyarthritis and nodular rash helps make right diagnosis. The prognosis is good as the disease is generally self-limiting and responds well to NSAID’s and steroids.

### HYPOVOLEMIC SHOCK AS PRESENTATION OF MICROSCOPIC POLYANGIITIS

1. Pearson*, JJ Maguire, J Treece. East Tennessee State University, Johnson City, TN

**Case report**

Microscopic polyangiitis (MPA) is a rare condition characterized by nonspecific symptoms of fatigue, fever, or loss of appetite and additional symptoms related to areas of involvement. The rarity of the disease and its variable presentation can delay its diagnosis in the acute setting, potentially leading to delay in effective treatment and poor outcomes. This is a 68-year-old man, who presented to the hospital after being found poorly responsive at home. He was sedated and intubated in the field and brought to the ER. He was found to be hypotensive. History revealed abdominal aortic aneurysm, but no known history of GI bleed or use of blood-thinners. Physical exam revealed rhonchi throughout both lung fields, a soft, nondistented abdomen with normoactive bowel sounds, and cool extremities with weak palpable pulses. CBC was suggestive of anemia. BUN and creatinine were elevated indicating kidney injury. CT abdomen showed no acute pathology and an intact abdominal aortic aneurysm. CT chest revealed left lower lobe atelectasis and bilateral pulmonary edema. CT head was consistent with watershed infarction. Numerous blood transfusions were given. However, slow decline in hemoglobin continued to occur. Bronchoscopy was performed, revealing extensive mucus plugging and bloody plugs. He was eventually weaned off sedation but remained largely unresponsive, occasionally opening his eyes to stimuli. On hospital day 7, necrotic lesions were noted on the patient’s ear and fingers. These findings prompted serologic studies for vasculitis that resulted in positive p-ANCA and myeloperoxidase antibodies, consistent with MPA. He was started on pulse dose IV steroids resulting in modest improvement in renal parameters and hemoglobin, but no discernible change in neurological status. The patient was transitioned to comfort care and palliative extubation was performed. Four days later, the patient expired. This case illustrates the potential for hypovolemic shock as a consequence of undiagnosed vasculitis. Although this patient may not have recovered even with early immunosuppressive treatment, vasculitis should be considered as a differential diagnosis in patients presenting in hypovolemic shock, especially if history, exam and noninvasive testing are unrevealing.

### IT’S JUST A RASH THEY SAID! ACUTE SKIN MANIFESTATIONS IN A PATIENT WITH VASCULITIS

K Sawalha*, AT Kunnumpurath, R Kamoga. White River Health System, Batesville, AR

**Case report**

Cryoglobulinemia is thought to be a rare condition with the most common clinical manifestations in >90% of patients being skin lesions, specifically orthostatic purpura and ulcers.

Case 76-year-old Caucasian male with a history of Cryoglobulinemic vasculitis, Raynaud’s phenomenon and pulmonary embolism on warfarin, presented with acute onset of rash in bilateral lower extremities. He had a one-week history of worsening bilateral lower extremity rash which initially looked like ‘a bad sunburn’. The rash eventually turned into clear blisters progressing into painful open sores that were oozing serosanguinous fluid. He was recently started on trimethoprim-sulfamethoxazole due to concern for cellulitis by his primary care physician. Our differential at this point included trimethoprim-sulfamethoxazole associated rash, warfarin induced skin necrosis, vasculitis, pyoderma gangrenosum and infection. Significant laboratory results included leukopenia with WCC 2.0 K/ul with ANC >1500/ul, INR 3.9, CRP 5.7 mg/dl, ESR 95 mm/hr, low C4 level at 4 mg/dl, normal C3 level at 95 mg/dl, Rheumatoid factor 557.1 IU/ml; positive ANA IgG and negative cryoglobulin, ANCA and hepatitis C. Venous and arterial doppler ultrasound were negative for arterial or venous thrombosis bilaterally. Patient was started on high dose steroids for acute vasculitis. Punch biopsy showed acute small vessel vasculitis with fibrin thrombin. Patient’s rash improved significantly and he was discharged on oral steroids.

**Conclusion**

Cryoglobulinemic vasculitis refers to a systemic inflammatory syndrome that generally involves small- to medium- vessel vasculitis due to cryoglobulin-containing immune complexes. Cutaneous manifestations develop in nearly all patients with cryoglobulin syndromes and may precede extra cutaneous manifestations by decades. Typically, the lesions consist of erythematous macules and purpuric papules of the lower extremities (90–95%) as infarctions, hemorrhagic crusts, and ulcers. Acute skin manifestations in vasculitis are...
difficult to diagnose as a clinician and going through the differential based on history and clinical presentation is crucial in making the right diagnosis. Often times, tissue diagnosis is required to make the right diagnosis.

**Case report** Sarcoidosis involves multiple tissues and organs with noncaseating granulomatous reaction. Positive (Anti-DsDNA) antibodies is an extremely rare finding in sarcoidosis as it is more specific of lupus. P-ANCA positivity is also a very rare finding in IgA nephropathy.

**Case presentation** A 42-year-old male with celiac disease and sarcoidosis on steroids and gluten-free diet who presented with leg rash and abdominal pain shortly after steroid taper. He was hemodynamically stable. CBC unremarkable. CMP showed AKI. UA showed RBC casts and proteinuria. CXR showed bilateral hilar LAD and ground glass opacities. ANA and Anti-DsDNA antibodies were positive, C2, C3 levels were normal. Anti-smith Abs negative. MPO-P-ANCA antibodies positive. Kidney biopsy showed IgA crescentic GN. Skin biopsy showed leukocyticlastic vasculitis. TB and SLE were ruled out. He was started on cyclophosphamide and steroids with improvement of renal functions and then was discharged on azathioprine.

**Discussion** IgA nephropathy (IgAN) is the most common GN. Typically presents with macroscopic hematuria shortly after an URTI. Patients with celiac disease suffer a 3-fold increased risk of future IgAN. Treatment include corticosteroid, mycophenolate, rituximab.

Sarcoidosis is a multisystem disorder characterized by an immune response to antigens with the production of various antibodies as RF and ANA. The prevalence and significance of anti-dsDNA antibodies in sarcoid patients is unknown but is very rare. GN is a very rare entity in sarcoidosis.

Our patient had positive Anti-DsDNA in sarcoidosis and simultaneous IgA nephropathy with P-ANCA vasculitis induced crescentic glomerulonephritis which is very rare.

**Conclusion** We believe that ANCA positivity in AKI due to IgA nephropathy can indicate a superimposed IgA crescentic glomerulonephritis or an associated small vessel vasculitis and this confers a worse prognosis. Also, we have to exclude other rheumatological diseases with a positive anti-DsDNA and avoid blaming it on lupus.

**Abstracts**

**STEMI IN SETTING OF UNDIFFERENTIATED VS. MIXED CONNECTIVE TISSUE DISEASE**

V Silver*, K Oakden, H Tran, C Saraceni, LS Engel, M Modica. LSU Health Sciences Center, New Orleans, LA

10.1136/jim-2020-SRM.88

**Case report** Introduction: Mixed Connective Tissue Disease is a generalized connective tissue disorder characterized by the presence of high titer anti-U1 ribonucleoprotein (RNP) antibodies in combination with clinical features commonly seen in systemic lupus erythematosus (SLE), systemic sclerosis, and polymyositis. There is a distinctive overlap in features of the above diagnoses, so commonly in early course it is often referred to as Undifferentiated Connective Tissue Disease. Cardiac involvement of MCTD accounts for approximately 20% mortality.

Case A 46 year old woman with a history of undifferentiated vs. mixed connective tissue disease and chronic left lower extremity lymphedema presented with one day of chest pain that occurred while driving. Of note, she was physically active and jogs 2 miles a day. The chest pain radiated down her left arm and was associated diaphoresis. She was found to be hypertensive 220/110. Her initial ECG demonstrated sinus bradycardia. She became symptomatic again with chest pain and lightheadedness during the admission interview. Repeat EKG revealed new ST elevation in precordial leads in septal distribution. STEMI protocol was activated and patient was taken emergently for cardiac catheterization, which revealed 98% mid LAD occlusion to which one DES was deployed, as well as 50–70% circumflex lesion.

Echocardiogram demonstrated a normal ejection fraction, apical and septal wall abnormalities and left ventricular wall motion abnormalities. Troponin peaked at 27.46 then down-trended. She was initiated on DAPT (aspirin and ticagrelor), an ACE inhibitor and beta blocker therapy as well as statin therapy.

**Discussion** Patients with connective tissue diseases are at risk for mortality from cardiac involvement of their disease process. Although pericarditis is the most common manifestation of cardiac involvement of MCTD and in lupus, accelerated atherosclerosis has also been recognized. The greatest increase in relative risk of accelerated atherosclerotic coronary disease in patients with SLE paradoxically occurs in young women with otherwise low risk of coronary heart disease.

**IT IS NOT ALWAYS LUPUS: A RARE CASE OF SIMULTANEOUS OCCURANCE OF IGA NEPHROPATHY AND P-ANCA CRESCENTIC GLOMERULONEPHRITIS IN A PULMONARY SARCOID PATIENT WITH ANTI-DUOUBLE STRANDED DNA ANTIBODIES SEROPOSITIVITY**

1M Elmasry, 1M Zhan*, 1S El Nawaa, 1M Makram, 2AF Al Mahmoud, 3K Nugent. 1Texas Tech University Health Sciences Center, Lubbock, TX; 2King Faisal University, Jeddah, Saudi Arabia; 3TTUHSC, Lubbock, TX

10.1136/jim-2020-SRM.89

**POSSIBLE REASONS FOR ELEVATION OF HDL AFTER BOTH VARIANTS OF BARIATIC SURGERY**

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10.1136/jim-2020-SRM.90

**Purpose of study** To analyze the possible reasons for the alteration of the immunologic system, by producing many metabolic changes, including elevation of HDL and changes in other lipids after bariatric surgeries (R-N-Y and Sleeve).

**Methods used** Analysis of 136 patients (P) who underwent two variants of bariatric surgeries. 102 R-N-Y and 34 Sleeves (S). P were analyzed with emphasis in changes of HDL in both surgeries.

**Summary of results** After the analysis of 136 P, 102 R-N-Y and 34 S., the HDL increased 11.37% in R-N-Y and 23% in S. The changes in FBS and other lipids will be discussed. We think the changes in HDL are due to:

1. Swelling of intra-abdominal lymph nodes, producing immunological dysfunction.
2. Changes in intestinal microbiota, producing metabolic and genetic abnormalities.
3. Intra-abdominal inflammation due to partially digested food and surgery reflected as changes in immunological state and C reactive protein.

4. Intra-abdominal trauma due to the surgery, inducing immunology abnormalities reflected as an elevation in HDL (S. > R-N-Y) and other parameters.

Conclusions We prefer S. over R-N-Y. These bariatric P. has greater benefits in losing weight, but complications in R-N-Y group were greater. Follow up in the 2 groups have the same changes in the metabolic state, reflected as an increase in C-reactive protein of 20% and especially elevation of HDL which is anti-inflammatory.

91 PLASMA ANGIOPOIETIN-2 AND ANGIOPOIETIN-2/1 RATIO ARE ELEVATED IN CHILDREN WITH SEPSIS AND ARE ASSOCIATED WITH CLINICAL MARKERS OF ORGAN INJURY


10.1136/jim-2020-SRM.91

Purpose of study We sought to characterize plasma angiopoietin-1 (Angpt-1) and Angpt-2 levels and Angpt-2/1 ratios in children admitted to the pediatric intensive care unit (PICU) for sepsis and to correlate these biomarkers with clinical measures of organ injury.

Methods used We enrolled 34 children with sepsis and 34 healthy controls in a prospective observational study between July 2018 and September 2019. Blood samples were collected from children with sepsis 0, 24, 48, and 72 hours after PICU admission. Plasma Angpt levels were measured using ELISA.

Summary of results Over the 72 hours after PICU admission, Angpt-1 levels fell below the median Angpt-1 value for controls, and Angpt-2 levels rose above the median Angpt-2 control value, translating in elevated Angpt-2/1 ratios at all time points compared to controls. Angpt-2 levels and Angpt-2/1 ratios at 24-, 48-, and 72-h were significantly higher in sicker children with sepsis as defined by elevated admission Paediatric Index of Mortality (PIM) 3 scores. Children who remained on vasopressors three days after PICU admission (a clinical measure of aberrant vaso-reactivity) also had significantly elevated 24-, 48-, and 72-h Angpt-2 levels and Angpt-2/1 ratios compared to children not requiring vasopressors. Angpt-2 levels and Angpt-2/1 ratios at 72-h correlated with mechanical ventilation duration (an indicator of acute lung injury) even after adjustment for illness severity using PIM 3 scores. Twenty-four- and 48-h Angpt-2 levels predicted the development of acute kidney injury after adjustment for illness severity.

Conclusions These findings contribute to our knowledge of angiopoietin dysregulation in pediatric sepsis, indicating that significant elevations in plasma Angpt-2 and Angpt-2/1 ratios during the first 72 hours after PICU admission are associated with clinical measures of lung and kidney injury and dysregulated vascular tone.

92 INSIDIOUS AND RARE: A CASE OF ACUTE FIBRINOUS AND ORGANIZING PNEUMONIA

R Kemnitz, S Jin*, M Barr. Tulane University, New Orleans, LA; 2Southern Louisiana Veterans Health Care System, New Orleans, LA

10.1136/jim-2020-SRM.92

Case report 1. Review underlying causes of AFOP including inflammatory and infectious etiologies. 2. Recognize common symptoms of AFOP to improve timeliness of clinical intervention.

68 yo M with a history of Myelodysplastic Syndrome (MDS) admitted from Infectious Disease clinic for fever of unknown origin for 6 months and 3 weeks of non-productive cough worse at night and fevers to 102 F. In work-up of fever, he was found to have undifferentiated aortitis, surgical repair 5 months prior. Completed 6 weeks of IV antibiotics post-repair, transitioned to oral antibiotics for persistent fevers. No recent bone marrow transplant or immunosuppression for MDS.

On exam, febrile to 101.4 F, pulse 115, 90% on RA. Bivalvar coarse breath sounds, exam otherwise unremarkable. Labs with elevated inflammatory markers, stable chronic anemia. No leukocytosis. Blood, urine, and sputum studies negative for infective pathology. CT Chest with multifocal consolidative lung lesions with bivalvar ground glass appearance.

Patient started on broad spectrum antibiotics on admission, subsequent bronchoscopy with biopsy consistent with AFOP, at which time he was transitioned to prednisone and discharged to a skilled nursing facility. At 2 week follow-up, symptoms had resolved and repeat imaging showed improvement of lung lesions.

Discussion AFOP is exceedingly rare, with only 29 unique cases reported between 2013–2016. Definitive diagnosis is based on histopathology of intra-alveolar fibrin balls in patchy distribution, usually bivalvar. Underlying etiologies include infection, immunologic, rheumatologic, or hematologic disease, and malignancy, but is most often idiopathic. Two clinical courses include acute fulminant disease, leading to respiratory failure and death within average 29 days, and a subacute course, with good prognosis and response to treatment. Mainstay of treatment involves antibiotics and corticosteroids, alone or in combination, based on patient presentation. Most patients received some form of anti-infective agents prior to initiation of steroids. Despite prior cases with good response to corticosteroids, the dose and duration has not yet been standardized.

93 A MESS OF MESH – AN UNUSUAL CASE OF INGUINAL LYMHPHADENOPATHY

R Kemnitz*, P Caldwell, S Heer. Tulane University, New Orleans, LA

10.1136/jim-2020-SRM.93

Case report 1)Develop an approach to working up lymphadenopathy, 2)Identify foreign body implantation as a cause of benign lymphadenopathy.

Case A 40-year-old man presented with a six-hour history of bilateral swollen inguinal regions, subjective fevers, and penile
edema. He had a history of recurrent un-witnessed episodes of inguinal lymphadenopathy with associated fevers over the last 15 months. Episodes persisted for a few hours to days with spontaneous resolution. Surgical history was notable for right and left inguinal hernia repair with ‘plug’ mesh.

Temperature was 98.7°F, heart rate 84 bpm, blood pressure 106/71 mmHg, respiratory rate 20 breaths/min, oxygen saturation 99% on RA. He was well appearing and comfortable. Inguinal region was mildly erythematous and swollen with tenderness to palpation bilaterally. No palpable inguinal lymph nodes. Penis was circumcised with mild edema and erythema.

WBC was 15.8 K/microliter with 80.9% neutrophils and 11.6% lymphocytes on differential, RPR nonreactive, Chlamydia Trachomatis and Neisseria Gonorrhoea PCR negative. Prior workup revealed HIV non-reactive, histoplasma antigen negative, ANA negative, fungus panel non-reactive.

CT abdomen/pelvis without contrast revealed small lymph nodes in the left inguinal region (<8 mm, cluster of 4–5). Lower Extremity ultrasound completed prior to admission revealed a prominent lymph node in the right groin measuring 3.2 × 0.8 × 2.6 cm.

General surgery was consulted for excisional biopsy of the lymph node. Upon further review, the patient likely had inflammation of his inguinal region secondary to mesh placement from prior inguinal hernia surgeries. The excisional biopsy was canceled and the patient was discharged with surgery follow-up.

Discussion Lymphadenopathy is commonly encountered by Internal Medicine physicians and requires a systematic approach to develop an appropriate differential diagnosis. The differential will cover three broad categories: infectious, malignant, and benign non-infectious lymphadenopathy. Benign, non-infectious causes of lymphadenopathy are discussed less frequently. Granulomatous inflammation, reactive lymphoid hyperplasia, and foreign bodies are a few possible etiologies of benign, non-infectious lymphadenopathy. A foreign body reaction, in this case implanted mesh, is an under recognized cause of lymphadenopathy.

JDM is a rare, inflammatory myopathy affecting striated muscle, subcutaneous tissue, skin, and nails. It can result in a heterogeneous symptomatic presentation that may mimic other disease processes including non-inflammatory and metabolic myopathies, viral myositis, and other rheumatologic disorders such as SLE, scleroderma, and mixed connective tissue disease. Though weakness and fatigue are the most common presenting symptoms in children, physicians should recognize disease-specific findings including photosensitive ‘shawl sign’, heliotropic rash, and Gottron’s papules. Limb-girdle muscle involvement is classic, however children may complain of generalized weakness.

JDM requires a high index of suspicion given its clinical variability and vague symptomatic presentation. Diagnosis requires four of the following: symmetric, proximal muscle weakness, characteristic skin findings, elevated muscle-derived enzymes, denervation or myopathy on EMG, and inflammatory changes on MRI. Early recognition and treatment with high-dose steroids and disease-modifying agents has been proven to improve survival and long-term outcomes. Therefore, it is important for physicians to consider JDM on their differential for any child with weakness, fatigue, and elevated muscle-derived enzymes.

CASE REPORT

Juvenile Dermatomyositis Presenting as Severe Malnutrition

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10.1136/jim-2020-SRM.94

Case report 11-year-old female presented to her pediatrician with a three month history of unintentional weight loss and constipation. Patient was noted to have generalized weakness, dry skin, and thinning hair. Labs showed elevated LDH and leukopenia with normal ESR, CRP, ANA, and rheumatoid factor. At two week follow-up, weight had decreased from the 16th to the 1st percentile despite increased caloric intake. Patient was admitted for further work-up. Initial labs revealed normocytic anemia, hypoalbuminemia, and elevated ferritin, ESR, and LDH. She continued to have intermittent fevers and generalized weakness and on further exam, was noted to have papular lesions on her knuckles, calcinosis, and proximal muscle weakness. Further work-up revealed elevated CPK and diffuse myositis on MRI of the lower extremities. The diagnosis of Juvenile Dermatomyositis (JDM) was later confirmed by muscle biopsy.

DISSEMINATED SARCIOIDOSIS WITH ISOLATED EXTRAPULMONARY MANIFESTATION

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10.1136/jim-2020-SRM.95

Case report Sarcoidosis is a multisystem inflammatory disease characterized by non-caseating granulomas. It predominantly affects the lungs and intrathoracic lymph nodes but any organ system can get affected. Isolated extrapulmonary sarcoidosis is very rare accounting for less than 10% of cases reported. In this case report we highlight a case of vertebral, neurologic, cutaneous, and liver involvement of sarcoidosis without any pulmonary manifestation.

Case presentation This is a 72 year old female with a past medical history of type II diabetes who was admitted to the hospital for a fracture of the right neck of the femur secondary to ground-level fall. Trauma work up initially showed lytic bone lesions at skull, several small mediastinal lymphadenopathy, poorly circumscribed lucencies in the lumbar and thoracic spines, and multiple liver lesions. Patient denied shortness of breath, cough, fever, chills, chest pain, orthopnea, abdominal pain, dysuria, diarrhea, or weight loss. She complained of bilateral peripheral neuropathy that had been going on for the past year. Work up was performed to rule out differential diagnoses including infection, inflammation, multiple myeloma, malignancy, lymphoma, leukemia. Liver and bone marrow biopsy performed showed noncaseating granulomas. Patient also complained of a scalp rash that had started two months ago and was diagnosed and treated as psoriasis without any improvement. Vertex scalp biopsy suspected sarcoidosis granuloma. Patient was diagnosed with disseminated sarcoidosis as diagnosis of exclusion secondary to her mediastinal lymphadenopathy, and biopsy findings of noncaseating granulomas in the bone marrow, scalp, and liver. Patient was started on methotrexate and plaquenil.

Discussion Extrapulmonary involvement of sarcoidosis without any pulmonary manifestation is very rare and make it a
THE FISH OIL DILEMMA- DOES IT INCREASE THE RELATIONSHIP BETWEEN TRICUSPID REGURGITANT JET VELOCITY AND QTc PROLONGATION IN SICKLE CELL DISEASE

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10.1136/jim-2020-SRM.97

Purpose of study Sudden cardiac death is a leading cause of mortality among patients with sickle cell disease (SCD). QTc prolongation is frequently observed in the SCD population and is associated with ventricular arrhythmias, a common etiology of sudden cardiac death. Additionally, the degree of pulmonary hypertension, and elevation of the tricuspid regurgitant jet velocity (TRV), a measure of right ventricular systolic pressure, have been shown to be risk markers for early mortality in patients with SCD. However, the relationship between TRV and QTc prolongation has not been fully elucidated.

Methods used We are conducting a study of QTc-modifying genetic and secondary risk factors in SCD, targeting enrollment of 500 (250 adults, 250 children) patients with SCD, at baseline status, from sickle cell clinics in the University of Mississippi Medical Center. A transthoracic echocardiogram and resting 12-lead ECG are being collected, along with laboratory and demographic information. In this interim analysis, a total of 150 participants (107 adults, 43 children) were included. We investigated the relationship between elevated TRV (defined by TRV ≥ 2.5 m/s), the QTc interval, and its subcomponents: QRS and JTc interval (milliseconds).

Summary of results Elevated TRV was not significantly associated with increased QTc interval in all participants (432.56 vs 427.84, p=0.671) and in adults (432.26 vs 429.51, p=0.967). Similarly, there is no significant difference in the JTc interval between those with and without elevated TRV in all participants (339.79 vs 340.43, p=0.559) or in adults (340.04 vs 341.09, p=0.616). However, the elevated TRV was significantly associated with increased QRS duration in all participants (92.77 vs 87.42, p<0.001) and in adults (92.21 vs 88.42, p=0.020).

Conclusions While elevated TRV is a risk marker for early mortality in SCD, we do not find evidence of repolarization abnormalities in patients with elevated TRV, given the lack of a significant association of TRV with QTc or JTc prolongation. However, the significant association between elevated TRV and QRS duration raises the possibility that an intraventricular conduction abnormality could be contributing.
Purpose of study Drug coated balloon angioplasty (DCBA) is preferable for de novo lesions of PAD because they are superior to the standard balloon angioplasty (SBA). One of the complications that are seen commonly in patients undergoing angioplasty is in-stent restenosis (SBA). One of the complications that are seen commonly in patients undergoing angioplasty is in-stent restenosis (SBA). Our aim is to compare the DCBA with SBA in the revascularization of in-stent restenosis.

Methods used PubMed, Cochrane and Google Scholar were comprehensively searched to obtain randomized controlled trials until August 2019. The outcomes included mortality and total lesion revascularisation (TLR). The effect size of each study was computed and compared using the random-effect, inverse variance method.

Summary of results Five studies were included with 380 patients who underwent angioplasty. They were divided into two groups with group 1 (undergoing DCBA) including 193 and group 2 (undergoing SBA) including 187 patients. No significant increase in mortality was present between the two groups with OR of 1.60 [0.47, 5.47], p=0.43. There was a significant reduction in the TLR in the group who underwent DCBA versus who underwent SBA with OR of 0.29 [0.12, 0.73], p=0.009.

Conclusions DCBA is superior to SBA in reducing future total lesion revascularization rate at 6 months but there was no difference in the rate of mortality between the two groups.

A HEART STOPPING DIVE: A CLASSIC PRESENTATION OF CONGENITAL LONG QT SYNDROME

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Case report Long QT syndrome (LQTS) is a group of channelopathies characterized by delayed repolarization of the ventricular myocardium, QT prolongation and increased risk for sudden cardiac death, in the setting of structurally normal heart and healthy individuals. Several studies have shown associations between specific LQTS genotypes and particular triggers or events. Diving and swimming-related events are associated with Type 1 LQTS.

Case description 28 year-old previously healthy Caucasian male was admitted to our hospital for a witnessed cardiac arrest. He was at a summer recreational camp with a group of students when he dove into a lake. He was reported to resurface for a few seconds and then noticed to sink and not resurface. Lifeguards were able to pull him out and noticed he was unresponsive without a pulse. An automated external defibrillator showed polymorphic ventricular tachycardia during cardiopulmonary resuscitation with return of spontaneous circulation upon defibrillation.

He had no previous history of syncope, seizures or sudden cardiac arrest or no family history of sudden death or cardiomyopathy. He takes no medications. Laboratory investigation on presentation reviewed mild acute kidney injury with unremarkable serum potassium, magnesium, urine drug screen, alcohol levels and thyroid function tests. Serial electrocardiograms obtained on presentation and during admission showed prolonged QT interval (QTc 524 ms) in the absence of QT prolonging agents and normal electrolytes. Echocardiogram was normal with no structural abnormalities.

He was successfully extubated with resolution of his pneumonitis and acute kidney injury within 24 hours. He was evaluated by the cardiac electrophysiology team and started on propanolol as medical therapy for LQTS. He was safely discharged with a life vest with subsequent placement of an implantable cardioverter-defibrillator.

Conclusion Diagnosis of LQTS can be challenging and relies on clinical assessment with a detailed history and electrocardiogram finding, supplemented with genetic testing. Near-drowning episodes with sudden cardiac arrest in the context of prolonged QT intervals, especially in previously healthy swimmers, should raise the suspicion for Type 1 LQTS.
Conclusions Anthropometric measures and regional fat volumes showed direct correlations with weight, LSN score, and NAFLD index. This study has data indicating that SAD and body composition show significant correlation with weight and LSN score within a high risk, diverse NAFLD population.

Purpose of study We aimed to evaluate the incidence of acute myocardial infarction (AMI) in New Orleans during the twelve years since Hurricane Katrina.

Methods used This was a single-center, retrospective study performed at Tulane University Health Sciences Center of patients admitted for AMI during two years before Hurricane Katrina and twelve years after Hurricane Katrina. The pre-Katrina and post-Katrina cohorts were compared according to pre-specified demographic and clinical data.

Summary of results In the 12-year post-Katrina period, there were 3,067 admissions for AMI out of a total census of 90,494 (3.4%) compared to 150 admissions out of a census of 21,079 (0.7%) in the 2-year, pre-Katrina group (p<0.0001). The post-Katrina group had a higher prevalence of known coronary artery disease (CAD) (46.1% vs. 30.7%, p<0.0001), diabetes mellitus (40.5% vs. 28.7%, p=0.0002), hypertension (80.1% vs. 74.0%, p=0.0281), hyperlipidemia (57.0% vs. 45.0%, p=0.0006), smoking (53.6% vs. 39.3%, p=0.0005), drug abuse (18.0% vs. 6.7%, p=0.0003), and psychiatric disease (13.9% vs. 6.7%, p=0.0002). The post-Katrina group was more often prescribed aspirin (50.2% vs. 31.3%, p<0.0001), beta-blocker (47.8% vs. 34.0%, p=0.0017), ACE inhibitor or ARB (52.4% vs. 36.0%, p=0.0002), and statin (52.7% vs. 28.0%, p=0.0001) but with higher medication non-adherence (16.4% vs. 7.3%, p<0.0001). The post-Katrina patients were also more likely to be unemployed (18% vs. 2.0%, p<0.0001), uninsured (11.0% vs. 6.0%, p=0.05), and non-married (62.0% vs. 54.7%, p=0.0001). Rates of STEMI were lower in the post-Katrina group (29.0% vs 42.0%, p=0.0013). There was no significant difference between the two groups in terms of sex or prior coronary artery bypass grafting.

Conclusions There was a nearly 5-fold increase in the incidence of AMI twelve years following Hurricane Katrina. Prevalent psychosocial, behavioral, and traditional CAD risk factors were significantly higher among the post-Katrina group. These findings add to the growing body of literature demonstrating adverse cardiovascular outcomes after a natural disaster. Further research is needed to elucidate underlying mechanisms to help mitigate future cardiac morbidity.

Abstract 102 Table 1 Per patient sensitivity, specificity and accuracy of FFRCCT

<table>
<thead>
<tr>
<th>Trials</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>DISCOVER-FLOW Koo et al., 2011</td>
<td>92.6% (95% CI: 82.1–97.9)</td>
<td>81.6% (95% CI: 68.0%–91.2%)</td>
<td>87.4% (95% CI: 79.4%–93.1%)</td>
</tr>
<tr>
<td>DEFACTO Min et al., 2012</td>
<td>90% (95% CI: 84%-95%)</td>
<td>54% (95% CI: 46%-83%)</td>
<td>73% (95% CI: 67%-78%)</td>
</tr>
<tr>
<td>NXT trial Noogard et al, 2014</td>
<td>86% (95% CI: 77% to 92%)</td>
<td>79% (95% CI: 72% to 84%)</td>
<td>80% (95% CI: 75% to 85%)</td>
</tr>
<tr>
<td>Coenen et al., 2017</td>
<td>82% (95% CI: 72% to 92%)</td>
<td>60% (95% CI: 48% to 72%)</td>
<td>70% (95% CI: 63% to 80%)</td>
</tr>
</tbody>
</table>

Conclusions CAN COMPUTED FRACTIONAL FLOW RESERVE CORONARY CT ANGIOGRAPHY (FFRCT) OFFER AN ACCURATE NONINVASIVE COMPARISON TO INVASIVE CORONARY ANGIOGRAPHY (ICA)? 'THE NON-INVASIVE CATH.' A REVIEW

Purpose of study This abstract aims to review the accuracy of Computed Fractional Flow Reserve in the diagnosis of hemodynamically significant coronary artery stenosis and ruling out non-significant coronary artery stenosis when compared to FFR obtained during invasive coronary angiography.

Methods used We conducted a Medline search using various combinations of ‘Computed Fractional Flow Reserve,’ ‘Invasive coronary angiography’ ‘noninvasive,’ ‘significant stenosis’ and ‘coronary artery disease’ to identify randomized trials published before October 1, 2019, for inclusion in this review. The following section reviews data from pivotal trials to determine a noninvasive strategy in appropriate patients to accurately detect functionally significant stenosis.

Summary of results FFRCT is a novel noninvasive modality which localizes significant stenosis by means of crystal fluid dynamics eliminating the need for vasodilators. The specificity of FFRCT as analyzed by DISCOVER-FLOW, DeFACTO, NXT trials were 93%, 90%, and 86% respectively. Decrease in PCI was 5% in DISCORD trial and 61% in PLATFORM trial. The ADVANCE registry showed significantly lower events of CV death or MI with a negative FFRCT (>80) when compared with abnormal FFRCT. Furthermore, when FFRCT was studied as a first-line diagnostic modality in stable angina, it showed effectiveness in differentiating patients who require no invasive intervention in low risk (FFR >0.80) compared to high risk (FFR</=0.80).

Conclusions FFRCT is a novel modality for analyzing significant stenosis in CAD non-invasively. The high sensitivity of this modality could make it a good rule out tool to avoid unnecessary intervention in physiologically insignificant lesions. Limitations of this modality include low specificity and double exposure to contrast if the test is positive warranting further intervention. Further query into this matter is warranted.
Purpose of study In the general population, abdominal aortic aneurysm (AAA) is synonymous with vascular disease and associated with increased mortality. Once diagnosed, AAA can be followed noninvasively or corrected surgically. Vascular disease is common in dialysis patients, but there is limited information on the incidence and outcomes for AAA in this population. To address this question, we queried the United States Renal Data System (USRDS) for risk factors associated with diagnosis of AAA, survival of patients diagnosed with AAA, and overall risk factors for mortality.

Methods used Incident dialysis patients from 2005–2014 from the USRDS were queried. ICD-9 and ICD-10 codes were used to define a diagnosis of AAA and identify clinical co-morbidities. Cox proportional hazards (CPH) modeling was used to determine the adjusted hazard ratio (aHR) and 95% confidence intervals (CI) for death.

Summary of results From a total cohort of 868,799, we identified 22,121 subjects with a diagnosis of AAA. When compared to patients without the diagnosis, AAA patients were older and had higher percentages of white race, male gender, tobacco use, Charleston comorbidity index (CCI), and hypertension as end stage renal disease (ESRD) etiology, but lower percentages of diabetes as ESRD etiology. A bivariate CPH model of survival time of the AAA group showed that AAA patients had significantly increased mortality compared to patients without a AAA diagnosis (HR=1.29, p-value<0.0001). However, in the final CPH model, patients with an AAA diagnosis had a decreased risk of mortality (aHR=0.85, 95% CI 0.844–0.860), after controlling for age, CCI, and other demographic and comorbid variables.

Conclusions ESRD patients with a diagnosis of AAA are more likely to be older, white, male, smokers with hypertension as the cause of ESRD. Patients with AAA are less likely to have diabetes as an etiology of ESRD. AAA is associated with a decreased risk of death, which suggests that AAA in the ESRD population by itself may not increase mortality, but the comorbid factors that come with it do.

Case report Inferior Vena Cava (IVC) Filter placement is indicated in patients with absolute contraindication to anticoagulation. IVC filter fracture with fragment embolization is a very rare complication and is usually missed due to lack of symptoms. We present a case of IVC filter fracture and strut migration.

Case presentation A 43-year-old female with history of severe MVA 20 years ago which was complicated with prolonged immobilization. She suffered recurrent DVTs despite anticoagulation eventually requiring Greenfield IVC filter. She presented to our hospital with right flank pain, and as a part of her work up, a CT scan of the abdomen and lower chest showed high-density linear structure in the anterior wall of the right ventricle. This likely represented a fractured IVC filter strut as the IVC filter was off axis and missing one strut (figure 1,2). The rest of history and physical exam were unremarkable. Cardiothoracic surgery recommended leaving the IVC filter and strut in place and opted for surveillance by regular follow-ups and CT scans. Patient was sent home on novel oral anticoagulant.

Discussion The most common complication of IVC filter placement is filter site thrombosis. Filter fracture with strut migration is a rather rare complication. Most of the time the patient is asymptomatic. Surgical intervention is not usually recommended and may be associated with more complications. Management is mainly surveillance with imaging.

Conclusion Forty percent of IVC filter placements are placed without validated indications. Physicians should be aware of serious adverse effects as in our case before considering this procedure.
Abstracts

105 CAN FISH OIL KILL YOU?
AA Asfaw*, RN Khouzam, B Cave, MK Teshome, M Barnhart, J Counts. UTHSC, Memphis, TN
10.1136/jim-2020-SRM.105

Case report A 74-year-old male patient with past medical history of symptomatic Ventricular Tachycardia (VT) post Intra Cardiac Cardioverter Defibrillator (ICD) placement in June 2019. He was admitted after he had multiple shocks from his ICD. He had no chest pain, dizziness or syncope. His home medications included Metoprolol succinate 100 mg daily, enalapril 10 mg and Poly Unsaturred Fatty Acid (Fish Oil) 1200 mg daily. A left heart catheterization at the initial diagnosis of monomorphic tachycardia revealed normal coronaries. Trans-thoracic Echocardiogram showed normal LV systolic function at the time of diagnosis with mild aortic valve regurgitation. During the current admission, ICD interrogation showed that he had received 46 appropriate shocks for VT. A 12 lead EKG showed a wide complex tachycardia with LBBB morphology. Subsequently, he underwent electrophysiology study and ablation of VT focus identified in the right ventricle apical lateral wall.

106 WHAT SHOULD PHYSICIANS KNOW ABOUT TAKAYASU ARTERITIS AND RISKS WITH THE USE OF VASOPRESSORS?
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10.1136/jim-2020-SRM.106

Case report Takayasu arteritis (TA) is a rare systemic inflammatory arteritis affecting the large vessels, the aorta and its branches. It is commonly seen in women age <40 years. Etiology is not clearly known, but it may be related to autoimmune inflammatory damage to arterial wall. Progression of the disease following vasopressor administration has not been reported, but it is recommended to avoid vasopressors. We report case of undiagnosed and asymptomatic TA who developed gangrene of extremities after vasopressor administration for septic shock.

Case summary A 31-year-old female was admitted with left foot amputation site infection and progressive limb ischemia. One year ago, her feet and hand were amputated due to acute limb ischemia following administration of vasopressor for septic shock. Patient was re-admitted with left foot stump darkening and discharge. Upon evaluation, she was alert and comfortable. Blood pressure measurement showed discrepancy in both arms, 94/60 (right arm) and 70/38 mmHg (left arm), no tachycardia or fever. Left brachial pulse was non palpable, and right radial pulse was feeble. Bilaterally amputated feet and upper extremities amputated at the trans-metacarpal and wrist level. Given the above clinical signs, TA was suspected. CT angiogram revealed focal stenosis of the left innominate artery, at the origin of the left vertebral artery and the left subclavian artery, suggestive of TA.

Conclusion TA can be associated with substantial morbidity and life-threatening complication. There are no clear approach in patient with TA and septic shock who requires vasopressors. There are few case reports of patients who developed anesthesia related hypotension in whom administration of IV fluid and Trendelenburg position are recommended. It was also stated vasopressors are best avoided in patient with TA. Vasopressors can further compromise blood flow and increase risk of acute limb ischemia like in our patient.

107 A CHALLENGING CASE OF RECURRENT PROSTHETIC VALVE ENDOCARDITIS IN ADULT CONGENITAL HEART DISEASE WITH MULTIPLE STERNOTOMIES
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10.1136/jim-2020-SRM.107

Case report Prosthetic valve endocarditis (PVE) can lead to abscess formation and septic emboli. Antibiotics are often insufficient. About 50% of cases require cardiac surgery. Case A 42-year-old female with congenital heart disease and recurrent PVE presented with fever after receiving antibiotics by central line for colitis. She had 8 previous sternotomies for childhood repair of aortic stenosis, ventricular septal defect, bi-ventricular outflow tract obstruction, and 3 aortic valve and root replacements (AVR), including a 2018 transcatheter AVR.

Severe sepsis from methicillin-sensitive S. aureus bacteremia was diagnosed. Vancomycin and piperacillin/tazobactam therapy failed. Infectious Disease began gentamicin, oxacillin, and rifampin but stopped gentamicin due to tubular toxicity.

A new neurological deficit warranted brain magnetic resonance imaging that confirmed multiple septic embolic infarcts. Computed tomography confirmed TAVR valve vegetations and prosthetic aortic root abscess (figure 1). A 30-day perioperative mortality rate of 53% precluded in-hospital repair. She was transferred for aortic root and ascending aorta replacement with uneventful recovery and resolution of bacteremia.

Abstract 107 Figure 1 Computed tomography confirmed TAVR valve vegetations and prosthetic aortic root abscess

Discussion Despite high mortality, the patient’s PVE, aortic root abscess, and persistent bacteremia precluded TAVR in TAVR, making surgery the only curative option. It was successful in this case.
Case report We present a 53-year-old male with a history of bipolar disorder, hypertension, previous stroke and sciatica who presents with complaints of ‘frozen toes’. The patient explained that he had been experiencing numbness and dis-coloration of the right 1st, 2nd, and 5th toes. He stated that he noticed these changes over the past couple of weeks however he now began having sensations to which he continued to describe as ‘frozen’ associated with numbness and mild pinprick sensations. He admitted to using ten cigarettes daily but denied any current/previous IV drug use or history of bacteremia or endocarditis. He was noted to have had a full mouth extraction six years ago. The patient had no other complaints. On review of systems, he denied any chest pain, shortness of breath, claudication, swelling, weight changes, cough, fevers, chills or recent trauma. On exam he was noted to have dry mucous membranes, clubbing of the fingers bilaterally and mottled appearing skin of the right great toe with small non-blanching purpura on the 2nd and 5th digits. He also endorsed decreased sensation with palpation, but no pain was elicited. The initial labs revealed elevated hemoglobin and hematocrit of 18/53. Additional workup was unremarkable. The patient was started on heparin infusion with additional imaging obtained including a CTA runoff and TTE in along with a surgery consult. The patient’s echocardiogram showed a large friable mass measuring 2.4 × 1.9 inches at the junction of the mitral annulus and interatrial septum protruding into the mitral valve. Adult cardiac surgery was consulted, and an additional CTA chest and Cardiac MRI were obtained. CTA was remarkable for a left upper lung nodule with a speculated appearance concerning for malignancy. The patient was taken for an open excision of intracardiac mass to decrease the risk of additional organ damage from seeding clots before additional malignancy workup was considered. Pathology was consistent with a large atrial myxoma with gelatinous covering and adherent clots. The patient had an uncomplicated recovery and has since continued to the Pulmonary department. Additional lung and lymph node biopsies have since been obtained that are consistent with Adenocarcinoma. The patient is currently undergoing chemotherapy and radiation treatment.

Case report A 32 year-old female with diabetes mellitus, recurrent miscarriages, and PPCM diagnosed at 32 weeks, caesarian section complicated by wound dehiscence presented with abdominal pain and bilateral lower extremity edema. Imaging was significant for bilateral pulmonary emboli along with splenic, renal and intestinal infarctions. Transthoracic echocardiogram showed a LV ejection fraction of 15% with a LV thrombus; she was started on intravenous anticoagulation. Soon after she complained of left leg pain; distal pulse was absent. Imaging showed a left femoral artery occlusion and she was taken to the OR emergently. Later she was noted to have absent pulses in the right lower extremity and needed additional surgical interventions for recurrent arterial thrombi. Hematology was consulted due to concern for catastrophic APL.

In PPCM, there is a higher risk for thromboembolic events due to a low ejection fraction and stasis of blood, in addition to the hypercoagulable state associated with pregnancy. Guidelines suggest considering anticoagulation in this situation, however, it is unclear which patients benefit most. Thromboembolism is the most severe complications of PPCM, affecting up to 7% of cases. This is particularly of concern in patients with suspected or diagnosed hypercoagulable states. APL is an autoimmune condition associated with pregnancy loss or vascular thrombosis in the presence of positive antiphospholipid antibodies. The manifestations vary and APL can present with diffuse vascular thrombosis leading to rapid multiorgan failure.

Guidelines recommend considering anticoagulation in patients with PPCM. In APL, anticoagulation is considered the standard of care. In the case presented, anticoagulation may have been appropriate. Due to her catastrophic presentation, several strategies were considered including changing anticoagulation and plasmapheresis illustrating the management challenges of PPCM in the setting of a suspected hypercoagulable state. This case highlights that when faced with recurrent arterial thromboembolisms in PPCM, especially in high-risk hypercoagulable patients, the best management remains unclear.
contraction of the apex and base with akinesis of the mid-section. Acute coronary syndrome must be ruled out for a diagnosis of TC, especially important with mid-ventricular TC as this presentation can be confused with wall motion abnormalities caused by an MI. Treatment is similar to heart failure therapy with most patients making a full recovery.

TC is a well described phenomenon, however multiple variants have been emerging recently. Typically the apex is more at risk for TC as it has been postulated that this region is more sensitive to adrenergic stimulation. However with the emergence of other variants, it is imperative that they become recognized as they can be mistaken for wall motion abnormalities during a myocardial infarction.

Case report Adalimumab is a human monoclonal TNF-α antibody that is widely used to treat ulcerative colitis (UC) given its favorable side effect profile compared with other systemic treatments. Its long term efficacy and safety profile remain unknown. We report a case of venous and arterial thromboembolic events occurring in a UC patient during adalimumab treatment.

Case description A 59-year-old man with UC was recently started on adalimumab 6 weeks before admission. He presented with gradually increasing pain in the right leg and shortness of breath on exertion. He was tachypneic, hypoxic, and had right leg swelling. Computed tomography pulmonary embolism (PE) protocol was positive for bilateral PE. Ultrasound (US) Doppler revealed acute occlusion of the right distal superficial femoral and popliteal veins. He was started on heparin drip and transitioned to rivaroxaban upon discharge. He presented 3 days later to our facility with sudden sharp right leg pain while working on his farm. Distal pulses were absent in the right leg, and US arterial Doppler showed acute occlusion of the right popliteal artery. He was restarted on heparin drip and underwent emergent peripheral angioplasty of the proximal right posterior tibial artery and aspiration thrombectomy of the right popliteal artery. Given his extensive thrombosis, we consulted the hematology team to rule out an underlying hypercoagulable state. He was negative for anti-phospholipid antibodies; however, he had elevated anti-adalimumab antibody levels (29.7 AU/ml)

Discussion Only 4.5% of all the spontaneously notified adverse reactions of the TNF-α blockers are arterial and venous thromboembolic events. According to Korswagen et al., the occurrence of venous and arterial thromboembolic events during adalimumab treatment was higher in patients with anti-adalimumab antibodies than in those without anti-adalimumab antibodies. This may be secondary to the formation of immune complexes that can activate platelets via the Fcγ receptor and complement system, inducing a prothrombotic state.

Primary care physicians should be aware of this possible association despite its rarity, pending further evaluation by controlled studies.

VENUOUS AND ARTERIAL THROMBOEMBOLIC EVENTS IN A PATIENT WITH ANTI-ADALIMUMAB ANTIBODIES

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10.1136/jim-2020-SRM.111

Case report A 56 year-old male with a known history of alcoholism, hepatitis C, hepatic cirrhosis complicated by esophageal varices and spontaneous bacterial peritonitis (SBP) presented with abdominal pain. Diffuse abdominal pain was reported, associated with nausea and vomiting. On exam, abdomen was distended and diffusely tender to palpation. An abdominal x-ray ordered on admission was concerning for a small bowel obstruction. A paracentesis was performed which ruled out SBP. The patient developed shortness of breath while in hospital. A chest X-ray revealed a right sided pleural effusion and multi-focal areas of consolidation concerning for pulmonary edema or multi-focal pneumonia. A trans-thoracic echocardiogram revealed normal left ventricular function; however, there were continuous small gas formations noted to be originating from the inferior vena cava (IVC). The gas was visualized circulating and exiting into the systemic circulation, leading to suspicion for a patent foramen ovale (PFO) or a pulmonary arterio-venous malformation (AVM). Based on the echocardiogram findings, a computed tomography of the abdomen (CT) was ordered to evaluate for bowel ischemia. The CT scan revealed pneumatosis of the small bowel wall and concern for bowel ischemia. A repeat echocardiogram after resolution of his abdominal pain demonstrated no further gas formation.

Conclusion This represents a rare case of intestinal ischemia discovered after identification of systemic gas on echocardiogram. Portal venous gas is a well-documented sign of intestinal ischemia1. It can also occur with a faulty intravenous line, post-surgical manipulation of abdominal organs, colonoscopy and is idiopathic in 13% of cases2. Gas entering the IVC through porto-systemic anastomosis has been previously reported3, and we suspect similar mechanism in this case. The gas then likely entered systemic circulation via a PFO or pulmonary AVM. Continuous gas formation crossing into the systemic circulation via a right to left shunt is a rare occurrence, and even more rare to be initially identified by echocardiogram. The gas in itself is not a measure of the severity of illness but rather a diagnostic clue. When gas is visualized on echocardiogram, it is important to evaluate for potentially fatal intra-abdominal events.
Abstracts

113 THE OCTOPUS TRAP: AN ATYPICAL PRESENTATION OF BROKEN HEART SYNDROME
A Nieves Ortiz*, V Fonseca-Ferrer, A Rivera-Gonzalez, JG Rodriguez Veliz, K Hernandez Moya, I Rivera, L Piñeiro. San Juan City Hospital, Canovanas, PR
10.1136/jim-2020-SRM.113

Case report Transient apical ballooning syndrome also known as Takotsubo cardiomyopathy, is a very difficult recognized transient left ventricular dysfunction, a non ischemic cardiomyopathy in which there is a sudden temporary weakening of the myocardium. The clinical presentation resembles an acute coronary syndrome, with chest pain, ischemic type ST-segment changes and cardiac enzyme elevation. Prognosis is good, with full recovery of cardiac function within 2–4 weeks.

We present a 70 year old woman with a history of colon and bladder cancer who presented to the Hospital complaining of abdominal pain localized at the epigastria area with associated nausea and vomits. Physical examination was remarkable for dry mucosa and diffuses abdominal pain to deep palpation. Laboratory findings were normal except for hematuria and proteinuria. The chest X ray show elevated right hemidiaphragm with subpulmonary effusion. The abdominal sonogram reveals Bilateral Renal Cyst and hepatic steatosis. Abdominal CT scan showed right lung base atelectasis and subpulmonic effusion, bilateral renal cysts, small hiatal hernia and calcified coronary atherosclerosis. She was admitted with diagnosis of intractable abdominal pain to rule out small bowel occlusion. We perform a small bowel series which shows up nearly total mid jejunal obstruction. Medical management consisted of hydration, NPO, and surgery services consulted for an exploratory laparotomy for lysis of the occlusion. The next day after surgery patient presented with dyspnea and elevated cardiac enzymes: troponin and CK MB. EKG showed ST segment elevation of V1 to V6 and T wave inversion in the same lead. She was transfer to CCU for critical care management.

This case illustrates Transient apical ballooning syndrome as a complication type of primary acquired cardiomyopathy occurring commonly after a recent stressful event and characterized by transient myocardial systolic dysfunction that is mainly confined to the apical region of the left ventricle. Treatment is supportive but coronary angiography is necessary to establish the diagnosis. The purpose of this case presentation is to alert the medical community on a rare and uncommon cardiac syndrome which mimics a deadly disease.

114 HEART DISEASE IN A YOUNG FEMALE
OB Obafemi*, WF Campbell, JD Pollard. University of Mississippi Medical Center, Jackson, MS
10.1136/jim-2020-SRM.114

Case report A 70-year-old female presented with left sided hemiparesis. Magnetic resonance imaging showed an acute right parietal ischemic infarct and multifocal punctate infarcts of varying chronicity. There were no paroxysmal arrhythmias or carotid disease. Echocardiography revealed severe mitral annular calcification with caseous central necrosis (figure 1) and mild mitral regurgitation. Mitral valve replacement was pursued.

Discussion Mitral annular calcification (MAC) is commonly an inconsequential finding. Au contraire, caseous MAC is a very rare entity occurring in only 0.63% of patients with MAC. Typical echocardiographic findings of a smooth, rounded periannular, echo-dense mass with central echolucency and no acoustic shadowing may be diagnostic. Differentials may include abscess, calcified myxoma or hydatid cyst. Its rarity portends an uncharted clinical course. Pursuant to a compatible and prevalent process of liquefactive necrosis, scint data suggests it may be benign and reversible. Yet, there is a conceivably increased risk of embolic phenomena or valve dysfunction given its dynamic nature. Rare case reports on...

115 CASEOUS MITRAL ANNULAR CALCIFICATION PRESENTING AS A STROKE
MB Omar*, AE Martinez, A Niazi, J Ruiz-Morales. University of Florida College of Medicine, Jacksonville, FL
10.1136/jim-2020-SRM.115

Case report A 70-year-old female presented with left sided hemiparesis. Magnetic resonance imaging showed an acute right parietal ischemic infarct and multifocal punctate infarcts of varying chronicity. There were no paroxysmal arrhythmias or carotid disease. Echocardiography revealed severe mitral annular calcification with caseous central necrosis (figure 1) and mild mitral regurgitation. Mitral valve replacement was pursued.

Discussion Mitral annular calcification (MAC) is commonly an inconsequential finding. Au contraire, caseous MAC is a very rare entity occurring in only 0.63% of patients with MAC. Typical echocardiographic findings of a smooth, rounded periannular, echo-dense mass with central echolucency and no acoustic shadowing may be diagnostic. Differentials may include abscess, calcified myxoma or hydatid cyst. Its rarity portends an uncharted clinical course. Pursuant to a compatible and prevalent process of liquefactive necrosis, scint data suggests it may be benign and reversible. Yet, there is a conceivably increased risk of embolic phenomena or valve dysfunction given its dynamic nature. Rare case reports on...
caseous MAC favor cavity obliteration with valve replacement over valve preservation techniques to reduce the risk of clinical sequelae.

Cardiac arrest and left ventricular function: 'Popsicle Heart' and allowing enough time for the heart to melt

Pour-Ghaz*, B Cave, S Lavie, J Raja, A Vanlandingham, UN Ibebuogu, R Askari, RN Khouzam. UTHSC, Memphis, TN

Case report The annual incidence of sudden cardiac arrest (SCA) is estimated to be about 350,000 in the United States. The impact of insertion of implantable cardiac defibrillator (ICD) after SCA in reduced left ventricular ejection fraction (LVEF) patients is not well established, but is associated with higher mortality (1). It has also been demonstrated that prolonged targeted temperature management at 33 degrees Celsius for 48 hours may improve the recovery of LVEF (2). Here, we present a case of ‘popsicle heart’ and propose that timing of ICD implantation should be carefully considered in these patients.

Case presentation A 26-year-old Caucasian female history of alcohol dependence presented with witnessed cardiac arrest post self-detox from alcohol at home and was admitted for post-arrest management. The patient had ventricular fibrillation and was defibrillated twice with return of spontaneous circulation just prior to arrival. She was placed under hypothermia protocol for a total of 72h. Transesophageal echocardiogram was done on 1st day and 5th day of hospitalization. First echocardiogram showed a visually estimated LVEF was 25–30% with most of the left ventricular segments being akinetic. Second echocardiogram showed a visually estimated LVEF of 40–45%. The patient made dramatic improvements with therapy and was discharged home.

Conclusion As our case has demonstrated, prolonged hypothermia protocol and allotment of enough time for cardiac function recovery resulted in a dramatic recovery in LVEF and did not necessitate placement of ICD. Thus, in such cases of ‘Popsicle Heart’ having patients placed under hypothermia protocol for at least 48h and repeating echocardiogram in timely interval can help avoid costly and unnecessary procedures such as ICD placement.

REFERENCES

GUIDEWIRE DIRECTED TRANSESOPHAGEAL ECHOCARDIOGRAPHY IN THE SETTING OF ZENKER’S DIVERTICULUM

A Sabharwal*, K Patel, ER Fox, SJ Tang. University of Mississippi Medical Center, Jackson, MS

Case report Esophageal diverticula are difficult cases for transeophageal echocardiography (TEE) even for experienced operators due to risk of perforation. Accordingly, they are listed among the absolute contraindications by the American Society of Echocardiography. Here we describe a case in which an endoscopic retrograde cholangiopancreatography guide wire is used to direct a TEE probe into the esophageal introitus adjacent to a large Zenker’s diverticulum (ZD).

A 75-year-old male with a past medical history of mitral valve prolapse, severe mitral regurgitation and ZD was evaluated for MitraClip. He was unable to complete evaluation due to difficulty passing the TEE probe through the oropharynx. The patient underwent esophagogastroduodenoscopy (EGD) with diverticulectomy of 4–5 cm in depth diverticulum and dissection of a prominent septum. Surveillance EGD one month later revealed a prominent ZD with a small esophageal introitus at the hypopharynx. With multidisciplinary planning, a guide wire catheter was affixed to the TEE probe. A guide wire was then passed through the esophagus and into the stomach with gastroscopic guidance. The TEE probe was then
advanced into the esophagus using the wire as a rail. Entry of the TEE probe into the esophagus was assisted and confirmed with endoscopic visualization. TEE was then performed per protocol without complications to complete evaluation for mitral valve repair. This case demonstrates a safer approach for addressing esophageal diverticula.

**Abstract 117 Figure 1** Guide wire entering esophagus superior to large diverticulum

any improvement in the LV systolic function. Patient underwent surgery, myxoma was removed and confirmed with pathology. Her TTE repeated 4 months later showed significant improvement of LVEF 65–69% with no regional wall motion abnormalities.

**Discussion** Takotsubo cardiomyopathy was initially recognized in Japan in 1990 with the first report emerging from the United States in 1998. Cardiac myxomas, although rare, are the most common primary benign tumors of the heart. In our case report, the patient was diagnosed with atrial myxoma which could be one of participating factors for stress induced cardiomyopathy. Reviewed literature showed only 2 cases reports with similar presentation.

**Abstract 119 Figure 1** from clockwise: 2-chamber short axis, 2-chamber coronal view showing over-riding aorta, and 3-chamber axial view showing hypertrophied right ventricle (RV) and abnormal connection to left ventricle (LV)

**Abstract 119 Figure 1** A special case of uncorrected tetralogy of fallot in pregnancy

H Shi*, C Caplan, D Brady, R Blewett, S Tunovic. Tulane University, New Orleans, LA

10.1136/jim-2020-SRM.119

Case report Adult congenital Tetralogy of Fallot (ToF) patients in the United States often receive surgical repair in infancy or childhood. Pregnant women with corrected ToF can suffer right sided heart failure, pulmonary regurgitation as well as prematurity, abortion, and small for gestation age deliveries. However, although very rare, uncorrected ToF women that become pregnant have morbidity rates up to 60–70% with poor fetal prognosis.

Case presentation A 20 year-old nulligravida female with a history of uncorrected ventricular septal defect (VSD), presented for delivery at 34 weeks of pregnancy. A transthoracic echo (TTE) showed ejection fraction (EF) 55%, severe right ventricular hypertension with estimated systolic RV pressure (RVSP) 153 mmHg. Cardiac MRI (Figure 1 below) showed right-sided aortic arch with bidirectional VSD. Decision for a high-risk Cesarean section delivery was made; she was extubated uneventfully after. 3 months after discharge, she underwent a VSD patch closure, right ventricular (RV) muscle bundle division, and RV outflow tract patch for her ToF. Repeat TTE showed significantly improved RVSP to 40 mmHg. The baby...
was born with prematurity and a small secundum atrial septal defect.

**Discussion** Very limited (two studies with <10 patients each) analyses of pregnant women with uncorrected ToF exist. Careful and active postpartum monitoring and a multidisciplinary effort at our institution was essential to a favorable outcome.

**Conclusion** Here we describe a successful delivery of a child in an uncorrected ToF pregnant mother. This case serves as a reminder of the profound physiologic changes in cyanotic congenital heart disease.

### Endocrinology and metabolism

**Joint plenary poster session and reception**

**4:30 PM**

**Thursday, February 13, 2020**

**120 SEVERE HYPERCALCEMIA IN A PATIENT TREATED WITH LENALIDOMIDE**

A Eapen*, E Nyenwe. University of Tennessee Health Science Center, Memphis, TN

10.1136/jim-2020-SRM.120

**Case report** Lenalidomide has been used in the treatment of hematological malignancies. We here present a case of severe hypercalcemia in a patient with myelodysplastic syndrome treated with lenalidomide. A 57-year-old Caucasian male with myelodysplastic syndrome presented to the hospital after sustaining a fall in his bathtub. He reported extreme body weakness, poor appetite, polyuria, polydipsia, constipation. He had started lenalidomide four days prior to presentation. He had been treated with azactidine for approximately two months prior to starting lenalidomide.

On presentation, found to have severe hypercalcemia with corrected calcium of 15.7 mg/dL. He was treated with intravenous hydration, pamidronate and calcitonin. He responded to treatment with improvement in serum calcium level. Other workup revealed PTH 6.7 pg/mL, 25-hydroxyvitamin D 25.5 ng/mL, 1,25-dihydroxyvitamin D <8 pg/mL.

**Discussion** There have been a few case reports implicating lenalidomide in the etiology of hypercalcemia in patients with hematological malignancies. In two of the cases, the patients were treated with lenalidomide and rituximab. In the third case, the patient was treated solely with lenalidomide. Serum calcium ranged from 11.78 to 16.95 mg/dL; the patients were treated with IV fluids and steroids in one case and IV fluids, pamidronate, calcitonin and steroids in other instances. These described patients had normal serum vitamin D and PTH levels. One case was noted to have slightly elevated PTHrP, in whom hypercalcemia recurred when challenged with lenalidomide. Hypercalcemia is a rare complication of advanced B-cell malignancies due to lymphokine and cytokine mediated bone disruption; increased production of 1,23-dihydroxyvitamin D by lymphocytes may also lead to hypercalcemia. Other postulated mechanisms include effect of cytokines such as IL-6, TNFα, MIP-1α, which can influence osteoclastogenesis.

**Conclusion** The incidence of hypercalcemia with lenalidomide indicates that serum chemistries of patients being treated with this agent should be monitored closely, especially, in the first weeks of therapy.

**121 MALIGNANT AND TREATMENT-RESISTANT HYPERTENSION IN A PATIENT WITH BILATERAL ADRENAL HYPERPLASIA**

K Ganesan*, AS Sallar, D James. University of Tennessee Health Science Center, Memphis, TN

10.1136/jim-2020-SRM.121

**Background** Treatment resistant hypertension (TRH) may affect about 15% of patients with hypertension; it is mainly diagnosed in obese, elderly patients. Early diagnosis of the mechanism of TRH may prevent or delay the onset of complications. While primary hyperaldosteronism appears to be a major factor in causing TRH, other adrenal hormones need to be considered in young patients.

**Case report** 45-year-old hospitalized man was referred to endocrinology for evaluation of TRH. His past medical history is significant for TRH of five years duration, ischemic cardiomyopathy, congestive heart failure (Ejection Fraction 45–50%) and chronic kidney disease. Physical examination was unremarkable except for a blood pressure (BP) of 193/124 mmHg while on Lasix, isosorbide mononitrate, hydralazine, carvedilol and clonidine. Chart review showed occasional serum potassium levels just below the normal range over the last year. Computed tomography of the abdomen without contrast showed bilateral enlarged nodular adrenal glands that had increased over the last 3 years with left adrenal gland of 6.3 cm and right adrenal gland of size 5.6 cm. Initial work up showed normal levels of free plasma metanephrine, normetanephrine, aldosterone renin ratio, 17-hydroxyprogesterone and undetectable random adrenocorticotropic hormone with random cortisol of 29 mcg/dl. Subsequent evaluation revealed elevated deoxycorticosterone (3030 ng/dL), 11-deoxycorticosterone (42 ng/dL) and 18-hydroxycorticosterone (640 ng/dL). His BP subsequently became well controlled after the addition of Spironolactone and was referred to general surgery for adrenalectomy. Two months later, he appeared mildly Cushingoid and was diagnosed with new onset diabetes mellitus with hemoglobin A1c of 11.1%.

**Conclusion** Workup for TRH, especially in younger patients, should not be stopped after ruling out the ‘usual suspects’ since malignant hypertension resulting in end organ dysfunction may develop if not appropriately treated. In our patient, TRH was due to elevated 18-hydroxycorticosterone (precursor of aldosterone) secretion from bilateral adrenal hyperplasia. It appears that the adrenals were also producing excess cortisol, which most likely contributed to the development of his new onset diabetes.

**122 UNCONTROLLED DIABETES MELLITUS IN A PATIENT WITH LIPOHYPERTROPHY**

K Ganesan*, J Ross, E Nyenwe. University of Tennessee Health Science Center, Memphis, TN

10.1136/jim-2020-SRM.122

**Introduction** We present a case of uncontrolled diabetes mellitus in a patient with pronounced lipohypertrophy (LH) due to repeated insulin injection at a single site.

**Case report** 59 years old woman with history of hypertension, hyperlipidemia, morbid obesity, and chronic kidney disease was seen in the endocrinology clinic for uncontrolled diabetes mellitus. She was diagnosed with diabetes mellitus 26 years ago and at the time of evaluation, she was using insulin
detemir 100 units twice a day and insulin lispro 100 units with meals. Her blood glucose levels ranged from 64 to 300 mg/dL. Her last hemoglobin A1c was 13.7%. On exam, she had LH with lichenification over the lower aspect of the right upper quadrant of her abdomen, the only site she reported injecting insulin for many years. She was counseled on varying the site of insulin injection. To reduce the volume of insulin administered, her insulin was changed to regular insulin U-300.

Discussion LH is excess fat deposition at sites of insulin injection, since repeated administration of insulin in the same site concentrates the lipogenic effect of insulin. Insulin absorption is reduced in areas of LH, increasing the risk of hyperglycemia. In addition, hypoglycemia may occur when a patient arbitrarily injects insulin into healthy tissue, exposing the body to a higher insulin load. Periodic self-examination at home and detailed inspection of injection sites is necessary during office visits, as patients may be unaware of gradual skin changes. Patient may use an injection site up to one week before rotating. If LH develops at an injection site, that site should be avoided until the skin becomes normal. After LH is reduced in areas of LH, increasing the risk of hyperglycemia, since repeated administration of insulin in the same site poor technique, and it contributes to poor glycemic control and risk of hypoglycemic events. While it is important to examine injection sites and counsel on best practice at all patient visits, LH should be considered and addressed if a patient’s blood glucose is labile or resistant to insulin treatment.

Case report Acromegaly is a rare clinical syndrome resulting from excessive growth hormone secretion with an annual incidence of 6–8 cases per 1M individuals with a mean age between 40–45 y/o. Pituitary adenomas are one of the principal reasons of anterior pituitary somatotroph cells overgrowth and account for approximately one third of all hormone-secreting pituitary adenomas with an incidence of 3–4 cases per 1M individual. The onset of acromegaly is insidious and at the moment of diagnosis, approximately 75% of patients have macroadenomas, after extensive workup and incidental brain imaging. One of the most common preceding diagnosis of acromegaly is the development of diabetes mellitus and presentation with DKA de novo could be a determining factor in disease progression due to higher GH levels correlating with an increased prevalence of insulin resistance.

A 28y/o G3P3A2 female without PMHx presented to ER with abdominal pain, malaise, dysarthria, headache and gait difficulty of 3 days of evolution. Upon initial evaluation, patient was found with blood glucose of 317 mg/dL, high anion gap metabolic acidosis and ketones suggestive of DKA de novo. Head CT performed showed an incidental parasellar/ suprasellar/temporal hyperdense mass of 2.5 × 2.6 cm with optic chiasm compression. Upon further questioning, she referred progressive amenorrhea of 3 years, bitemporal hemianopsia, galactorrhea, marked facial feature changes, frontal bossing, weight gain, and acanthosis nigricans for 1 year. Pituitary adenoma workup revealed low prolactin levels (1.58), markedly increased growth hormone (501) and IGF-1 (893) suggesting acromegaly, most likely secondary to a functioning macroadenoma. She was initially treated with cabergoline, diabetes was managed and was referred to Neurosurgery service for further evaluation and tumor removal.

Based on current literature, the incidence of acromegaly is low, more specifically when presenting with new onset DKA and marked insulin resistance as secondary manifestation of functioning pituitary macroadenomas. Medical awareness should be promoted to assess for consideration of signs, symptoms, workup, management and treatment to minimize further health complications and physical burdens acromegaly and pituitary adenomas could pose for affected patients.

123 AN ATYPICAL CASE OF ACROMEGALY DEBUTING AS SUDDEN DKA
K Hernandez Moya*, I Rivera, A Nieves-Ortiz, NL Vergne, JM Garcia Puebla. San Juan City Hospital, Guaynabo, PR
10.1136/jim-2020-SRM.123

124 IMMUNE RECONSTITUTION INFLAMMATORY SYNDROME MANIFESTING AS HYPERTHYROIDISM IN AN HIV PATIENT
DW Jones*, S Cross, S Dagogo-Jack. University of Tennessee Health Science Center, Memphis, TN
10.1136/jim-2020-SRM.124

Abstracts
HOW DOES METFORMIN PRODUCE ITS ANTI-CANCER EFFECTS?

1S Kode*, 1A Armo, 1D James, 1A Vacheron, 1/2S Solomon. 1University of Tennessee, Memphis, TN; 2 Meharry Medical School, Nashville, TN; 3VA Medical Center, Memphis, TN

Purpose of study For the past 7 years, we have been able to demonstrate significant anti-cancer properties for the biguanide drug, Metformin, which is used extensively in treatment of Diabetes Mellitus 2 (DM2). Previous retrospective chart review data from patients have demonstrated significant improvement in outcomes, including reducing the risk of developing certain cancers, reducing the progression of metastases of a primary tumor, and also increasing survival time in patients suffering from prostate, colon, lung, thyroid, esophageal, pancreatic cancer and lymphoma. Aim of our study is to investigate the mechanisms underlying the anti-cancer effects of metformin.

Methods used We propose to explore mechanisms of the anti-cancer effects of Metformin through our own past publications and review of other scientific literature.

Summary of results Possible mechanisms for Metformin’s anti-cancer effects are the following: 1) Metformin decreases circulating insulin levels by increasing the sensitivity of cells to insulin. Decreased insulin and Insulin-like Growth Factor levels, both of which are growth factors that stimulate cell growth and inhibit cell apoptosis, leads to reduced stimulation of growth of cancer cells; 2) Metformin works through AMP kinase, which phosphorylates raptor, inhibiting mTOR and preventing it’s activation (inhibits cell growth by this and other mechanisms, including possibly through rewiring of it’s signaling); 3) Metformin activated AMP-kinase inhibits the Warburg effect (anaerobic glycolysis) and suppresses tumor growth; 4) Metformin induces apoptosis and encourages cell cycle arrest through it’s effects on Cyclin D and 5) Metformin blocks action of Hexokinase II, disrupts metabolism of glucose, and facilitates anti-neoplastic activity through inhibition of cancer cell metabolism; 6) Metformin indirectly inhibits mTOR which leads in multiple ways, to inhibition of cancer cell growth; 7) other.

Conclusions Understanding the antineoplastic activity of Metformin through both mTOR and other key pathways, may help in the development of adjunct cancer treatments in both diabetic and non-diabetic patients.

PHEOCHROMOCYTOMA PRESENTING AS A STROKE

K Sanders*, MB Omar, R Patel. UF Health COM Jacksonville, Jacksonville, FL

Case report A 53-year-old man with a history of depression, multiple suicide attempts, and premature ischemic strokes who presented with sudden-onset left-sided weakness and aphasia. Patient was tachycardic, tachypneic and hypertensive. Although afebrile, he displayed diaphoresis, rigidity, and myoclonus with hyperactive reflexes on physical exam. CT head was negative for acute ischemic stroke. Given a history of prior suicide attempts and multiple serotonin reuptake inhibitors on medication list, clinical picture was more concerning for serotonin syndrome and was admitted for cyproheptadine treatment. However, his tachycardia, hypertension, and diaphoresis persisted. MRI brain was negative for meningitis but notable for acute ischemic cerebral infarct. Of note, prior extensive workup for evaluation of premature stroke was negative. CT chest revealed an incidental finding of bilateral adrenal gland thickening. Urine and plasma metanephrines were significantly elevated. MRI of the abdomen was limited due to motion artifact but was notable for bilateral adrenal hyperplasia without enhancement or cystic changes. Given these findings, treatment with a selective alpha blocker was started with improvement of his symptoms. Upon discharge, an outpatient MIBG scan was recommended to evaluate for presence of pheochromocytoma versus paraganglioma.

Pheochromocytoma is a rare yet important cause of secondary hypertension. Devastating cardiovascular complications can arise if the condition goes unrecognized and untreated. The episodic nature of this tumor makes it difficult to recognize and diagnose. The classic triad of paroxysmal headaches, palpitations, and diaphoresis presents in less than half of patients. Rarer still are the cerebrovascular manifestations of pheochromocytoma. Although this patient left before an MIBG scan could be obtained to confirm pheochromocytoma, his history of multiple premature strokes, labs, and imaging findings strongly suggest pheochromocytoma. We highlight this case to draw attention to the possibility of pheochromocytoma in patients presenting with hypertension and neurologic deficits, especially in young patients lacking the traditional risk factors, as early diagnosis and treatment can prevent life-threatening complications and reduce morbidity and mortality.

HYPERTRIGLYCERIDEMIA INDUCED PANCREATITIS … BUT HOW HIGH IS THE TRIGLYCERIDE?

K Savallha*, AT Kunnumpurath, R Kamoga. White River Health System, Batesville, AR

Introduction Hypertriglyceridemia induced acute pancreatitis is well reported etiology in 1–14% of cases of pancreatitis of at least 1000 mg/dL. 1 The management of HTG-induced acute pancreatitis is usually supportive care. Insulin or aphaeresis may be given to help lower hypertriglyceridemia. Case A 28 year old Caucasian female with a past medical history of insulin dependant type 2 diabetes mellitus, dyslipidemia, obesity and recurrent pancreatitis presented with epigastric, bilateral upper abdominal pain, nausea and vomiting that started in the morning after eating her breakfast. She denied any history of smoking, gallbladder stones, alcohol intake or any new medication. On admission she was found to have WBC 12.2 K/ul, triglyceride level of 11602 mg/dl, amylase 308 U/L, lipase 5517 U/L correlated with acute severe pancreatitis. Abdomen-pelvic CT showed findings consistent with pancreatitis with peripancreatic fluid with no evidence of pseudocyst or walled off necrosis. She was started on insulin drip in the following which her triglyceride decreased to 4783 mg/dl on the second day with insulin alone. Her gallbladder ultrasound and HIDA scan was negative for stones or acute but showed chronic cholecystitis. Insulin drip was stopped when her triglyceride level
Abstracts

128 THYROID STORM: SECONDARY TO INFECTION VERSUS IODINATED CONTRAST

V Silver*, H Oddo Moise, H Tran, C Saraceni, LS Engel, M Modica. LSU Health Sciences Center, New Orleans, LA
10.1136/jim-2020-SRM.128

Introduction Thyroid storm is a rare, life-threatening condition characterized by severe clinical manifestations of thyrotoxicosis. Patients typically present with exaggerated symptoms of hyperthyroidism, and are at increased risk for cardiovascular collapse.

Case A 38 year old woman with a history of hyperthyroidism, presented with a 2 day history of left sided flank pain, subjective fevers, and nausea and vomiting. The patient’s work up revealed a 5 mm left ureterovesical junction stone with associated moderate hydronephrosis, perinephric fluid and fat stranding per CT scan of abdomen and pelvis. Prior to hospital discharge the patient was found to be tachycardic, dyspneic, and febrile. The concern was that the patient was septic secondary to pyelonephritis and possibly was in thyroid storm.

The physical exam was significant for a large, boggy goiter. Initial labs revealed a leukocytosis of 16.9 cells/mm 3, TSH 0.14 IU/ml with Free T4 5.33, and a lactic acidosis of 3.8 mmol/L. The patient was admitted to the ICU and was started on broad-spectrum antibiotics for pyelonephritis, methimazole with iodine drops and propranolol for suspected thyroid storm. Further studies revealed a diffusely enlarged, heterogeneous thyroid gland with three echogenic nodules on the left and a small nodule on the right. A left ureteral pigtail stent was placed by Urology. An echocardiogram did not demonstrate high output heart failure in relation to her tachycardia, dyspnea, and febrile. She was discharged home to complete a course of antibiotics for pyelonephritis.

Discussion The unique feature of our case can be emphasized with the quick and effective response to insulin therapy alone. Additionally, the cost-effectiveness of plasmapheresis remains uncertain. We recommend for patients with Diabetes Mellitus, Hyperlipemia and recurrent pancreatitis to be on insulin pump to prevent further attacks.

129 PANCREATOGENIC DIABETES MELLITUS, AN UNCOMMON COMPLICATION OF PANCREATITIS

H Tran*, W Baumgartner, S Vignes, J Van Dyke, LS Engel, L Nunez. LSU Health Sciences Center, New Orleans, LA
10.1136/jim-2020-SRM.129

Case report Pancreatogenic Diabetes, classified by the American Diabetes Association (ADA) and World Health Organization (WHO) as Type 3c diabetes Mellitus (T3cDM), is a secondary form of diabetes. Chronic pancreatitis is associated with nearly 80% of patients diagnosed with T3cDM.

Case A 45 year old woman with a history of hypertension, constipation, and hypercalcaemia presented with intermittent cramping abdominal pain, nausea and emesis for 2 weeks. She was started on hydrochlorothiazide for hypertension 5 days prior. Physical exam demonstrated epigastric and LLQ abdominal pain. Her initial labs included a Glucose of 148 mg/dL, Calcium of 15.8 mg/dL, Phosphate of 0.9 mg/dL, Lipase of 548 U/L, and PTH 282.2 pg/mL. CT imaging showed peri-pancreatic inflammatory stranding and fluid in the upper abdomen consistent with pancreatitis. She received IVF, pain control, and calcitonin. The following day, her glucose was 314 mg/dL, her hemoglobin A1c was found to be 5.3%. Zoledronic acid was administered, as her hypercalcaemia did not improve. Endocrinology suggested that her pancreatitis was due to hypercalcaemia from a parathyroid adenoma that worsened after taking hydrochlorothiazide. She initially improved, but 3 days into her hospitalization her abdominal pain acutely worsened and she required basal insulin. Repeat imaging revealed acute necrotizing pancreatitis. ENT performed a para-thyroidectomy. Her clinical symptoms improved, and the basal insulin was no longer required. However, at her follow up endocrinology appointment, her glucose was noted to be >500 and she required basal and prandial insulin therapy. At her 3- and 6-month appointments, she still required basal and prandial insulin and C-peptide was 0.8, consistent with pancreatogenic diabetes mellitus.

Discussion Here we present a case that illustrates the acute and chronic complications of even a single episode of pancreatitis. Previous meta-analysis showed that 15% of patients developed diabetes within 12 months after their first episode of pancreatitis. Insulin therapy is the preferred treatment for T3cDM due to exocrine pancreatic insufficiency. Our case highlights the importance of adequate follow-up for hyperglycaemia in patients with pancreatitis.

130 RELAPSING DIABETES KETOACIDOSIS DURING STEP DOWN FROM INTENSIVE CARE UNIT

Y Zakai*, S Dagogo-Jack. University of Tennessee Health Science Center, Memphis, TN
10.1136/jim-2020-SRM.130

Introduction Diabetic ketoacidosis (DKA) is a life-threatening complication of diabetes. Treatment of DKA is resource intensive and expensive, costing $5.1 billion annually. Recurrent DKA accounts for ~20% of DKA admissions. Here we present a patient with recurrent relapsing DKA during transition from ICU to the medical floor.

Case presentation A 61-year-old previously healthy man presented with 3-day of generalized weakness and nausea. Review of systems was positive for polyuria and polydipsia. His brother has type 2 diabetes (T2D). On examination, he was...
A CASE REPORT OF A SOLID PSEUDOPAPILLARY NEOPLASM WITH UNUSUAL DEMOGRAPHIC AND LOCATION FEATURES

A Alhussain*, A Shalaby, D Grunes. University of Mississippi Medical Center, Jackson, MS, USA Minor Outlying Islands

10.1136/jim-2020-SRM.131

Case report Solid pseudopapillary neoplasm (SPN) is an uncommon pancreatic neoplasm typically seen in young women as a pancreatic body or tail mass. We present a case of a 19 year-old African-American male who presented with abdominal pain, weight loss and jaundice. Computed tomography scan showed a large mass in the pancreatic head and patient underwent Whipple procedure. Gross examination showed a well-circumscribed mass in the pancreatic head with central hemorrhage and necrosis (figure 1A). Histologic sections revealed a largely necrotic tumor with solid nests of viable cells with characteristic pseudopapillae (figure 1B). Neoplastic cells had amphophilic cytoplasm with uniform nuclei showing occasional grooves and focal aggregations of hyaline globules (figure 1C). Tumor cells were positive for C-catenin (figure 1D), CD10, alpha-1 antitrypsin and synaptophysin and negative for E-cadherin and chromogranin. SPN should be differentiated from other solid cellular pancreatic tumors such as pancreatic neuroendocrine tumor, acinar cell carcinoma and pancreatoblastoma using clinical features along with immunohistochemical stains. SPN is considered a neoplasm with low-malignant potential and excellent overall prognosis. However, local recurrences and metastases have been reported in 10–15% of cases. Our patient had no evidence of metastasis and continues to do well one year following surgery. In the literature, SPN tends to be more aggressive in older male patients. However, the behavior of SPN in the head of the pancreas of a young African-American male is unclear.

Liver core biopsy showed cholestasis with mild lobular and portal inflammation with mixed inflammatory infiltrate with equinocaval features of biliary injury with no interface activity. There were no changes diagnostic of PBC. Intra-hepatic band cholestasis with bile within dilated bile canaliculi was seen. Findings suggested drug-induced liver injury which was confirmed at Mayo Clinic. Patient was started on Budesonide. Bilirubin decreased to 13.

Black cohosh (Actaea racemosa) is used for menopausal symptoms. It may contain Formononetin, an estrogenic isoflavone. There have been few reported cases of hepatotoxicity associated with it’s use, some of which resulted in liver transplantation. This case presented had no known hepatic history, no potential hepatotoxic usage and a negative workup for any pathology. Biopsy confirmed Drug-induced liver injury. It hereby emphasizes the importance of recognizing herbal supplements like black cohosh as a cause of liver failure.

**Case report**

Drug-induced liver injury (DILI) is a common cause of liver injury and failure. It has an incidence of 14–19 per 100,000 cases and is responsible for 5% of hospital admissions for jaundice. Medications such as Tylenol or antibiotics are commonly associated with DILI, but injury from dietary and herbal supplements is increasing. From 2004 to 2014 there was an estimated rise from 8% to 20% of supplement-induced liver injury. Here we document a case of severe DILI caused by ingestion of whey protein powder workout supplement, a poorly described cause of DILI.

Our patient is a 44-year-old male with no medical history who has been incarcerated since 2010. He presented to an outside hospital after two weeks of worsening fatigue and jaundice. He had decreased appetite, nausea, vomiting and a 40lb weight loss over the last month. On admission to our facility, ALT and AST were mildly elevated to 53 and 64, respectively. His alkaline phosphatase was 312 and total bilirubin was 26.86 with a direct bilirubin of 19.01. Viral, autoimmune, and other causes of liver injury were ruled out. ERCP revealed no stricture, obstruction or mass. Liver biopsy was performed with subsequent pathology suggesting DILI. He denied any medication use but admitted to taking whey protein (Universal Super Whey) supplementation daily for several years. The patient was negative for hepatitis C and HIV. The results were similar 6 months later.

Our patient is a 44-year-old male with no medical history who has been incarcerated since 2010. He presented to an outside hospital after two weeks of worsening fatigue and jaundice. He had decreased appetite, nausea, vomiting and a 40lb weight loss over the last month. On admission to our facility, ALT and AST were mildly elevated to 53 and 64, respectively. His alkaline phosphatase was 312 and total bilirubin was 26.86 with a direct bilirubin of 19.01. Viral, autoimmune, and other causes of liver injury were ruled out. ERCP revealed no stricture, obstruction or mass. Liver biopsy was performed with subsequent pathology suggesting DILI. He denied any medication use but admitted to taking whey protein (Universal Super Whey) supplementation daily for several months. About a month prior to symptom onset, he had increased his usage, consuming a minimum of 5 scoops, up to 3 times a day. Supportive care was provided and over the next two weeks, he improved and was discharged.

DILI is the most common cause of acute liver failure in the Western world. While often associated with medications, the incidence of DILI from dietary and herbal supplements has been rising. It can lead to more severe and prolonged cases of liver injury, as shown here. Additionally, liver injury secondary to supplements often presents with a cholestatic pattern, as also seen in this case. While no available ingredients for Universal Super Whey are on the NIH liver toxicology list, there have been a few documented cases of whey-protein induced liver injury. When faced with DILI from an unknown source, protein supplementation, including whey-protein, should be considered.

**Discussion and review of literature**

Heterophile antibodies could explain why the confirmatory test for HBsAg, after neutralization, was negative. Our patient had not received the HBV vaccination. Also, it does not explain why the HBeAg would be positive. HBsAg ‘escape’ mutants are generally considered when the HBeAg and/or the HBV DNA is positive, in chronic HBV infection, which was not our case.

**Conclusion**

Present HBV guidelines do not define our case. We were unable to identify similar case reports. We continue to monitor our two patients, for if we decide to start them on hemodialysis (our first patient) or initiate immunosuppressive agents (for our second patient), the challenges of HBV reactivation are real.

**Case report**

Hepatitis B surface antigen (HBsAg), is a HBV surface protein particle that indicates current HBV infection. Hepatitis B e Ag (HBeAg) indicates active HBV replication. HBsAg, is a sensitive test, and weakly positive HBsAg test needs to be further confirmed using a neutralization test to confirm infection. Below we have briefly described two cases of unusual hepatitis B serology.

**Case 1**: 78-year-old Caucasian male, who initially, on history he had provided positive risk factors for hepatitis B infection. He denied any recent vaccinations. The transaminases were within normal limits. The hepatitis B surface antigen (HBsAg) was positive. However, the neutralization test was not confirmatory on two occasions. He had hepatitis B e Ag (HBeAg) positive as well. He was negative for Hepatitis B surface antibody (HBs Ab), hepatitis B core total antibody (AntiHbc-T), hepatitis B core IgM (AntiHbc- IgM) and HBV e antibody (anti-HBe). The hepatitis B viral DNA was also negative. The patient was negative for hepatitis C and HIV. The results were similar 6 months later.

**Case 2**: 65-year-old Caucasian male, with psoriatic arthritis, was screened for hepatitis B as part of his management for psoriatic arthritis and was found to have a reactive HBsAg. He had no defined risk factors for HBV. His initial HBsAg was negative 7 years back. His hepatitis B serological profile was similar to the first patient.

**Abstracts**

**PROTEIN-INDUCED LIVER INJURY**

L Buchanan*, S Iqbal, P Hosseini-Carroll. University of Mississippi Medical Center, Jackson, MS

10.1136/jim-2020-SRM.133

**Case report**

Drug-induced liver injury (DILI) is a common cause of liver injury and failure. It has an incidence of 14–19 per 100,000 cases and is responsible for 5% of hospital admissions for jaundice. Medications such as Tylenol or antibiotics are commonly associated with DILI, but injury from dietary and herbal supplements is increasing. From 2004 to 2014 there was an estimated rise from 8% to 20% of supplement-induced liver injury. Here we document a case of severe DILI caused by ingestion of whey protein powder workout supplement, a poorly described cause of DILI.

Our patient is a 44-year-old male with no medical history who has been incarcerated since 2010. He presented to an outside hospital after two weeks of worsening fatigue and jaundice. He had decreased appetite, nausea, vomiting and a 40lb weight loss over the last month. On admission to our facility, ALT and AST were mildly elevated to 53 and 64, respectively. His alkaline phosphatase was 312 and total bilirubin was 26.86 with a direct bilirubin of 19.01. Viral, autoimmune, and other causes of liver injury were ruled out. ERCP revealed no stricture, obstruction or mass. Liver biopsy was performed with subsequent pathology suggesting DILI. He denied any medication use but admitted to taking whey protein (Universal Super Whey) supplementation daily for several months. About a month prior to symptom onset, he had increased his usage, consuming a minimum of 5 scoops, up to 3 times a day. Supportive care was provided and over the next two weeks, he improved and was discharged.

DILI is the most common cause of acute liver failure in the Western world. While often associated with medications, the incidence of DILI from dietary and herbal supplements has been rising. It can lead to more severe and prolonged cases of liver injury, as shown here. Additionally, liver injury secondary to supplements often presents with a cholestatic pattern, as also seen in this case. While no available ingredients for Universal Super Whey are on the NIH liver toxicology list, there have been a few documented cases of whey-protein induced liver injury. When faced with DILI from an unknown source, protein supplementation, including whey-protein, should be considered.

**Discussion and review of literature**

Heterophile antibodies could explain why the confirmatory test for HBsAg, after neutralization, was negative. Our patient had not received the HBV vaccination. Also, it does not explain why the HBeAg would be positive. HBsAg ‘escape’ mutants are generally considered when the HBeAg and/or the HBV DNA is positive, in chronic HBV infection, which was not our case.

**Conclusion**

Present HBV guidelines do not define our case. We were unable to identify similar case reports. We continue to monitor our two patients, for if we decide to start them on hemodialysis (our first patient) or initiate immunosuppressive agents (for our second patient), the challenges of HBV reactivation are real.
Purtscher-like retinopathy (PuR). PuR has been described with acute pancreatitis and connective tissue diseases. PuR, associated with systemic disease, develops through the activation of the complement cascade which leads to leukoembolization of the retinal precapillary arterioles and cause the clinical appearance of Purtscher’s retinopathy.

Case A 28 year-old woman with a history of alcohol abuse and multiple of admissions for acute pancreatitis presented with chief complaint of emesis and abdominal pain. Physical exam, initial blood tests and abdominal ultrasound were consistent with acute pancreatitis. The patient received appropriate fluid resuscitation and adequate pain control. During her hospital stay, the patient awoke from a nap, noted blurry vision, and saw ’little dots floating around,’ which almost completely resolved in the evening. The following morning, she had worsening blurry vision and floaters. Exam by Ophthalmology revealed cotton wool spots, macular edema and neurosensory detachment of the macula bilaterally secondary to PUR. Visual field testing showed loss of central visual field bilaterally with preserved peripheral vision. Visual acuity was 20/200 bilaterally with no improvement with pinhole. The patient received intravenous steroid injections with weekly follow up. Examination at 8 weeks demonstrated improvement of visual acuity to 20/40 bilaterally.

Discussion The development of PuR is independent on the severity of pancreatitis and presents with a wide range of manifestations. The diagnosis is made clinically with sudden loss of visual acuity associated with optic nerve edema and visual field loss, along with retinal findings such as cotton-wool spots, retinal hemorrhage, artery attenuation, venous dilation, and Purtscher flecken. The treatment for the ocular complications of PuR have not been proven and prognosis depends on the areas of the retina that are affected.

NEW INSIGHTS INTO DUMPING SYNDROME: MORE WINE PLEASE!

1JD Herlihy*, 1C Phan, 2R McCallum. 1Texas Tech El Paso, El Paso, TX; 2Texas Tech University Health Sciences Center El Paso, El Paso, TX

10.1136/jim-2020-SRM.136

Case report Dumping syndrome (DS) occurs after meals due to rapid gastric emptying of voluminous hyperviscous contents resulting in early and late symptoms including tachycardia, abdominal pain, nausea, vomiting, bloating, reactive hypoglycemia, syncope, and diarrhea. The main etiologies of DS are vagal nerve injury related to diabetes mellitus or previous gastric or esophageal surgeries, and an ‘idiopathic’ subgroup.

We report a 65 year old female with DS following Nissen fundoplication presenting with abdominal pain, bloating, nausea, vomiting, and diarrhea immediately after meals. A 4 hour gastric emptying study (GES) utilizing the standardized isotope labeled egg beater meal (250kcal) showed 71% emptied at one hour, meeting criteria for DS of >65% emptied by 1 hr, accompanied by the expected spectrum of DS symptoms. She was treated with diet modification, dicyclomine, glycopyrrolate bromide, and octreotide injections for four years with only moderate success and was also complaining of side effects from treatment. The patient noticed that when she drank an 8oz glass of red or white wine, specifically beginning before eating and continuing throughout the meal, her DS symptoms were eliminated. We subsequently repeated the GES using the same nuclear medicine methodology with the patient drinking a glass of wine in her usual fashion and this resulted in a completely normal pattern of gastric emptying, specifically only 23% emptied at 1 hr, with no accompanying symptoms (see detailed results of both gastric emptying studies in table 1).

Discussion Literature has identified that ethanol inhibits the release of several neurotransmitters in the GI tract, including acetylcholine, thus reducing smooth muscle contractions and inhibiting the tonic ‘pressure pump’ mechanism that drives chyme into the small intestine. This is one hypothesis that could explain the efficacy of a glass of wine with meals in our patient with DS. We conclude that this observation does open the door for further research and potentially new therapy for dumping syndrome.

Abstract 136 Table 1 Gastric emptying studies

<table>
<thead>
<tr>
<th></th>
<th>30 minutes</th>
<th>60 minutes</th>
<th>120 minutes</th>
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<tbody>
<tr>
<td>Baseline Study (% emptied)</td>
<td>52%</td>
<td>71%</td>
<td>89%</td>
</tr>
<tr>
<td>With Wine (% emptied)</td>
<td>12%</td>
<td>23%</td>
<td>55%</td>
</tr>
<tr>
<td>Normal (% emptied)</td>
<td>&lt;30%</td>
<td>&lt;65%</td>
<td>&lt;80%</td>
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</tbody>
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UNEXPECTED CAUSE OF ALTERED MENTAL STATUS

SE Huse*, T Cucco. Medical University of South Carolina, Charleston, SC

10.1136/jim-2020-SRM.137

Case report A 63 year old man with a past medical history of multiple myeloma in remission and pancytopenia was brought to the emergency department by his family for evaluation of strange behavior with fever of 102. His wife noticed he seemed intermittently confused and lethargic with uncharacteristic behaviors. The patient reported feeling diaphoretic, but denied chills, sore throat, shortness of breath, abdominal pain, diarrhea, neck stiffness, or vision changes. Notably he is known to frequently work outdoors and had removed 2 ticks from his body over the past week. He denied any new rashes. Initial vital signs included a temperature (102.2), BP 111/68, pulse of 76, and respiratory rate of 15. On exam he was well nourished with a benign HEENT, cardiovascular, respiratory and abdominal and neurologic exam. The patient was admitted to medicine and labs were sent to rule out tick vector illness (Lyme, anaplasmosis, erlichia). He was started on empiric doxycycline in addition to broad-spectrum vancomycin and Zosyn. The following day, his encephalopathy cleared, however he developed 6–8 loose bowel movements with continued impressive fevers (103). The stool GI PCR identified salmonella, and this was treated with levofloxacin. The patient quickly defervesced and had cessation of diarrhea. The tick vector workup was returned negative, and was discharged with on a 14- day course of levofloxacin.

Non-typhoidal salmonella is a leading cause of gastroenteritis worldwide, and in the US is responsible for over a million illnesses, 23,000 hospitalizations and 450 deaths annually. Salmonella confers over 2,000 serotypes which dictate much of the course of illness. Serotypes typhi and paratyphi are responsible for typhoid fever/enteric fever whereas most other serotypes lead to gastroenteritis. This case highlights the
importance of a broad differential diagnosis that is flexible in the light of new information. Additionally, early infectious etiologies may present with vague subjective complaints. Generally, patients can recover with only supportive care, however, immunocompromised or severe cases should be treated with fluoroquinolones as first choice antibiotics. Follow up screening is not recommended as convalescent excretion of salmonella occurs in up to 5 weeks post infection and the incidence of chronic carriers is low (0.2 to 0.06%).

**Case report** In an attempt to further investigate a three-year complaint of dysphagia as well as evaluate a three-month history of diarrhea, we performed an endoscopic evaluation which revealed a unique case of esophageal phlebectasias. Phlebectasias are non-neoplastic, non-tortuous, fusiform dilatations of veins, and their pathogenesis although not fully understood, is hypothesized to be caused by the thinning of the muscular layer of venous walls. Phlebectasias differ from venous aneurysms as they are not secondarily acquired, and they can also be located in various organ systems. Early diagnosis of phlebectasias effects both its management as well as the prevention of its complications such as rupture and bleeding.

A 59-year-old Caucasian male with history of HTN, GERD, HLD and hypothyroidism presented to clinic with a 3 month history of loose, watery, non-bloody diarrhea that occurs 3 times per day. He reported a long history of GERD improved with Omeprazole and a 3-year history of substanial dysphagia to solids without regurgitation, which improved with fluid wash. Vitals were normal and his physical examination was unremarkable. Endoscopic evaluation of his dysphagia revealed numerous medium sized venous outpouchings with a localized distribution found within the lower two-thirds of the esophagus. Endoscopic ultrasound confirmed venous lakes throughout the esophagus. Manometry has been scheduled to rule out any other causes of dysphagia.

Most cases of phlebectasias found in the GI tract are asymptomatic and incidentally discovered during either GI procedures or surgeries. Guidelines on treatment have yet to reach a consensus, and most literature recommends close surveillance and conservative therapies over surgical management. Surgical management is needed for those lesions that rapidly evolve leading to risk of rupture and subsequent hemodynamic instability, or in lesions in which the venous dilation can lend itself to forming an intramural thrombus. Phlebectasias are one of multiple vascular anomalies which can exist in the GI tract. Due to the scarcity of published reports, there are currently no associations of dysphagia as a complication of esophageal phlebectasias. Nevertheless, this case demonstrates the seriousness of early recognition to prevent potentially fatal complications.
Case report A 66-year-old male with a past medical history of colon cancer status post right hemicolectomy and orthotopic liver transplantation secondary to hepatitis C and alcoholic cirrhosis was found to have recurrent colorectal metastases to the liver and lung. Adjunct chemotherapy consisting of FOLFOX (5-FU, Oxaliplatin, Folinic acid) and Bevacizumab was initiated. Two days after receiving the third dose of FOLFOX, the patient presented with altered mental status, agitation, abdominal pain, nausea, and vomiting. According to the patient’s wife, symptoms began abruptly three hours prior to arrival to the emergency room. On examination, the patient was afebrile with normal respirations. Patient was normotensive with a blood pressure of 129/85 mmHg and slightly tachycardic at a rate of 105 beats/ min. On neurologic exam, patient was disoriented to person, place and time.

Abdominal series and Computed Tomography (CT) head showed no abnormalities. Liver function tests (ALT/AST, ALP, PT/INR, Albumin etc.) were all within normal limits. However, blood ammonia level was significantly elevated at 434 umol/L (normal=11–32 umol/L). Patient was diagnosed with grade III hepatic encephalopathy. The patient was started on Rifaximin 500 mg BID, lactulose 200 g retention enema, and lactulose (30 g/45 ml) via nasogastric tube. Patients 5-FU infusion was stopped immediately and IV hydration was started. Within 24 hours, the patient’s encephalopathy resolved. Hematology/oncology decreased the dose of FOLFOX by 50%.

The biological basis for 5-FU induced encephalopathy is not completely understood, but multiple pathways have been proposed. One possible mechanism contributing to the neurotoxicity is accumulation of toxic by-products of 5-FU catabolism. Fluorouracil, the final metabolite of 5-FU, has been shown to inhibit aconitase, a Krebs cycle enzyme. Inhibition of the Krebs cycle by 5-FU metabolites can impair the urea cycle, resulting in accumulation of ammonia and lactic acidosis. It is important for physicians to be aware of hyperammonemic encephalopathy as a possible adverse effect of 5-FU therapy.

**HYPERAMMONEMIC ENCEPHALOPATHY FOLLOWING 5-FUOROURACIAL THERAPY: AN UNUSUAL COMPLICATION**

1HK Marella*, R Peravali, A Jain, K Joglekar, S Nair, U Agbim, R Verma. 1University of Tennessee Health Science Center, Memphis, TN; 2The University of Tennessee Health Science Center, Memphis, TN

10.1136/jim-2020-SRM.141

**DUODENAL INTRAMURAL HEMATOMA CAUSING ACUTE PANCREATITIS AND PARTIAL OBSTRUCTION DUE TO ELECTIVE DIAGNOSTIC ENDOSCOPY IN A CHILD**

1C Murray*, 2AM Ponnambalam. 1University of South Alabama, Mobile, AL; 2University of South Alabama Childrens and Women’s Hospital, Mobile, AL

10.1136/jim-2020-SRM.142

**Case report** Esophagogastroduodenoscopy (EGD) with biopsy is a relatively safe and commonly used diagnostic procedure in children. Though limited publications are available in literature, duodenal hematoma (DH) causing obstructive pancreatitis may be a significant cause of morbidity and or mortality.

**Case description** 8 year old female, otherwise healthy without underlying disorders, admitted with severe epigastric pain and vomiting following EGD for abdominal pain. Symptoms started on the same day after EGD. Her lipase was 11,000 (normal <199) with a normal coagulation profile. CT of abdomen showed intramural DH with partial obstruction and diffuse pancreatitis. She was conservatively managed with NPO, NGT aspiration for gastric decompression, pain control, NGT feeds and parenteral nutrition. DH was monitored with serial US. Despite fever during hospitalization her MRI did not show evidence of necrotizing pancreatitis. She stayed for a total of 11 days.

**Discussion** The true incidence of DH is not known, however, it was 1 in 1922 endoscopies in a retrospective study. There are very few case reports of DH with pancreatitis in children without underlying disorders. DH has been reported in children with coagulation disorders or after bone marrow transplantation. The cause of the hematoma is not known although postulated to be due to the shearing force of the scope or biopsies in a relatively fixed retroperitoneal vascular structure. Acute pancreatitis is rare and due to obstruction of the ampulla. The condition is managed conservatively, although rarely aspiration of the hematoma is required to relieve duodenal obstruction or biliopancreatic compression. CT or US is the preferred imaging modality. Although rare, mortality has been described due to necrotizing pancreatitis.

**Conclusions** Routine endoscopy is not always a benign procedure, hence appropriate case selection is needed. In children with underlying conditions, bleeding disorders should be ruled out and corrected before biopsy. It is suggested to take biopsies in the third part of duodenum to avoid the ampulla and also not the extend the forceps beyond 2–3 cm from the endoscope.
Case report Early primary gastrointestinal non-Hodgkin’s lymphomas can be difficult to diagnose and can be mistaken for diseases such as Crohn’s disease or intestinal tuberculosis. We present a 73-year-old patient who had large duodenal bulb ulcer on endoscopy that resulted in metastatic DLBCL.

A 73-year-old female with history of osteoporosis, Vitamin B12 deficiency, and leukopenia presented to her primary care physician complaining of feeling knot in upper abdomen for 1 month. She felt the knot was getting progressively bigger with mild abdominal discomfort. She had also complained of early satiety, abdominal bloating, and weight loss of 3–4 pounds in past few months. She denied diarrhea or blood in the stools. Physical exam was significant for minimal distension with prominent palpable pass in right upper abdomen with tenderness to palpation and no lymphadenopathy. Labs showed WBC 4.0, Hb 11.6, Plt 417, Alkaline Phosphatase 235, Alb 3.3. CT scan of abdomen pelvis showed circumferential mass like thickening along gastric antrum, mesenteric implants, and periaortic lymphadenopathy concerning for gastric carcinoma or lymphoma. She was referred to oncologist and gastroenterologist for evaluation with upper endoscopy. EGD showed large duodenal bulb ulcer with necrotic base and small ulcer in antrum. Duodenal biopsy showed newly diagnosed stage IV Diffuse Large B-Cell Lymphoma that also involved gastric, gallbladder, and pancreas. She completed 3 cycles of R-CHOP chemotherapy and was started on high-dose methotrexate for CNS prophylaxis. She had Whipple procedure done after leak of gastrografin and noted to have perforated duodenum.

Diagnosis of primary GI lymphoma is difficult as it can be nonspecific and often benign gross appearance on endoscopy or colonoscopy. The duodenum represents roughly 6–8% of sites involving small intestine lymphoma. DLBCL of the intestine treated with surgery plus CHOP or R-CHOP chemotherapy has very good prognosis. Early diagnosis and treatment is crucial due to the aggressive nature of this malignancy.
WHEN THE TREATMENT IS COCA-COLA®

(13% vs 6%, p = 0.005) and at time of surgery (67% vs 39%, p≤0.001). 13% of the full cohort had a positive blood culture at diagnosis with similar organism profiles between the two groups. sNEC infants had more severe signs of illness including need for invasive ventilation, use of neuromuscular blockade, use of vasoactive agents and lower pH at surgery (p<0.001 for all). The number of sNEC cases varied by center. Hospital mortality was 26.3% for sNEC and 96.9% for rNEC (p≤0.001).

Conclusions rNEC is a devastating disease with high mortality as demonstrated in this national cohort. While they have more signs of severe illness compared to sNEC, rNEC infants are less likely to have intestinal perforation. Center variation exists and may be related to differences in practice and subjectivity of disease definition.

146 WHEN THE TREATMENT IS COCA-COLA®

1P Schrott*, A Arey, K Purvis, G Esaimene. UAB Montgomery Internal Medicine, Montgomery, AL; UAB School of Medicine, Birmingham, AL.

Case report Bezoars, undigested concretions of ingested material, can cause intestinal obstruction, ileus, gastric ulceration, and even perforation. Symptoms are non-specific such as nausea, vomiting and early satiety, therefore a high index of suspicion is needed for diagnosis.

Case Description A 28-year old lady with Type 1 diabetes mellitus, without history of gastroparesis presented with nausea and coffee ground emesis for 3 days. She had crampy lower abdominal pain, but no diarrhea or constipation. Endoscopy done a month ago was normal. All labs were normal except HbA1c of 10.1%. Acute abdominal series was unremarkable. Due to hematemesis on presentation, an endoscopy was done which revealed a large phytobezoar in the gastric cavity. Patient was advised to drink 2 L of Coca-Cola® per day for 3 days to be followed with a repeat endoscopy. This proved challenging as the patient continued to vomit and required promethazine. Endoscopy was repeated after 7 days which revealed no signs of a phytobezoar. Mucosal biopsy showed mild chronic gastritis. She was discharged with appointment for outpatient gastric emptying study and advised to take pantoprazole, avoid high fiber diet, and eat small, frequent meals.

Discussion Phytobezoars commonly present with nausea, vomiting and early satiety, symptoms that are not an immediate indication for endoscopy. They often present a diagnostic challenge, especially given an endoscopic incidence of less than 0.5%. Barium studies and CT can help with diagnosis, but endoscopy is the gold standard. Phytobezoars consist of cellulose and lignin. Fruits high in tannins, like persimmons, can cause intestinal obstruction, ileus, gastric ulceration, and even perforation. Symptoms are non-specific such as nausea, vomiting and early satiety, therefore a high index of suspicion is needed for diagnosis.

147 COMPLETE LIVER TORSION PRESENTING AS ABDOMINAL DISTENTION AND CONSTIPATION

C Toohey*, S Palle. University of Oklahoma, Oklahoma City, OK.

Case report Liver torsion is a rare condition, and most reported cases have a predisposing factor for torsion. This case is complete liver torsion in a patient with no known factors predisposing to torsion.

A 17-year-old female with history of spinocerebellar ataxia type 8, epilepsy, chronic constipation, and gastrostomy-tube dependence presented with abdominal pain and worsening distention. The patient is nonverbal due to her neurodegenerative disease, but her mother reported that she had been crying out in pain and having abdominal cramping or pain for a few months. She previously had explosive diarrhea once weekly without any normal stools, associated with gas and abdominal distention. After multiple formula changes, Neocate Jr. improved stools to soft and occurring every 3–4 days, but the pain and distention continued. Computed Tomography abdomen/pelvis was done in an Emergency Department for abdominal pain which prompted further imaging workup and admission.

MRI on admission demonstrated full liver torsion from right to left with compression of hepatic vein outflow, gastric compression, and the liver rotated along a fixed inferior vena cava which was causing some vascular compromise and possible mesenteric ischemia. In addition, there was severe bowel distention and gallbladder sludge.

The patient was taken to the operating room by a liver transplant surgeon for liver torsion reduction, hepatopexy, and cholecystectomy. Her recovery was complicated only by increased pain and distention with no stool or gas passed until post-operative day 3. With nutritional and pain management support, she recovered well and was discharged with minimal abdominal distention not requiring narcotic pain management.

Discussion The liver is expected to be found fixed in the right upper quadrant, maintaining its position with hepatic suspensory ligaments (coronary and triangular ligaments), connective tissue, pressure from surrounding organs, and abdominal musculature. Hypermobility of the liver could be due to congenital or acquired anomalies in the hepatic suspensory ligaments, lack of inferior vena cava tethering, or persistence of the ventral mesentery containing the hepatic veins. Hepatic torsion should be considered in a case of repeated bowel obstructions or persistent difficulties in colonic motility.

148 METASTATIC PRIMARY GASTRIC DIFFUSE LARGE B CELL LYMPHOMA IN A PATIENT WITH MULTIPLE COMORBIDITIES

H Tran*, J Gaines, M Balathingshala, LS Engle, N Nunez. LSU Health Sciences Center, New Orleans, LA.

Case report A 65 year old woman with chronic combined diastolic and systolic heart failure, CAD s/p CABG and multiple coronary stents, CVA with residual L sided hemiparesis, peripheral artery disease with bilateral common iliac stents, Hypertension, type 2 diabetes, hyperlipidemia, obstructive sleep apnea presented to the Emergency Department with a 2
Abstracts

149 NONINVASIVE TESTS FOR STAGING CHRONIC LIVER DISEASE: ARE THEY ALL EQUAL?  
E Varney*, K Zand, B Becker, D Gordy, M Roda, CM Howard. University of Mississippi Medical Center, Jackson, MS  
10.1136/jim-2020-SRM.149

Purpose of study To prospectively compare the diagnostic performance of different noninvasive tests for staging hepatic fibrosis in patients with chronic liver disease.

Methods used This is a single-center, IRB-approved, HIPAA-compliant, prospective pilot study. Adults with chronic liver disease presenting to Interventional Radiology for random liver biopsy are enrolled prior to biopsy. Ultrasound shearwave elastography (USE) of the liver is performed using a Philips scanner with standard acquisition parameters to measure liver stiffness (USE). MR elastography of the liver is performed using a Philips scanner with standard acquisition parameters to measure liver stiffness (MRE). All patients undergo CT-guided liver biopsy and obtained CT images of the liver are used to measure liver surface nodularity (LSN score) using a previously described semi-automated method. Serum labs within 30 days of liver biopsy are used to calculate the FIB-4 score, a serum biomarker of hepatic fibrosis. The concordance of FIB-4 score, LSN score, USE, and MRE with histologic Metavir staging of hepatic fibrosis are assessed using Harrell's C statistics. Odds Ratios (OR) from ordinal logistic models are reported.

Summary of results The preliminary data includes fifteen adults (11 female; age range 34–72, mean 55). Mean interval between biopsy and ultrasound/MR is 0 days. The histologic range of hepatic fibrosis includes livers with no fibrosis (F0); 7, mild-moderate (F1-2); 3, and advanced fibrosis-cirrhosis (F3-4); 5. Mean LSN score is 2.7 (2.0 – 4.1). Mean FIB-4 score is 1.7 (0.5 – 4.4). Mean USE and MRE liver stiffness are 8.8 kPa (3.9 – 17.9) and 5.4 kPa (2.4 – 15.7) respectively.

The C-stat concordance for FIB-4, LSN, USE, and MRE are 0.84, 0.87, 0.77, and 0.85 respectively. Odds of moving up one fibrosis stage are 3.84 (p=0.013), 69.8 (p=0.005), 10.1 (p=0.267), and 1.53 (p=0.019), respectively, per one unit increase.

Conclusions Liver surface nodularity score has non-inferior diagnostic performance compared to FIB-4 score, USE, or MRE in staging hepatic fibrosis in patients with chronic liver disease.

Health care research, quality improvement & patient safety

Joint plenary poster session and reception

4:30 PM

Thursday, February 13, 2020

150 PREDICTORS OF DEPARTMENT OF CHILDREN AND FAMILY SERVICES REPORTING AMONG CHILDREN PRESENTING TO THE EMERGENCY DEPARTMENT WITH FRACTURES

M Collins*, L Kemp, A Byrd, P McMahon. Our Lady of the Lake Regional Medical Center, Baton Rouge, LA  
10.1136/jim-2020-SRM.150

Purpose of study Approximately ¼ of the estimated 676,000 children in the US who were victims of abuse and neglect in 2016 were less than 3 years of age. Fractures are a common manifestation of child abuse. To our knowledge, no research study to date has examined the factors associated with medical staff filing Department of Child and Family Services (DCFS) reports of suspected abuse among pediatric patients seen in the Emergency Department (ED) with fractures. Therefore, we aim to study children less than 3 years of age who presented to the ED with at least one fracture in order to describe types of presenting fractures, and to identify factors associated with DCFS filing.

Methods used A retrospective chart review was performed on all patients less than 3 years of age with a diagnosis of fracture seen in the ED from January 1, 2017-December 31, 2018. Data collected include demographics (age, sex, race, and insurance type) and information regarding the patients' fracture(s), history, work-up, and outcome. Patients with known metabolic or other bone disease were excluded as were subsequent emergency room visits for the same fracture.

Summary of results 302 children presented with fractures; 56 (18.5%) were reported to DCFS. There were 103 skull, 87 upper extremity, 77 lower extremity and 35 trunk or chest

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The association between insurance type and patient satisfaction scores

C Cooper*, K Little, C de Riese. Texas Tech University Health Sciences Center, Lubbock, TX

10.1136/jim-2020-SRM.151

Purpose of study Patient satisfaction is becoming an increasingly important factor affecting reimbursement of healthcare providers. For example, Medicare uses the results of their HCAHPS survey as a part of their provider compensation policy. Studies have shown that there are many factors that affect a patient’s perception of any given encounter, including wait times, previous medical knowledge and socio-economic status among others, but these studies never analyzed how each factor specifically affected survey scores, either positively or negatively. Given the limited exploration into the drivers of patient satisfaction, the present study aims to evaluate the role of third party payor status in satisfaction scores.

Methods The self-reported satisfaction surveys were collected from the Press Ganey System at an academic center and classified into five groups according to patient insurance type: Medicare, Medicaid, other government, commercial, and self-pay. The differences in mean survey scores were then compared between groups. One-way ANOVA and Tukey HSD tests were used for statistical analysis.

Summary of results The mean patient satisfaction scores were highest for those with Medicare, followed by those utilizing other government insurance, commercial insurance, self-pay, and Medicaid, in that order. These differences were statistically significant (p<0.001) for all insurance groups except between commercial insurance and self-pay (p=0.12).

Conclusions Our data shows that patient satisfaction scores are affected by third party payor type. This is in line with current literature indicating that patient satisfaction is multifaceted in nature. As patient experience has become an increasingly important driver of health care reimbursement, it is critical to consider the complexity of this subject. The results are also particularly poignant as it relates to patient populations with varying insurance coverage that different institutions serve. Further studies are warranted to explore the various factors comprising patient satisfaction, recognizing that survey scores are impacted by more than provider performance alone.
**Abstracts**

**Methods used** The UMMC NICU transitioned the standard of measuring the length of infants from paper measuring tape to LB in October 2018. Length measurements remained highly variable after the transition, and the use of the LB was inconsistent. A survey was developed to assess the use of length boards and perceived barriers to its use. The questionnaire included: what is the current method of measuring infants they use, how difficult it is to use the length boards, how easy it is to find another staff member to help measure, what is the most significant barrier to the use of LB and the perception of accuracy of measurements by the nurses. A Likert scale of 1–5 was used, with 5 being the most difficult. At UMMC, infants are measured weekly on Sunday nights. The night staff participated in the survey on two consecutive Sunday evenings to poll the different shifts of nurses who measure infants. No identifiable information was obtained. An iPad was used to log answers and upload to RedCap for assessment.

**Summary of results** 67-night shift nurses were polled. 90% of staff reported using a tape measure to obtain lengths. Only 1.5% of those surveyed believed the measurements to be accurate. Only 25.9% of nurses felt the length boards were easy to use. 53% reported it was difficult to find another staff member to help use the LB. 56.1% indicated the accessibility of the boards as the biggest barrier, where 25.8% felt that it was time it takes to use.

**Conclusions** The majority still used paper tape to obtain length. 98.5% considered length measurements to be inaccurate. A majority expressed some difficulty in using the LB. Time and accessibility were the most significant barriers to the use of LBs. Identifying, understanding, and reassessing staff perceptions and concerns will enable us to tailor educational plans and interventions for our unit to improve LB usage.

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**THE CODE CONUNDRUM: IMPROVING CODE COMMUNICATION AT A COUNTY HOSPITAL**

PS Jagadish*, B Hansen, L Spradley, J Hogan, C Dorko. University of Tennessee Health Science Center, Memphis, TN

10.1136/jim-2020-SRM.154

**Purpose of study** Without appropriate communication and response to codes, patient morbidity and mortality is adversely affected. This resident-based quality improvement (QI) project analyzed problems underlying miscommunication of codes to medicine floor teams at a county hospital.

**Methods used** Using the Plan-Do-Study-Act (PDSA) QI model, we assembled a team to identify causes for code miscommunication and implement relevant changes at a county hospital. The team met with QI leaders, reviewed protocol, and joined the Resuscitation Committee that examines code procedures. We surveyed residents about experiences with codes, from awareness of calls to concerns about timeliness of codes; there was a technical issue resulting in a delay of up to 5 minutes between code activation, overhead notification, and arrival of the code page to specified personnel's pagers.

**Conclusions** Despite editing pager numbers in policy, which addressed a major communication deficit, fewer than 50% of codes were correctly called both overhead and to pagers. Data presented to the Resuscitation Committee yielded system improvements over 1.5 years with continued data collection.
and breastfeeding initiation. A logistic regression analysis showed, after controlling for background and other prenatal exposure differences, newborns born at the rural hospital were nearly three times as likely to develop NAS.

Conclusions Rural hospital delivery is more likely to result in NAS in opioid exposed pregnancy. The increased rate of NAS could be the result of lack of resources for non-pharmacological management, along with nursing/physician comfort, and other factors this study did not assess. Improving prenatal care and community resources, monitoring of substance use during pregnancy along with education of providers and nurses may help in decreasing NAS incidence in rural settings.

IMPROVING BIRTH CERTIFICATE ACCURACY IN ALABAMA: A QUALITY IMPROVEMENT INITIATIVE

1M Moore*, 2B Brugh, 3R Blackmon, 4A Todd, 5M Wingate, 6S Mazzoni, 7SJ Gentle.
1University of Alabama at Birmingham, Birmingham, AL; 2Alabama Department of Public Health, Montgomery, AL; 3Alabama Hospital Association, Montgomery, AL

Purpose of study Accurate vital statistics data are critical for monitoring population health and strategizing public health interventions. Previous analyses of state-wide birth data have identified several factors that may reduce birth certificate accuracy including systematic errors, insufficient interrater reliability assessments, and limited data review by clinicians. The aim of this initiative was to increase the proportion of hospitals in Alabama reporting accurate monthly birth certificate data from 67% to 80% by October 2019.

Methods used This was a statewide collaborative effort by the Alabama Perinatal Quality Collaborative. Process measures included eleven variables monitored across ten patient charts per month per hospital. Three months of retrospective, baseline accuracy data were collected prior to project initiation from which actionable drivers and change ideas were identified at individual hospitals (figure 1). Accuracy determination, defined as ≥ 95% accuracy of the variables analyzed, was performed by health care specialists at each hospital by comparing birth certificate variables from vital statistics with data obtained from original hospital source materials. Overall monthly accuracy rates and individual variable accuracy rates

Abstract 156 Figure 1 Driver diagram demonstrating primary and secondary drivers of increasing birth certificate accuracy with hospital specific change ideas

Abstract 156 Figure 2 Panel A. Percentage of hospitals reporting ≥ 95% accuracy by month. Data analyzed isomg statistical process control (p-chart) with special cause Variation noted during March of 2019. Panel B. Birth certificate reports by month across the 25 hospitals in the initiative
Abstracts

were reported to hospitals at bimonthly webinars. Data were analyzed using statistical process control measures.

**Summary of results** Twenty-five hospitals entered data throughout the course of the initiative, accounting for 850 chart analyses and 9,350 variable assessments. At baseline, 67% of hospitals reported birth certificate accuracy rates ≥ 95%, which increased to 90% in March 2019 and was sustained for the remainder of the initiative (figures 2 and 3). The least accurately reported variables included birth weight and antenatal corticosteroid exposure.

**Conclusions** Statewide, multidisciplinary quality improvement efforts increased birth certificate accuracy. This improved accuracy is vital to accurate public health surveillance and monitoring of trends in infant outcomes.

### 157 PATIENT DISMISSAL FOR VACCINE DELAY AND REFUSAL IN OKLAHOMA PEDIATRICIANS

C Nguyen*, M Cooper, C Garbe, PM Darden, M Pogemiller. OUHSC, Oklahoma City, OK

**Purpose of study** Vaccine delay and refusal is increasing. One response to this problem is that physicians have decided not to provide care for (decline) or dismiss families who wish to refuse or delay vaccines. O’Leary, et al, in 215 reported that, nationally, 21% of Pediatricians dismiss families for vaccine refusal. The objectives are to assess: (1) the frequency of declining new families or dismissing current patients who request to delay or refuse vaccines, (2) which specific vaccine prompt physicians to decline/dismiss patients.

**Methods used** An online REDCap survey of active (excluding retirees and students) members of the Oklahoma Chapter of the American Academy of Pediatrics assessed provider demographics, attitudes, practices including individual vaccines related to vaccine delay and dismissal. Analyses used Chi square tests.

**Summary of results** After 5 emailed survey links there were 113/263 (43%) responses to the survey; 100 provide immunizations to their patients. In the last 2 weeks most (57%) have encountered vaccine refusal and most (53%) report refusal is increasing. A substantial minority state that their willingness to provide care to families who delay or refuse has decreased (41%). Forty eight percent (48/99) reported declining to accept new patients for refusing/delaying vaccines, and 36% (34/94) reported dismissing current patients for refusing/delaying vaccines. Pediatricians with more years in practice (>10 vs 10 or less) were less likely to decline (15% vs 44%, p=0.003) and dismiss (8% vs 33%, p=0.01) patients for refusing/delaying one or some, but not all vaccines. Rural pediatricians were less likely than urban to decline (12% vs 30%, P=NS) or dismiss patients (0% vs 22%, p=0.03) who refuse one or some vaccines but not all vaccines. Pediatricians were unlikely to decline or dismiss patients if they refused/delayed the influenza, HPV, or Meningococcal vaccine.

**Conclusions** Dismissing/declining patients for vaccine refusal is more common among Oklahoma pediatricians than nationally reported. Patterns differ by practice setting, years in practice, and vaccine refused. The practice of dismissing or declining patients who refuse vaccines should be further assessed and tracked over time.

### 158 IDENTIFYING RISKS AND PREVENTING INJURIES IN THE EMERGENCY DEPARTMENT


**Purpose of study** Injuries are the number one cause of death in children. Studies show education with safety equipment increases likelihood of parents instituting safety suggestions. This project surveyed parents about specific injury prevention behaviors and provided education and equipment in a pediatric Emergency Department (ED) setting.

**Methods used** Families were approached and surveyed regarding injury risks in the home. Additional questions included knowledge of CPR, relationship to patient, number and age of children under 18 in the home. Educational handouts were reviewed, and participants were provided with medication lock box, trigger lock, toilet lock and pool watcher tags as indicated by need from survey questions. Process measures of number of children potentially affected and number of products given were measured.

**Summary of results** A total of 110 parents were approached with 100 participating. Among the participants, 87% were mothers. The participants had an average of 2.57 number of children in the home. Ages of children in the home ranged from months to 17 years old with an average of 7.5 years of age. Participants reported having medication appropriately stored in the home in a locked area in 10%; Other common areas of medication storage include dresser, counter, table, nightstand (93%); in the refrigerator (24%); in a purse/bag (7%).

Firearms were without proper storage (in the home, unlocked and loaded) in 6% of participants.

Participants reported prior CPR classes in 74%, 99% provided a follow up phone number for the post survey.

The researcher spent a total of 40 hours in the ED and was able to impact 257 children’s lives. Only 10% of individuals refused to participate. Reasons behind refusal were mainly due to anxiousness and empathic concern for their children’s situation. Other refusal reasons included disinterest and/or irrelevant timing. A total of 64 trigger locks, 89 med lock boxes and 16 toilet locks and 70 drowning prevention tags were distributed. 60% of participants answered follow up phone calls with 48% saying they were utilizing the products provided. Reasons given for not using the products were lack of time, disliked the design, or felt their home environment was safe.

**Conclusions** The ED setting is an excellent location for injury prevention. Families often report unsafe storage of both medications and firearms.

### 159 IMPROVING DENTAL HEALTH PRACTICES IN EARLY CHILDHOOD

O May, SB Phillips*, K Burgess. University of Alabama, Northport, AL

**Purpose of study** Early childhood caries (dental caries occurring in children 0–71 months of age) are the most prevalent chronic disease in childhood. Tooth decay not only causes harm to a child’s general health, it can negatively impact a child’s social and intellectual development. Numerous
preventive factors have been identified, specifically adequate fluoride exposure after tooth eruption and establishment of a dental home in the second year of life.

This study utilized a provider and parent survey as well as a chart review to determine how providers discuss dental health with their pediatric patients and how PCPs document dental care within the electronic health record (EHR). This data will be used to improve discussion and documentation of dental health.

**Methods used** Information regarding children’s nutritional intake and dental care is to be assessed at annual check-ups. This information includes water source in the home, beverage intake, and dental concerns. Providers are to record this information when documenting the visit. The EHR has structured data fields for recording this information.

This project asked PCPs at a university-based medical center to reflect on well child visits with young children. The PCPs were asked several questions regarding their documentation and perception of dental health practices. A chart review was performed which collected data from structured data fields regarding dental health assessments during well child visits and dental preoperative visits. Parents also completed a survey about their dental health beliefs.

**Summary of results** The project showed most parents in our practice do not give their child fluoridated water, do not believe their child needs fluoride, and had not taken their child to the dentist. Most PCPs report asking about dental health. However, most of them are not documenting it in a structured data field. Sixty-six percent did not document date of last dental exam. Half did not document if there was fluoride in the patient’s water.

**Conclusions** It appears there is a lack of education regarding dental health in both parents and providers. PCPs are not effectively communicating the importance of childhood dental health and are not routinely documenting dental health practices. Educational initiatives for both providers and parents are needed to improve the overall dental health of our pediatric patients.

**160 SCREEN A LITTLE, STAY A LOT: A RETROSPECTIVE ANALYSIS OF MRSA SCREENING OF INPATIENTS**

A Royer*, University of Mississippi Medical Center, Pearl, MS

10.1136/jim-2020-SRM.160

**Purpose of study** To analyze how ‘blanket’ MRSA screening and subsequent Contact Isolation Precautions (CIP) influence measurable outcomes of inpatient hospitalizations.

**Methods used** Data was obtained from the University of Mississippi Medical Center (UMMC) health system database for patients treated inpatient from 2013 May 31, 2019. These patients were filtered to meet set parameters including location of care limited to main UMMC hospital and Critical Care Tower, primary service as General Medicine, isolation status limited to MRSA nare positivity, and diagnosis (excluding cellulitis or MRSA bacteremia) in order to assess LOS compared to the second cohort (MRSA nare positive encounter after CIP guideline change at UMMC) of which data was gathered from July 1, 2018 – May 31, 2019. After filtering for confounding variables, cohort 1 had 496 patients and cohort 2 had 246 patients. Statistical significance was determined using the Z-test method.

**Summary of results** Data obtained yielded 38286 encounters screened with MRSA nasal swab screening test between Jan 1, 2013, and May 31, 2019, of which only 6923 were placed in isolation, and 1984 were specifically placed on isolation with only MRSA nare positivity. Mean LOS (in days) for Cohort 1 was 12.6 and for Cohort 2 was 8.99 with a known variance of 115.13 and 69.17 respectively. The two groups were determined to be significantly different with P-value<0.01.

**Conclusions** MRSA nare screening and subsequent CIP was shown to be associated with a significant increase in LOS. Placing patients on CIP for MRSA nare positivity may lead to unintentional harm. Further studies are needed to analyze other possible undesirable/unintentional effects related to direct patient care, cost, and effects on healthcare providers and learners to encourage healthcare providers will be more judicious with MRSA screening and subsequent CIP.

**161 BARRIERS TO RETENTION IN HEPATITIS C CARE CONTINUUM AMONG HOMELESS PEOPLE OF NEW ORLEANS**

R Santiago*, J Wisniewski. Tulane University, New Orleans, LA

10.1136/jim-2020-SRM.161

**Purpose of study** Improvement in care for persons infected with hepatitis C virus (HCV) can reduce HCV-related morbidity and mortality. Although screening for HCV is readily available, barriers exist which prevent assessment and treatment in individuals potentially infected with HCV, especially in indigent and transient populations. The National Viral Hepatitis Action Plan (2017–2020) aims to decrease viral hepatitis health disparities by partnering community-based organizations, health-care providers, and patients.

We implemented HCV testing and linkage-to-care program between local homeless shelters and health centers in New Orleans, LA. This study has two primary aims: 1) to evaluate points of success and failure in connecting HCV positive homeless patients identified through testing services at six homeless to care following a preliminary positive rapid HCV test result, and 2) to describe the main barriers cited by patients who drop out at each step in the care continuum.

**Methods used** A retrospective longitudinal analysis of adult homeless individuals accessing shelter at six homeless shelters in New Orleans, LA was conducted. Every patient who came through a testing site received a survey collecting information on demographics, barriers, and recent utilization of health services. A retrospective chart review of hospital medical records was used to track patient linkage to care and their progress through the HCV care continuum.
Abstracts

Summary of results A total of 1719 unique patients were identified from August 2016 through August 2019 which included 36% self-identified as African American/Black, 55% identified as White and 8% identified as mixed-race or other. A total of 24% of individuals reported no insurance coverage while 66% of patients reported having insurance of which 83% had Medicare/Medicaid. Overall, 85 patients reported they experienced no barriers to healthcare. Self-reported barriers included finances/insurance (44%), transportation (22%), personal drug use (18%), personal alcohol use (9%), and a distrust of healthcare providers (44%), while providing insight to the attrition rates of homeless individuals in the HCV care continuum.

Conclusions This study will instruct testing and referral practices at other homeless, free, and charitable clinics in the city while providing insight to the attrition rates of homeless individuals in the HCV care continuum.

162 FIB-4 SCORES IN PRIMARY CARE PATIENTS WITH METABOLIC SYNDROME AND ABNORMAL LIVER TESTS
A Schreiner*, P Mauldin, J Zhang, JD Marsden, W Moran, D Rockey. Medical University of South Carolina, Charleston, SC
10.1136/jim-2020-SRM.162

Purpose of study Non-alcoholic fatty liver disease (NAFLD) is under-diagnosed in primary care. We evaluated FIB-4 scores (non-invasive fibrosis assessment tool) in primary care patients with metabolic syndrome (MetS), abnormal liver tests (LFTs), and no other liver diagnosis, then analyzed the proportion of patients with FIB-4 scores suggestive of significant liver disease and a diagnosis of NAFLD.

Methods used This retrospective study of primary care data from 2007 to 2018 analyzed a sample of patients with MetS variables, including: BMI>30 kg/m², A1c>6.5%, triglycerides>150 mg/dL, HDL<50 mg/dL for women (<40 for men), and blood pressure>130/85 mm Hg. Abnormal LFTs included elevations in bilirubin, transaminases, or alkaline phosphatase. FIB-4 scores for each LFT panel and the mean FIB-4 per patient were calculated. The mean of mean FIB-4s per patient, the proportion of patients with means exceeding thresholds of 1.3 (advanced fibrosis) and 2.67 (cirrhosis), and the proportion of patients with ICD-9/10 codes for NAFLD were calculated.

Summary of results Overall, 13,171 patients met inclusion criteria. The mean FIB-4 score for the entire sample was 1.73, with 49.2% of patients exceeding 1.30, and 12.1% exceeding 2.67. Only 2.7% of patients had an ICD-9/10 code for NAFLD (table 1).

Conclusions Many primary care patients with MetS and abnormal LFTs have FIB-4 scores suggestive of liver disease but lack formal diagnoses of NAFLD.

Table 1 Patient-Mean FIB-4 scores by MetS components, and number of components

<table>
<thead>
<tr>
<th>Metabolic Syndrome Component</th>
<th>Mean FIB-4 (SD)</th>
<th>% &gt;1.3 (n)</th>
<th>% &gt;2.67 (n)</th>
<th>% with NAFLD ICD-9/10 (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP &gt;130/85 (n=12,468)</td>
<td>1.75 (2.42)</td>
<td>50.2% (6,262)</td>
<td>12.3% (1,534)</td>
<td>2.8% (352)</td>
</tr>
<tr>
<td>A1c &gt;6.5% (n=4,420)</td>
<td>1.82 (2.86)</td>
<td>54.6% (1,867)</td>
<td>12.9% (440)</td>
<td>4.1% (140)</td>
</tr>
<tr>
<td>Low HDL (n=8,700)</td>
<td>1.72 (2.36)</td>
<td>47.4% (4,200)</td>
<td>12.2% (1,083)</td>
<td>3.1% (271)</td>
</tr>
<tr>
<td>Triglycerides &gt;150 (n=4,970)</td>
<td>1.69 (2.03)</td>
<td>50.2% (2,493)</td>
<td>10.1% (504)</td>
<td>4.4% (218)</td>
</tr>
<tr>
<td>BMI &gt;30 (n=5,154)</td>
<td>1.50 (1.79)</td>
<td>41.4% (2,133)</td>
<td>8.4% (2,133)</td>
<td>3.8% (196)</td>
</tr>
</tbody>
</table>

# of Metabolic Syndrome Components
0 (n=179)                     | 1.46 (2.06)    | 35.8% (64)      | 6.2% (11)      | 0.6% (1)     |
1 (n=2,290)                   | 1.79 (2.08)    | 54.2% (1,242)   | 12.9% (292)    | 1.3% (30)    |
2 (n=3,895)                   | 1.84 (3.15)    | 49.0% (1,910)   | 13.9% (542)    | 1.7% (67)    |
3 (n=3,463)                   | 1.70 (1.98)    | 47.8% (1,655)   | 12.5% (433)    | 2.9% (99)    |
4 (n=2,307)                   | 1.63 (1.73)    | 49.1% (1,132)   | 9.9% (229)     | 4.1% (94)    |
5 (n=1,037)                   | 1.67 (2.48)    | 46.3% (480)     | 7.7% (80)      | 6.6% (68)    |

FIB-4 = (Age x AST)/(Platelet count x sq rt. ALT); BP = blood pressure; A1c = hemoglobin A1c; HDL = high density lipoprotein (low in men <40, in women <50);
PITFALL IN ASSESSING THE DECISION MAKING CAPACITY OF A PATIENT WITH SCHIZOPHRENIA

**Abstract**

Patients with psychiatric illness may retain ability to make informed decisions about medical care but this decision-making capacity is often overlooked due to ongoing psychiatric symptoms and complicated medical illness. It is a provider’s ethical responsibility to respect the right of a person to decide about their bodies but also to protect those with diminished capacity for decision making. Assessment of the capacity needs to be ongoing (since capacity can be fluctuating), context-specific and made with careful deliberation.

We reflect on a decision-making process surrounding the choice to offer a PEG tube to a 58-year-old, patient with schizophrenia, vocal cord atrophy and resultant silent aspiration and sepsis. Patient recovered well from acute illness/sepsis but remained malnourished and high risk for aspiration due to vocal cord atrophy. Patient developed active psychotic symptoms and became suspicious towards any long-term medical plans including PEG tube insertion/rehab placement. This led to an assumption that he is unable to make medical decisions for himself and that resulted in prolonged hospitalization. Without a PEG tube, starvation and pneumonia seemed likely probabilities. Our inpatient psych facility refused patients without PEG tube. These ongoing medical issues made us reconsider and reevaluate the decision making capacity of the patient. With careful consideration of his psychotic symptoms and repeated explanations, we were surprised to find that he had very good reasoning and was able to make an informed decision even in presence of psychotic symptoms. After informed consent, patient received PEG tube and quickly started recovering.

Published literature describes many common pitfalls encountered while assessing decision making capacity, including active psychotic symptoms. It is important to appreciate that capacity does not follow an ‘all-or-none rule’ and can change over time, and therefore careful reassessment is important. When juggling physical, mental and ethical considerations, we should start with the principle that a psychiatric illness, no matter how debilitating, does not diminish the value of that individual as a human being and his ability to make informed decisions.

**Conclusions**

Physicians can partner with diabetics to make the malnutrition diagnosis. The wide-spread adoption of the group note can streamline our documentation process. Our intervention is replicable within other divisions and can become a scalable solution improving malnutrition diagnosis at other hospitals.
Hematology and oncology
Joint plenary poster session and reception
4:30 PM
Thursday, February 13, 2020

166 OBSTRUCTIVE UROMPATHY: WOULD YOU THINK MULTIPLE MYELOMA?!
J. Abdelmalek*, M. Elmasry, S. El Nawaia, M. Zitun, K. Nugent. Texas Tech University Health Sciences Center, Lubbock, TX
10.1136/jim-2020-SRM.166

Background Multiple Myeloma is known to cause intrinsic kidney injury due to paraproteinemia and associated intratubular cast formation, direct tubular toxicity and deposition of light and heavy chains. This has been described in literature as multiple myeloma kidney.

Case presentation This a 56-year-old male patient with recent history of relapsed multiple myeloma. He presented to our hospital with acute hypercalcemia and acute on chronic kidney injury. His serum creatinine has deteriorated acutely from 3 to 6.5 in a period of one month. He was initially treated with aggressive IV fluids with improvement in hypercalcemia but no significant improvement in his kidney functions was noted.

Renal ultrasound showed bilateral hydronephrosis more on the right. CT confirmed hydronephrosis and interestingly showed diffuse bladder outlet thickening and normal prostate size.

Foley’s catheter was placed and he underwent induction hemodialysis. At follow-up after one month, CT showed reduction in bladder thickening with chemotherapy, and his kidney function returned to baseline.

Discussion This case of multiple myeloma had a rare presentation with post renal acute kidney injury on top of his chronic kidney disease. Paraproteinemia infiltration of the bladder has affected both the bladder outlet and mostly the right vesico-ureteral junction as well. Patient had initial improvement with Foley’s catheter placement but definitive return to baseline occurred after he resumed chemotherapy for his relapsed disease.

Conclusion High level of suspicion and judicious use of imaging is needed for correct diagnosis and treatment of even uncommon causes of kidney disease associated with multiple myeloma.

167 GIANT HEPATIC TUMOR WITH A GENTLE PREDISPOSITION
A. Abonofal*, A. Mansurov, H. Mhadgut, S. Oad, D. Jaidhankar. East Tennessee State University, Johnson City, TN
10.1136/jim-2020-SRM.167

Case report Solitary fibrous tumors (SFTs) are a form of mesenchymal fibroblastic tumors that usually present in the thorax and less often intracranially. SFTs in the liver are an uncommon and rarely described entity. We present a case of a massive SFT in the liver treated with partial hepatectomy. A seventy-one-year-old female patient was incidentally found to have a liver mass when she underwent a CT chest due to recurrent pneumonia. Liver function tests, LDH and tumor markers were within normal range. Further evaluation with PET-CT revealed a large (12 × 12 cm) heterogeneous right hepatic lobe mass with no associated metabolic activity. Liver biopsy demonstrated a lesion composed of spindle to oval cells without overt features of atypia or pleomorphism. Rare mitotic figures were seen. No necrosis was noted. Immunohistochemistry (IHC) was positive for CD34 (diffuse) and STAT6 (diffuse nuclear) and negative to CK AE1/AE3, MSA, desmin, S100 and CD117 stains consistent with a diagnosis of a solitary fibrous tumor. Patient underwent complete surgical resection (major partial heptectomy) of the tumor with negative marginal status after initial hepatobiliary surgical opinion deemed her unresectable. Gross examination of the mass revealed a 14.5 cm mass lesion. Histologic sections demonstrated a circumscribed mass of uniform spindle cells with fascicle formation. Additional IHC corroborated the diagnosis of SFT. The patient’s age at presentation, the histological findings, anatomic location and tumor size put her at a low-intermediate risk for metastatic disease according to risk stratification modules. Radiotherapy has no role while limited efficacy with targeted agents has been reported in the metastatic setting. Our case demonstrates that while SFTs arising in the liver are a rare and a difficult to diagnose entity, it is important to be aware of its tumor biology and apply the appropriate modality of treatment. Surgical excision, careful follow up and risk assessment for recurrence and metastasis are essential modalities to dealing with this type of tumor especially given that SFTs have a 10–25% chance of recurrence after resection.

168 NEVER LET THE SUN SET ON AN EMPYEMA- A RARE AND LETAL PRESENTATION OF A PLEURAL EFFUSION
S. Ahuja*, A. Meyer. University of Mississippi Medical Center, Madison, MS
10.1136/jim-2020-SRM.168

Case report A 38y/o M with no PMH presented to the emergency department with a 2-month history of severe right-sided chest pain, shortness of breath and progressive weight loss. In the ED was found to have a right-sided pleural effusion and underwent a thoracentesis with drainage of 350 ccs of an exudate, fluid studies and cytology were non-diagnostic. He soon had a reaccumulation of this pleural effusion and subsequently underwent a VATS procedure with placement of a chest tube. Pleural fluid studies were negative for infection or malignancy. He eventually underwent an open thoracotomy with decortication, pathology revealed a poorly differentiated pleural based malignancy, specimens were sent out to a larger referral center where they were found to be consistent with a diagnosis of a yolk sac tumor. Testicular ultrasound was negative. A non-contrast CT head was negative for suspicious pathology. AFP was 660.4, beta hCG undetectable at <1. MRI Brain showed obliteration of the sphenoid sinuses in association with expansion of the clival and skull base marrow signal but no focal lesions suggesting CNS spread. He was referred to the Genito-urinary Oncology Division at the University of Mississippi in August. Although no obvious masses were seen on MRI, non-specific changes around the suprarenal region were concerning, therefore, an LP was performed, and CSF AFP was, in fact, noted to be elevated at 6.1 ng/ml while beta HCG was 0.9 ng/ml. He was admitted to our hospital and completed one
cycle of VIP chemotherapy. (Etoposide, Ifosfamide, Cisplatin). He became oxygen-dependent, repeat CT Chest showed extensive pleural thickening and near-complete consolidation of the right lung however no further surgical intervention could be pursued. Patient was eventually discharged home on supplemental oxygen with a plan for the next cycle of VIP in three weeks. Unfortunately, he expired at home a few days later.

Discussion

Germ cell tumors are classified as extragonadal if there is no evidence of a primary tumor in the testes. They typically arise in midline location. In adults, the most common sites are anterior mediastinum, retroperitoneum, and pineal and suprasellar regions. Radical resection is often carried out after four cycles of etoposide, ifosfamide, and cisplatin (VIP).

Case report

Myxofibrosarcoma (MFS) is a soft tissue sarcoma that typically presents superficially in the lower extremities of adults in their 6th–8th decades, with slight male predominance. Although MFS is one of the most common sarcomas, the cytomorphologic features have been rarely described. We present a case of a 47 year-old male with a history of left thigh mass who presented with multiple lung nodules on imaging. Fine-needle aspiration (FNA) of the lung nodules revealed hypercellular spindle mesenchymal cells with moderate cytologic atypia and scant myxoid stroma (figures 1A&1B). A previous biopsy from the thigh mass was compared to the concurrent lung biopsy and features appeared identical. Both biopsies showed spindle cells with eosinophilic cytoplasm, hyperchromatic pleomorphic nuclei and rare mitotic figures in a background of myxoid matrix and curvilinear vessels consistent with MFS (figures 1C&1D). The patient is receiving neoadjuvant radiation therapy to be followed by surgical excision of the thigh mass and chemotherapy. There are no specific immunostains to diagnose MFS. Cytomorphology and comparison with original slides whenever available is the best way to diagnose metastatic lesions. MFS should be differentiated from other myxoid tumors such as myxoma, nodular fasciitis, myxoid liposarcoma, and low-grade fibromyxoid sarcoma. Metastasis and mortality rate are primarily associated with histologic grade with an overall 5-year survival of 50–70%. Our case highlights the importance of recognizing the different cytomorphological patterns and correctly categorizing soft tissue tumors on FNAs.

Case report

Our case is a thirty one year old white male with a significant medical history of two failed living donor renal transplants. The patient is currently status post a deceased donor renal transplant in 2011 and was admitted for acute kidney injury (AKI) with concern for antibody mediated graft rejection. However, significant labs noted an acute thrombocytopenia, low haptoglobin, elevated lactate dehydrogenase, and many schistocytes on peripheral blood smear. Hematology was consulted with concern for thrombotic microangiopathic hemolytic anemia. The patient was started on plasma exchange with mild improvements. However, ADAMTS 13 returned normal and thrombotic thrombocytopenic purpura (TTP) was ruled out. Yet genetic evidence of atypical hemolytic uremic syndrome returned positive and with the treatment of eculizumab the patient had resolution of thrombocytopenia and hemolysis. In addition the patients AKI resolved.

Atypical Hemolytic uremic syndrome (aHUS) is one of the disease processes that belong to thrombotic microangiopathies (TMAs). The common features for TMAs are microangiopathic hemolysis, acute thrombocytopenia, and thrombi in small vessels that lead to end organ damage. The most frequently encountered TMAs clinically are HUS associated with Shiga toxin–producing Escherichia coli infection and TTP, followed by aHUS. Atypical Hemolytic Syndrome is either genetic or acquired and leads to complement mediated microangiopathic hemolytic anemia. Treatment of this disorder with eculizumab inhibits complement activation by specifically binding to the complement protein C5 with high affinity, thereby inhibiting its cleavage to C5a and C5b and preventing the generation of the terminal complement complex C5b-9. Atypical Hemolytic Uremic Syndrome may prove to be the very reason why this patient had multiple failed transplants in the past.

Case report

Familial erythrocytosis (FE) is a rare disorder that causes an increase in the erythrocyte component of the blood and can lead to hyperviscosity syndromes. In the congenital category there are primarily 2 groups: those caused by mutations in the erythropoietin receptor (EPOR) and those caused by a defect in the production and regulation pathway of erythropoietin. A literature review revealed that there are 28 known variants in the EPOR known to cause FE. Here we
present a novel EPOR mutation that has been linked to elevated hemoglobin and FE. Our patient was found to have an elevated hemoglobin at 9 months of age on routine screening. On presentation to our institution his hemoglobin was 18.6 and hematocrit was 51.1. Interestingly, the patient was also found to have a strong family history of ‘rich blood’. Paternal uncle, paternal grandmother of child, and paternal great grandfather of child all reportedly had blood abnormalities; paternal grandfather required phlebotomy as treatment. Given family history and elevated hemoglobin, patient had genetic testing and was found to have an EPOR mutation on the hereditary erythrocytosis panel from Mayo Medical laboratories. This patient was found to have a variant, c.1307T>A, that has not previously been reported in the literature. This variant results in a missense mutation causing a premature stop codon in the regulatory domain of the protein. Though a novel mutation, it is found in close proximity to other known pathogenic variants and is thought to support a diagnosis of FE type 1. Type 1 is considered to be an autosomal dominant disorder; which would be consistent with this patient family’s inheritance pattern. Patient has been followed over time and found to have a baseline hemoglobin of 17.5. He has not experienced any reported symptoms to date, but has been found to have elevated systolic blood pressures along with intermittent hematuria. Renal imaging revealed bilateral echogenic kidneys which are thought to be due to increased renal blood flow congestion secondary to polycythemia. Given that there are no sustained clinical symptoms or abnormalities at this time, patient has not begun any forms of treatment but will continue to be followed closely. We believe this novel mutation is pathogenic and explain this patient’s findings consistent with Type 1 Familial Erythrocytosis.

**Abstracts**

**172 ENDOSCOPIC RADIOFREQUENCY ABLATION AS PALLIATIVE TREATMENT OF CHOLANGIOCARCINOMA**

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10.1136/jim-2020-SRM.172

Case report

Purpose Case report to increase awareness on the use of Endoscopic Radiofrequency Ablation (ERFA).

Methods Review of Electronic Health Records and literature review.

Results An 87-year-old man presented with jaundice. Work up included a CT, Endoscopic Ultrasound and ERCP which respectively showed intra & extrahepatic bile duct (BD) dilatation, a mass invading into the liver and a lobulated mass in the common BD. Biopsy showed an adenocarcinoma. A biliary stent was placed with resolution of his symptoms. Liquid biopsy did not identify targetable mutations. Due to his advanced age and extent of disease, he was not considered a surgical candidate. Patient and family were concerned about the toxicity of chemotherapy and/or radiation. ERFA for palliation and to prevent stent occlusion was offered and successfully performed. His disease progressed and he expired 15 months after diagnosis. He remained mostly asymptomatic with good quality of life and avoided the toxicities and risks of surgery, chemotherapy and radiation.

Cholangiocarcinomas (CCAs) are cancers that originate from the BD and are generally classified as intrahepatic, perihilar, or extrahepatic. They present with jaundice, malabsorption, abdominal pain, and/or cholangitis. Untreated patients with CCA die within 3–4 months, often from cholangitis and abscesses. Therefore, an important treatment goal is to reduce biliary obstruction and cholangitis, which is typically achieved with biliary stenting. Standard treatment for perihilar CCAs involves BD, lymph node and hepatic resection. Chemotherapy and/or chemoradiation are recommended as adjuvant treatment and as therapy for unresectable tumors. Unfortunately, the prognosis of perihilar CCA remains poor with median survival of approximately 13 months.

Conclusions This case report serves to increase awareness of ERFA as a therapeutic option in patients with CCA. Studies have reported the safety and feasibility of ERFA with promising results for palliation of malignant obstructions, preventing stent occlusion, ablating ingrowth of blocked metal stents, prolonging stent patency and improving survival compared to stent placement alone. Information on additional cases will be presented.

**173 METASTATIC MELANOMA INTERFERRING WITH LIMB MOVEMENT**

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10.1136/jim-2020-SRM.173

Case report

A 60 year old female with a past medical history of metastatic melanoma presented to the ED with the chief complaint of fatigue and decreased ability to perform ADLs. Patient was predominantly complaining of inability to move
her right leg due to intense pain with ambulation. Gross physical exam revealed multiple visible ulcerating melanotic lesions in the right inguinal and right upper thigh area, the largest of which was around 4–5 cm in diameter (figure 1). Patients melanoma had been first diagnosed in March 2018 (staged pT4B) where she had went excision of nodular melanoma from the plantar aspect of her right foot along with 10 cycles of chemotherapy with Ipilimumab and Nivolumab. A venous ultrasound of both lower extremities was done which revealed subcutaneous edema with numerous enlarged bilateral inguinal and lower extremity lymph nodes. This patient was offered treatment of carboplatin/paclitaxel or palbociclib. While metastatic melanoma is not reported. Immune-mediated thrombocytopenia should be considered in patients with solid tumors, especially when early or prolonged thrombocytopenia follows chemotherapy. Differentiating immune-mediated thrombocytopenia from myelosuppression is critical because it affects management.

**Abstracts**

**174 THINK TWICE; DON’T GO WITH THE FLOW**
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10.1136/jim-2020-SRM.174

**Introduction** Common causes of thrombocytopenia in solid tumors are myelosuppression due to chemotherapy, destruction due to disseminated intravascular coagulation and bone marrow infiltration. However, some cytotoxic drugs can cause immune-mediated thrombocytopenia. Differentiating the 2 mechanisms is crucial since it impacts management.

**Case report** A 32 y old F presented with vaginal bleeding. Pelvic exam revealed prolapsing cervical mass. Biopsy was consistent with invasive squamous cell carcinoma. CT Scan showed 7.4 x 7.1 x 5.1 cm cervical mass with no metastases. She completed chemoradiation with Cisplatin and had complete response. Eight months later, she relapsed with lung metastases and was started on Paclitaxel/Cisplatin/Avastin. She had expected drop in hemoglobin (Hb) and platelet (PLT) count 2 weeks after 1st cycle. However, with the 2nd, PLT count dropped from 214000/microliter on day 1 to 2000/microliter on day 4 with no associated drop in Hb. She didn’t develop schistocytosis or coagulopathy. HIT was ruled out. Immature PLT fraction was elevated at 17%. Prednisone 1 mg/Kg/day was started and PLT count rapidly improved and normalized within 2 weeks. She received Dexamethasone with subsequent cycles with relative stabilization of PLT count.

**Discussion** Although thrombocytopenia and worsening anemia after 1st cycle were probably due to myelosuppression, drop in PLT count after 2nd cycle was more consistent with immune thrombocytopenia based on rapid decline in PLT count, elevated immature PLT fraction, response to steroids and absence of other causes of PLT consumption. Immune-mediated PLT destruction has been reported in solid tumors. However, in this case, we think it was drug-induced since it was transient and the timing was related to the chemotherapy administration. Well documented culprits of drug-induced immune thrombocytopenia are Oxaliplatin and Irinotecan. Very limited cases of Cisplatin ± Paclitaxel induced immune thrombocytopenia have been reported.

**Conclusion** Autoimmune thrombocytopenia should be considered in patients with solid tumors, especially when early or prolonged thrombocytopenia follows chemotherapy. Differentiating immune-mediated thrombocytopenia from myelosuppression is critical because it affects management.

**175 AUTOIMMUNE COMPLICATIONS POST AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANT: CASE STUDY OF A PEDIATRIC PATIENT WITH STAGE III NEUROBLASTOMA**
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**Case report** Autoimmune disorders have been described following autologous and allogeneic hematopoietic stem cell transplantation (HSCT). After HSCT, the innate immune system recovers rapidly whereas the adaptive immune system may take years to fully reconstitute. During this reconstitution of the immune system, patients are at risk for developing graft versus host disease, experiencing graft versus tumor effects, or more recently documented developing autoimmune disorders. Autoimmune disorders have become more reported in up to 5 percent of patients post-transplant.

This report describes an 18-year-old female who developed multiple autoimmune findings following autologous hematopoietic stem cell transplantation for Stage III Neuroblastoma. Her initial transplant admission was complicated with severe mucositis, Adenovirus colitis, and severe veno-occlusive disease (VOD) requiring Defibrotide. She was readmitted on transplant day +70 for hematemesis and melena. She developed profuse diarrhea requiring Octreotide, TPN with additional fluids to compensate for insensible losses, and additional supportive care measures. During this time, she developed pancytopenia, indirect hyperbilirubinemia, pleural effusions and atypical pneumonia. Testing ruled out VOD, neuroblastoma relapse, and TMA. Between days +70 to +90, she developed the following autoimmune manifestations: autoimmune hemolytic anemia, prolonged aPTT related to an acquired factor inhibitor, positive ANA, thyroglobulin antibodies, autoimmune thrombocytopenia, and autoimmune colitis. IVIG provided brief improvement in her thrombocytopenia, but this was not sustained. She was subsequently started on Mycophenolate Mofetil and Methylprednisolone with improvement in her constellation of symptoms allowing for the weaning of supportive care measures. She is now six months post-transplant with complete resolution of her symptoms and normalization of all antibodies. She has completed the remainder of her treatment plan, is currently off all immunosuppression for four months, and is cancer free. It is important for clinicians caring for patients post autologous transplant to consider autoimmunity as a post-transplant complication.
Case report Adrenocortical carcinoma is a rare cause of childhood cancer. In the pediatric population, a majority of these tumors are functioning, resulting in symptoms directly related to the overproduction of sex hormones, cortisol, and/or aldosterone. Intra-abdominal tumors frequently present as abdominal distension and constipation, which may present a diagnostic challenge for pediatricians.

Case presentation A 2 year old male with history of constipation presented with abdominal distension, constipation, and emesis. On physical exam, he was found to have a palpable left-sided abdominal mass. A genitourinary exam was significant for phallus enlargement with stage II pubic hair. Labs demonstrated microcytic anemia and elevated lactic acid dehydrogenase. An ultrasound revealed bilateral renal masses, while CT of the abdomen revealed bilateral retroperitoneal masses. Testosterone level was elevated, without elevated corticosterone, suggesting possible adrenocortical carcinoma. PET scan demonstrated no distant metastasis or lymph node involvement. The patient underwent tumor biopsy with pathology report confirming the diagnosis of adrenocortical carcinoma. The patient was started on a Children’s Oncology Group study for the treatment of adrenocortical tumors, utilizing surgery with lymph node dissection and multi-agent chemotherapy.

Discussion Identifying the signs and symptoms consistent with hormone over-production can be crucial in diagnosing adrenocortical carcinoma. In this case, the evidence of abdominal mass and virilization on examination allowed for appropriate diagnostic testing. Labs demonstrated an elevated testosterone level, consistent with virilization on exam, which allowed the diagnosis to be made. It is essential for medical providers to obtain a careful history and perform a detailed physical exam, including a genitourinary exam, even if the presenting complaint is as common as constipation.

He re-presented with the worst headache of his life lasting 2 weeks in November 2018. White blood cell count was 120,000 with 75% lymphocytes, normal hemoglobin and platelets. CT head was normal. Flow cytometry of peripheral blood showed a CD5+ CD23+ CD38+, cyclin D1 negative and ZAP70 negative B cell lymphoma consistent with CLL. Flow cytometry of the CSF was positive for CLL. Bone marrow cyto genetic analysis showed t(14;19) (q32;q13.3) and a trisomy 12. He did not have a 17p deletion.

He was treated with 1 cycle of FCR (fludarabine, cyclophosphamide, rituximab) and then transitioned to ibrutinib/rituximab for 6 cycles upon discharge and is now on ibrutinib monotherapy. He has had complete resolution of CNS symptoms, lymphadenopathy and lymphocytosis.

Symptomatic central nervous system invasion in undiagnosed CLL is rare and associated with decreased survival. t(14;19)(q32;q13.3) is a translocation which involves the immunoglobulin heavy chain locus on chromosome 14 and the BCL3 gene on chromosome 19. This rare cytogenetic abnormality is identified in B-cell neoplasms, most often classified as CLL. It is unknown whether there is an association between t(14;19)(q32;q13.3), trisomy 12 and CNS involvement. Neurological symptoms are variable and etiology must be distinguished from unrelated conditions. No standardized treatment protocols for CNS involvement are reported in the literature, but patient can have durable responses if treatment is initiated early. Further studies are warranted to determine whether there is an association between the t(14;19)(q32; q13.3) and CNS disease because it may alert clinicians to initiate prompt treatment.

Case report Chronic lymphocytic leukemia (CLL) is the most common leukemia in older adults in the western world. Central nervous system(CNS) involvement at initial presentation is exceedingly rare. Risk factors for CNS involvement are unknown, and portend a poor prognosis.

A 34 year old male was diagnosed with disseminated zoster in May 2018. Physical exam revealed submental, axillary and inguinal adenopathy without any hepatosplenomegaly. His white blood cell count was noted to be 18,400 with 78% lymphocytes. Imaging showed diffuse lymphadenopathy and a 5.8 cm left lower lobe mass-like consolidation. He was referred to hematology outpatient, but was lost to follow-up.

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Discussion DIC is the widespread coagulation leading to vascular clot deposition with impaired synthesis of coagulation proteins and protease inhibitors, as well as exhaustion of platelets and coagulation factors. DIC is characterized by system thrombin generation and widespread clotting and bleeding that is usually associated with sepsis, trauma, malignancy, and childbirth. Therapy involves replacing factors and treating the underlying cause. In some studies, ARDS was related to the development of DIC. Treatment of the DIC led to the resolution of ARDS and extubation of the patients. In this case, the combination of sepsis, ARDS, development of renal failure, and an active lupus flare were all factors that lead to the development of DIC.

A CASE OF SPONTANEOUS TUMOR LYSIS SYNDROME IN SOLID TUMOR METASTASES

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Case report Tumor lysis syndrome is a potentially fatal oncologic emergency in which tumor cells lyse releasing large amounts of potassium, phosphate and nucleic acids into circulation. Spontaneous tumor lysis syndrome is a rare condition but has been described in the literature typically with non-Hodgkin’s lymphoma and acute leukemia. It is also rare to see tumor lysis syndrome from non-hematologic solid tumors; however this has been described in patients who have undergone treatment. We present an unusual case of a patient who had both spontaneous tumor lysis syndrome as well as tumor lysis syndrome of a solid tumor.

An 88 year old male with a past medical history of metastatic castrate-resistant prostate cancer with innumerable metastases to axial and appendicular skeleton, who was last treated 3 months prior with chemotherapy. He presented to the emergency department after oncology called him in due to lab abnormalities. Labs in the emergency department showed potassium of 7.0 mmol/L, corrected calcium of 6.6 mg/dl (ionized calcium of 0.76), phosphate of 4.7 mg/dl, serum creatinine of 3.6 mg/dl increased from baseline of 1.6 mg/dl, uric acid level of 16.6 mg/dl and alkaline phosphatase of 657 IU. The patient was treated over the next week with Rasburicase, intravenous crystalloid for renal failure and correction of electrolyte abnormalities.

Discussion We present a rare case of a patient who met Cairo-Bishop criteria for tumor lysis syndrome that was spontaneous and of a solid tumor. There are 28 cases of spontaneous tumor lysis syndrome from the first reported case in 1977 to 2017 per literature review. There is scant reporting for spontaneous tumor lysis syndrome in prostate cancer metastases; however, there are two documented cases of treatment naïve spontaneous tumor lysis syndrome of prostate cancer metastases. This both highlights the rarity of this case and shows that clinicians should entertain the diagnosis of tumor lysis syndrome when encountering these types of lab abnormalities despite this condition being most commonly seen in hematologic malignancies. This case also highlights the likelihood that this condition is underdiagnosed in patients with large tumor burden. This is evident by our patient who only came to the hospital because of lab abnormalities found during a routine oncology visit.

HUMAN IMMUNODEFICIENCY VIRUS AIDING IN DEVELOPMENT OF THROMBOTIC THROMBOCYTOPENIC PURPURA

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10.1136/jim-2020-SRM.180

Case report A 39-year old female with no significant medical history presented to our ER after she was found having seizure-like activity. She had no history of seizures in the past. She was taken to an outside hospital, where CT Brain was negative for acute findings. Upon arrival to our hospital, she was obtunded. Per the family, patient had no recent complaints of bleeding or excessive bruising. She was in her normal state of health one day prior to the development of these symptoms. Notable labs included white count of 14,000, hemoglobin of 7.2, and platelet count of 10,000. CMP was notable for creatinine of 5.6, total protein of 10.3, and albumin of 3.0. Bilirubin and electrolytes were normal. LDH was found to be elevated at 1750, uric acid was 13.3, and haptoglobin was <10. Peripheral blood smear confirmed schistocytes. There was concern for TTP so ADAMTS13 was obtained, and she received emergent plasma exchange with FFP. ADAMTS13 activity later came back at <5%. Given her elevated globulin gap, she was tested for HIV and hepatitis. HIV testing came back positive with a CD4 count of 32 and a viral load of 864,000. Patient’s mental status improved significantly after 2 sessions of plasma exchange. Creatinine improved to 1.5 prior to discharge, and platelets normalized. Haptoglobin and LDH improved as well. ADAMTS13 activity improved to >100%. She continues to follow in clinic one year later and is doing very well on no treatment for TTP.

Although TTP is a rare diagnosis, one must have a high clinical suspicion in a patient who manifests several of the five characteristics–mental state changes, acute renal insufficiency, microangiopathic hemolytic anemia, thrombocytopenia, and fever. It is important to remember that a patient might not have all five criteria. There are several case reports of TTP in the setting of newly diagnosed or untreated HIV, usually with CD4 <200. HIV increases the risk of TTP 14–50 fold when compared to non-HIV infected individuals. ADAMTS13 levels in these patients can be highly variable.

BLASTIC VARIANT OF MANTLE CELL LYMPHOMA: A DIFFICULT DIAGNOSIS

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10.1136/jim-2020-SRM.181

Case report Mantle Cell Lymphoma is a mature B-cell neoplasm usually composed of monomorphic small to medium-sized lymphoid cells with irregular nuclear contours. It accounts for 3–10% of non-Hodgkin lymphomas and has been traditionally considered a very aggressive and incurable lymphoma. Most patients initially present with stage III or stage IV disease with lymphadenopathy, hepatosplenomegaly and bone marrow involvement. Patients presenting with the blastic variant are associated with a poorer prognosis.

A 73-year-old male with no comorbid conditions presented to the emergency department with 1-week-history of cough, shortness of breath and general fatigue. Few days prior he was treated with antibiotics and expectorant elixir without
improvement of symptoms. He was found with tachycardia and hypertension. Physical exam was remarkable for a systolic ejection murmur and mild jaundice. No hepatosplenomegaly or lymphadenopathy was present. Laboratory demonstrated leukocytosis, thrombocytopenia and microcytic anemia requiring emergent blood transfusion. Bone marrow biopsy demonstrated blastoid cells with prominent nucleoli, many smudge cells without schistocytes or Auer rods, suggestive for a leukemic phase. Immunohistochemistry was positive for cyclin D1 within neoplastic cells. Peripheral blood fluorescent in situ hybridization revealed translocation t(11;14) consistent with mantle cell lymphoma, blastoid variant. Mantle Cell International Prognosis Index score was 9, indicating poor prognosis. He was started on Hyper-CVAD chemotherapy and rituximab, in addition to filgrastim and prophylactic antibiotic for neutropenia. As of today, the patient has completed 4 cycles of Hyper-CVAD chemotherapy without complications, showing sustained remission despite refusing bone marrow transplantation.

Blastic variant of mantle cell lymphoma may have a leukemic phase presentation challenging the initial diagnosis and prompt management. Additional entities such as acute lymphoblastic leukemia and diffuse large B-cell lymphoma with leukemic phase can often be mimicked. A high clinical suspicion and awareness of the prognosis of mantle cell lymphoma is required for early diagnosis in patients presenting peripheral smear suggestive of leukemia.

### A QUESTION STEM IN REAL LIFE: A CASE OF DENGUE FEVER PRESENTING WITH BREAKBONE FEVER AND THROMBOCYTOPENIA

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10.1136/jim-2020-SRM.182

**Case report** Dengue fever (or dengue hemorrhagic fever) is a febrile illness that is endemic to certain areas in Central and South America, Africa and Southeast Asia. It is transmitted by Aedes mosquito bite and causes a very severe febrile illness that can ultimately lead to hemorrhagic shock. We present a case of Dengue fever in a patient with recent mosquito exposure in Cuba.

Patient is a 49 year old Latino male who presented to Emergency Department (ED) with 1 week history of back pain and headaches, fever, abdominal pain and nausea. He reported that symptoms began shortly after returning home from week-long visit to Cuba where he was bitten by multiple mosquitoes. He also noted that his back pain and headaches were only present while he was febrile. At time of presentation, patient’s exam was notable for conjunctival injection of right eye, abdominal tenderness to palpation, maculopapular rash in bilateral lower extremities and petechiae across chest and upper extremities. Labs remarkable for leukopenia (2300), thrombocytopenia (34,000) and erythrocytosis (17.52%). Also noted to have mild transaminitis with ALT and AST of 100 and 52, respectively. Patient was admitted to General Medicine service and Hematology was consulted for leukopenia and thrombocytopenia. Infectious disease also consulted given recent mosquito exposure. Ultimately, patient had bone marrow biopsy which showed hypocellularity and viral serologies which confirmed presence of Dengue virus. He was treated with intravenous fluids, antipyretics and other supportive care and symptoms resolved within a few days and he was discharged home.

Dengue fever is a rare but potentially life-threatening febrile illness that can present with several different hematologic phenomenon. The most common hematologic presentation is thrombocytopenia, leukopenia and erythrocytosis initially. This exact mechanism is unclear but it is proposed that the leukopenia and thrombocytopenia may be immune-mediated processes. Erythrocytosis is not always present but can be indicative of vascular permeability and may predispose patient to hemorrhagic complications.

### EXTRANODAL MARGINAL ZONE B-CELL LYMPHOMA OF THE CONJUNCTIVAE AND ORBITS

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**Introduction** Orbital lymphoma originates in the conjunctiva, lacrimal gland, soft tissues of the eyelid, or extracocular muscles and makes up about 1–2% of non-Hodgkin’s lymphoma. Extranodal marginal zone lymphoma of the conjunctivae and orbits presents unique challenges in diagnosis and treatment. We present a rare case of extranodal marginal zone lymphoma of the conjunctivae and orbits that was effectively treated.

**Case presentation** A 63-year-old Hispanic female presented to her PCP with complaints of ‘knots’ in both her eyes. The patient denied any impairment of vision. Upon examination, she was found to have mechanical left superior eyelid ptosis and salmon pink, fleshy, vascular lesion visible in the right conjunctiva. A MRI of the orbit/face/neck showed bilateral enhancing masses within the preseptal fat, with right-sided postseptal and intracoronal extension. The right-sided mass measured approximately 0.9 × 2.6 × 1.2 cm, and the left-sided mass measured approximately 3.3 × 2.4 × 1.2 cm. The extracocular muscles bilaterally appeared to be extrinsic from these masses and optic nerves appeared to be spared bilaterally. A biopsy of the left orbital tumor showed stage II extranodal marginal zone lymphoma of the conjunctivae and orbits. Immunohistochemistry from the biopsy was positive for CD20, bcl-2, Ki-67(∼10%) and negative for CD3, CD5, CD10, cyclin D. A PET CT showed the disease in the conjunctivae and posterior orbits bilaterally.

The patient was treated with definitive involved site radiotherapy followed by chemotherapy with Rituxamab, Cyclophosphamide, Vincristine and prednisone. The bilateral conjunctival lesions were treated utilizing an opposed laterals beam arrangement technique. The patient tolerated the treatment well but with expected grade 1 skin and conjunctival irritation. Three weeks after radiation the patient will be started on 6 cycles of chemotherapy.

**Discussion** Radiation therapy is the treatment of choice for these tumors. Other treatment options include anti CD20 monoclonal antibodies and chemotherapy. A common etiological agent for these patients is Chlamydia psittaci and a few patients may respond to doxycycline. Chemotherapy is often reserved for relapse. However, because of the bilateral involvement of the orbits, in this case, it was decided to add chemotherapy to the treatment regime.
DIC IN COLON CANCER: A PRESENTATION OF METASTASIS TO THE BONE

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Introduction Disseminated Intravascular Coagulation (DIC) is the result of inappropriate activation of the coagulation cascade in conjunction with unregulated fibrinolysis. While DIC is common in hematologic malignancies; it is uncommon in solid tumors. Here we present a case in which DIC was the initial presentation of bone metastasis.

Case study A 75yoF with history of colon cancer s/p hemicolectomy and one round of FOLFOX presented with hematuria. Her oncologist was trending her CEA with the most recent value was 148 (prior value 107). CT abdomen and pelvis was negative for metastasis. After 2 weeks of persistent hematuria and antibiotic treatment, she was admitted to the hospitalist service. Physical exam was significant for bilateral upper extremity bruising, lower extremity petechiae, and exquisite CVA tenderness. On laboratory evaluation, WBC was 11.5, PLT of 98, PT 23.6, INR 2.1, and PTT 45.1. She was started on Zosyn for a presumed UTI and Oncology was consulted. D-dimer and Fibrinogen were ordered and were >20 and 60 respectively. She was diagnosed with DIC. She received 2U FFP, 1U PRBC, and 1U Cryoprecipitate. As her CEA was increasing and imaging was negative, a bone marrow biopsy was performed. Results showed colon cancer metastasis involving 30% of the marrow space. She received one dose of FOLFOX as salvage therapy, which she tolerated well. At this time, prognosis was discussed and it was decided that hospice was the best course of action.

Discussion While common in hematologic malignancies, DIC is rare in solid tumors. Current theories revolve around tF expression on vessels, metastasizing cells and microparticles. When present, DIC significantly worsens prognosis. Our patient presented for hematuria and had been treated with antibiotics for suspected UTI. Upon presentation, she was diagnosed with DIC and responded to treatment prior to choosing hospice.

Only a handful of cases have reported on DIC in colon cancer. A trend that was noted was the association of DIC with bone metastases in patients with mucinous histology. Our case exemplifies the importance of considering DIC in colon cancer as a potential harbinger of bone metastasis.

A RARE CASE OF LANGERHANS CELL HISTIOCYTOSIS PRESENTING AS A COLON POLYP

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Case report Langerhans Cell Histiocytosis (LCH) is a rare benign tumor arising from Langerhans dendritic cell. The incidence of LCH in children is estimated as 5 to 15 cases per 1 million. In adults, LCH is very rare, and the incidence is not yet defined. LCH can present as unifocal, multifocal, or multi-system involving disease. The most common organs involved are bone and skin, contributing to over 85% of the cases. LCH of GI tract involvement is rare and is limited to a few case reports in the literature. Here we report such a case of LCH presenting as a colon polyp.

ERIBULIN INDUCED ENCEPHALOPATHY IN A PATIENT WITH ADVANCED BREAST CANCER

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Introduction Eribuln is an antineoplastic agent indicated in advanced breast cancer. It inhibits the growth phase of microtubules. We report a patient with advanced breast cancer who developed drug-induced central nervous system (CNS) toxicity following treatment with Eribulin and responded promptly to corticosteroid administration.

Case presentation A 49-year-old woman with a history of advanced breast cancer (HER-2 negative, ER and PR positive) presented with a decreased level of consciousness and confusion. She underwent extensive treatment in the past, including partial lumpectomy, multiple chemotherapeutic regimens, hormonal therapy, and radiation therapy. Eribulin was initiated due to disease progression. She received the first cycle two weeks prior to her presentation. Physical examination was remarkable only for disorientation. Vital signs: were within normal limits. Laboratory tests, including electrolytes, were within normal limits. CT of head without contrast did not reveal any abnormalities. MRI of head showed bilateral symmetrical basal ganglia hyperintensity. Eribulin was stopped, and she was treated with dexamethasone 4 mg TID. She regained orientation in 12 hours and was discharged on a tapering dexamethasone regimen over 1 week.

Discussion Eribulin common side effects include neutropenia and peripheral neuropathy. Transient CNS toxicity with diplopia was reported in few cases. However, encephalopathy has
not been previously reported. Eribulin does not cross BBB, however radiotherapy may have facilitated its entrance to the brain causing toxicity. Another theory is Eribulin may cause autoimmune induced CNS injury. It is unclear why the basal ganglia were specifically affected. More studies are needed to help determine the underlying pathogenesis of CNS toxicity.

Case report A 58-year-old woman presented with chest pain one week after placement of drug-eluting stent (DES) for ST-elevation acute coronary syndrome (STE-ACS). She was compliant with dual antiplatelet therapy (DAPT) regimen of aspirin and prasugrel. Evaluation included an EKG without ST-segment changes. CBC revealed an elevated WBC (35,200 cells/mL) with 87% immature mononuclear cells, leading to a diagnosis of acute myeloid leukemia (AML). Disseminated intravascular coagulopathy (DIC) was diagnosed based on increasing D-dimer and decreasing fibrinogen. DAPT was transitioned to aspirin monotherapy. The patient completed 7+3 induction chemotherapy with complete remission. On day 34 of hospitalization, the patient developed multiple deep vein thromboses and aspirin monotherapy was transitioned to clopidogrel plus apixaban. The patient was discharged on hospital day 41. She is currently receiving consolidation chemotherapy.

Discussion DAPT is the standard of care to prevent stent thrombosis after coronary stenting. Managing antiplatelet therapy in the setting of elevated bleeding risk presents a challenging clinical scenario. AML consists of a group of hematopoietic malignancies involving bone marrow precursor cells. DIC is associated with AML and may present at time of diagnosis or with induction therapy. DIC is characterized by activation of coagulation cascades resulting in the consumption of platelets and coagulation factors, which increases bleeding risk.

Concurrent presentation of STE-ACS and AML is exceedingly rare with only nine cases previously reported. Aspirin monotherapy was initiated for this patient after considering the risk of stent thrombosis against the risk of hemorrhage. Although expert opinion recommends DAPT for one month for isolated thrombocytopenia, the risk of profound coagulopathy associated with DIC prohibited DAPT for our patient. Historical data of aspirin monotherapy shows a 3.4% risk of early stent thrombosis, significantly higher than the risk associated with DAPT. Although no longer considered standard of care, aspirin monotherapy may be a reasonable approach to prevent thrombosis of coronary artery stent in the presence of DIC.

Case report Renal Cell Carcinoma (RCC) tends to recur at unusual locations often with hemorrhagic metastasis. Sino-nasal metastasis is rare and can present as uncontrolled epistaxis or nasal obstruction. We report a case of massive uncontrolled epistaxis secondary to an isolated metastatic RCC in the nasal cavity requiring maxillary artery ligation. An 86-year-old female with a history of early stage renal cell carcinoma, status post nephrectomy 30 years ago, presented with recurrent, heavy, right nasal bleeding. She experienced intermittent mild epistaxis over the past 2 years, treated with conservative measures, except one episode requiring arterial embolization. Repeat ENT evaluation, nasal packing, rhinorocket tamponade and eventually maxillary artery ligatures lead to some degree of control. Biopsy from right inferior turbinate confirmed metastatic renal cell carcinoma. Imaging studies revealed no evidence of other systemic involvement other than sino-nasal metastasis. She completed palliative radiation therapy to prevent further episodes of bleeding. Given her age and comorbidities, she expressed interest in best supportive care to maintain her quality of life and was transitioned to palliative care. Epistaxis is one of the most common complaints confronted by the Emergency department. Massive epistaxis should always prompt clinicians to exclude more perilous pathologies, including malignancy. The primary tumor was resected in our patient 30 years ago, highlighting the fact that RCC can recur after many years and can have a varied clinical presentation. RCC can metastasize to nasal and paranasal sinuses either through the caval tract or through the vertebral plexus. Tumor related-secondary epistaxis typically does not respond to conservative management and usually requires resection or palliative radiation therapy. We present this case to illustrate the unusual late presentation of isolated metastatic RCC and stress a low threshold to investigate bleeding in cancer survivors. Early diagnosis can lead to effective treatment while decreasing morbidity and complications.

Case report Synovial sarcomas are aggressive soft tissue malignant tumors that arise near the joints, usually the ankle, hip and knee. Other sites include the neck, blood vessels and nerves. Etiology is unknown, still many SS are characterized by chromosomal translocation that fuses the SYT gene from Chromosome 18 to either the SXX1 or the SXX2 gene. The most common symptoms experienced is a mass/swelling associated with tenderness and pain.

We present a 26/y female G4P2A2 who came to the emergency department complaining of 4 months history of discomfort at the left gluteal and thigh area with associated pressure-like sensation. Patient with history of multiple visits to ER due to persistent feeling of increasing size, all imaging test were unremarkable. Denied any other associated symptoms; including anorexia, fever, SOB or weight changes. As patient continue with worsening symptoms, left lower extremity MRI requested. Vital signs unremarkable. Physical examination with no mark difference in size between the left and right thigh, no underling skin changes, FROM, no tenderness
Case report Human epidermal growth factor receptor 2 (HER2/ERBB2) mutation is detected only in 1.5% of all cases of Non-Small Cell Lung Cancer (NSCLC). Despite being a rare event in NSCLC carcinogenesis, it has a significant therapeutic implication. Here we present a patient with ERBB2 mutation-positive lung adenocarcinoma who had a clinically meaningful response to Ado-Trastuzumab Emtansine (T-DM1). A 52 years old female with a history of sarcoidosis and previous tobacco dependency was found to have a left upper lobe nodule on follow up imaging for sarcoidosis. Biopsy showed moderately to poorly differentiated adenocarcinoma with lymphovascular space invasion in the background of non-necrotizing granulomatous inflammation. On staining, the atypical epithelial cells were positive for keratin AE1/AE3, TTF1, ERBB2, and 40% PD-L1 and negative for EGFR, ALK, KRAS, BRAF, MET, RET, and ROS-1 alterations with CD163 positive histiocytes concentrated in the area of the granulomatous inflammation. Given the history of sarcoidosis, upfront immunotherapy was avoided, and palliative carboplatin and pemetrexed chemotherapy initiated. The patient had a good partial response on interim scans and mixed responses on final scans only to develop early progression on maintenance Pemetrexed. She then proceeded on T-DM1 with stable disease on progression-free survival of 5 months. We believe that our case serves as a good example of HER2/ERBB2/Neu activating mutation being a suitable target for therapy in NSCLC.

**Abstracts**

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**A CASE OF HEMOPHAGOCYTIC LYMPHOHISTIOCYTOSIS IN THE SETTING OF CLASSIC HODGKIN LYMPHOMA, HIV, AND EBV**

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**Introduction** Hemophagocytic Lymphohistiocytosis (HLH) is characterized by overactivation and proliferation of CD8+ T cells, histiocytes, and macrophages. This results in systemic inflammation and phagocytosis of various cell lines. Five out of eight criteria (recurrent fevers, cytopenia, splenomegaly, hypertriglyceridemia, hemophagocytosis in bone marrow or spleen or lymph nodes, elevated ferritin (>500), elevated soluble CD25 (>2,400 U/ml), and low or absent natural killer cell activity) are required for diagnosis.

**Case** A twenty-seven-year-old man with a past medical history of untreated HIV presented to the Emergency Department with syncope. He also reports experiencing chills, fevers, diaphoresis, and weakness over the past month. Initial labs revealed a hemoglobin of 5.6 g and platelets 81. Subsequent labs revealed a ferritin 5,825.7, triglycerides 370 mg/dl, soluble IL-2 at 21,540 pg/ml, and HIV viral load 267,742. CT scan revealed an atypical CD30 positive lymphoid infiltrate, suspicious for lymphoproliferative disorder. The CD30+ cells were large-sized, most were mononuclear and some were binuclear with large nuclei and conspicuous nucleoli. Atypical, large-sized lymphoid cells were positive for Epstein Barr virus RNA. Flow cytometry was significant for a mix of T, B and NK cells with T cells predominating. A left cervical lymph node biopsy revealed classic Hodgkin lymphoma, nodular sclerosing type.

**Discussion** HLH can be acquired genetically (primary) or environmentally (secondary). Mutations in the genes PRF1, MUNC13–4, and STX11 are associated with primary HLH. Secondary HLH is often triggered by autoimmune disorders or viral infections. The most common trigger for HLH is an infection with Epstein-Barr virus. HLH is often fatal making prompt diagnosis and treatment of great significance.
and mostly observed in females. Few cases of para-testicular rhabdomyomas in adolescents and adults have been reported.

We report a 22 month old African American male with a sudden onset of bilateral tender testicular swelling.

Testicular ultrasound revealed thickening of the right scrotal soft tissues compared to left. The testicles were grossly symmetric and within normal limits in echogenicity and color flow. The right epididymis demonstrated heterogeneity and increased size as compared to the left which measured 1.5 × 0.6 × 0.6 cm and 0.4 × 0.3 × 0.5 cm respectively. Right groin exploration with excision of non-viable torsioned right scrotal mass with orchiopexy was performed.

Specimen measured 2.9 × 1.4 × 0.6 cm; microscopically revealed blood and clusters of large orbicular-ovate cells with small bland peripheral nuclei, discrete cellular borders and a full rounded, laminated cytoplasm with no atypia or malignant changes(Image2).

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Staining for desmin was positive(Image1). Staining for S100, NSE, CD34, myogenin, CD68, vimentin, CK cam 5.2, CK AE1/AE3, CD68, p53 SMA, SMA, PASH with and without diastase were all negative. These findings were consistent with a final diagnosis of fetal type rhabdomyoma. Relevant oncologic workup including CT chest, abdomen and pelvis were negative.

This is one of the very few documented cases of pediatric paratesticular epididymal rhabdomyoma in the literature. Although benign in nature, the exact prognosis is unknown due to its rarity. Available data suggests monitoring due to remote possibility of a recurrence.

193 THE PULMONARY COMPLICATIONS OF A PARANEOPLASTIC AUTOIMMUNE VASCULITIS IN A PATIENT WITH MYELODYSPLASTIC SYNDROME

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Introduction Paraneoplastic autoimmune phenomena may occur in up to 30% of patients with myelodysplastic syndrome (MDS). We present a case of a patient with MDS who developed a paraneoplastic autoimmune vasculitis that led to diffuse alveolar hemorrhage.

Case A mid-50s male presented with acute chills, weakness, and night sweats. He lost 20 lbs over 2 months and had 2 weeks of fatigue, exertional dyspnea, and epistaxis. His temperature was 102.3°F and oxygen saturation was 84% on room air. He was tachycardic to the 90s. He appeared ill with bilateral pitting edema to knees. Labs showed a hemoglobin of 5.7 g/dL, hematocrit of 17.2 g/dL, and platelet count of 27 k/mL. The peripheral blood smear showed 4% blasts and frequent dyspoietic granulocytes. Bone marrow biopsy (BMB) was performed to screen for acute leukemia and MDS, eventually confirming MDS with excess blasts and erythroid predominance.

During hospitalization, the patient developed acute hypoxemic respiratory failure confirmed by bronchoscopy as diffuse alveolar hemorrhage secondary to thrombocytopenia. High-dose corticosteroids (2 mg/kg prednisone) were started for suspected paraneoplastic autoimmune vasculitis, pending BMB results. The patient steadily improved, was extubated, and had reduced oxygen and transfusion requirements.

The patient developed recurrent diffuse alveolar hemorrhage after steroids were stopped for decitabine chemotherapy. He experienced cardiogenic shock and passed away after multiple episodes of cardiac arrest. The family declined autopsy.

Discussion Diffuse alveolar hemorrhage is a rare but potentially deadly pulmonary complication of paraneoplastic autoimmune vasculitis in MDS. Patients who initially present with atypical autoimmune phenomena need screening for underlying MDS, which can change the promptness, extent, and duration of immunosuppressive therapy. Failure to promptly treat patients with corticosteroids can lead to serious complications and death.
THE EPITOME OF VITAMIN B 12 DEFICIENCY

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Introduction In the developed world where serologic testing is readily available, the classic presentation of vitamin B12 (B12) deficiency is rare. In this case report we present a case of 64 year old male with a classic presentation of B12 deficiency.

Case report A 64 year old male presented to the emergency room with tingling, numbness in hands and feet for 2 weeks, generalized weakness, unsteady gait and memory problems for 2 months. He had not seen a physician in 7 years. Vital signs were significant for respiratory rate 22/min. Notable findings were of icteric sclera, poor short-term memory, normal motor exam, reduced sensation to touch in a glove and stocking distribution, reduced proprioception and positive Romberg sign. Labs were pertinent for pancytopenia, MCV>121fl, reticulocyte count<3%, hypersegmented neutrophils on PBS, indirect hyperbilirubinemia, LDH>14000U/L, haptoglobin<10 mg/dL, B12<60pg/mL and folate<19ng/mL. Intrinsic factor and antiparietal cell antibodies were positive. On treatment with B12 replacement he showed hematologic and clinical improvement. The classic presentation of B12 deficiency including pancytopenia with macrocytic anemia, jaundice and neurologic abnormalities are rare in the developed world. Because of readily available and routinely obtained serologic testing, many deficiencies come to attention due to the incidental finding of anemia or macrocytosis. Our patient had not seen a physician in 7 years and this explains why he had all the classic features. Lab findings including pancytopenia, elevated LDH and indirect bilirubin, and low haptoglobin were due to ineffective erythropoiesis resulting in hemolysis. Unlike other forms of hemolytic anemia, the reticulocyte count was low. For individuals with typical laboratory findings, the only initial testing needed is a serum B12 level. The neurologic features include subacute combined degeneration due to demyelination of the posterior and lateral columns of the spinal cord and can be present in the absence of macrocytic anemia. Clinician should be aware of rare findings related to B12 deficiency. The presence of anemia also carries important prognostic significance. Anemia detected at baseline is inversely related to the severity of neurologic improvement at the time of presentation.

MULTIPLE MYELOMA WITH INITIAL PRESENTATION OF SPINAL SHOCK

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Case report Multiple Myeloma (MM) comprises nearly 20% of all hematologic malignancies in the United States. The importance of recognizing MM cannot be overstated due to the mortality of the disease and the improved outcomes in the setting of early detection and treatment. We present the case of a 58-year-old male who presented to the emergency department with acute bilateral flank pain, urinary retention and worsening left sided weakness and progressive dysarthria. He has a past medical history of hypertension, hyperlipidemia, benign prostatic hyperplasia and stroke with residual LLE weakness and impaired cognition. This was his third presentation to the emergency room for similar complaints. This time, he had a new-onset functional deficit and lower extremity symptoms. He had a stroke scale of 5, but was outside the tPA window. A computed tomography (CT) scan of the head did not demonstrate any acute infarct. The patient underwent MRI of the spine, demonstrating a large lobular enhancing mass from T5-T7 and extension through the neural foramina and paraspinal musculature and pleura with mass effect from the level of T5-T7. IR biopsy of the enhancing mass showed a plasma cell neoplasm with immunostaining positive for CD138 and with lambda monoclonal light chain predominance. Due to concern for neurological emergency, neurosurgery was consulted, but did not intervene due to patient’s debility. A subsequent bone marrow biopsy showed only 6–8% plasma cell proliferation. Though this is not in the common range of MM, a metastatic bone survey showed several lytic lesions and the patient was diagnosed and offered treatment for MM, which he declined.

This patient’s care and medical treatment were significantly delayed due to lack of recognition due to the patient’s vague symptoms and poor history. The patient also did not have any significant renal disease, hypercalcemia or anemia throughout his several admissions that may have otherwise raised suspicion for Multiple Myeloma. This case is an important reminder for internists to be diligent in all parts of the physical examination, including the neurological exam, which can unmask medical emergencies requiring prompt intervention as in this patient.

OVARIAN HIGH-GRADE SEROUS CARCINOMA WITH NEUROENDOCRINE COMPONENT, A RARE AND AGGRESSIVE TUMOR

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Case report High-grade serous carcinoma with neuroendocrine component has been described in the endometrium, but very rarely in ovaries. We describe a case of a 60-year-old female who presented with abdominal pain, foul vaginal discharge and elevated CA-125. Computed tomography scan revealed two large pelvic masses with metastasis to the small bowel and mesenteric lymph nodes. Patient underwent bilateral salpingo-oophorectomy with omentectomy and bowel resection because of mass adhesions to the mesentery. Gross examination showed bilateral ovarian masses (left, 8.2 cm and right, 7.5 cm) with solid and cystic areas and extensive necrosis causing near-complete effacement of the ovarian parenchyma. Histologically, the adnexal masses consisted of two components: high-grade serous carcinoma and a discrete and focally intermingling neuroendocrine carcinoma (figure 1). The small
bowel, omentum and mesenteric lymph nodes showed neuroendocrine carcinomas only (figure 2). The serous and neuroendocrine carcinomas were positive for PAX8 (figures 3&4), WT1, p53, p16 and ER (patchy) and negative for PR. Chromogranin was positive only in the neuroendocrine carcinoma component (figure 5) with a Ki-67 of >95%. Patient passed away 10 days following the surgery. Ovarian serous carcinomas with neuroendocrine components are rare and aggressive tumors that at sites of metastasis may only be comprised of neuroendocrine component, which may result in a delayed diagnosis or misdiagnosis. This case highlights that an ovarian epithelial tumor with neuroendocrine differentiation is important to consider when a neuroendocrine tumor in abdominal lymph nodes or bowel wall is detected in regional or temporal connection with an ovarian/adnexal mass.

Case report
Acquired Factor VIII inhibitors, also referred to as acquired hemophilia A is a rare bleeding disorder that differs in several ways to its congenital hemophilia A counterpart. Acquired hemophilia A has no inheritance pattern, presents typically later in life, and is seldom found to present with hemarthroses, but rather soft tissue bleeding and purpura. Unfortunately, it is associated with high mortality. This is a 79 year old female who presented to her hematologist from her PCP with new bruising. Upon evaluation she was found to have a normal CBC, platelet function test, PT, and INR. However, the patient had a prolonged PTT of 146.2 seconds that did not correct with a mixing study, an undetectable Factor VIII level, and a Factor VIII inhibitor level greater than 1000 bethesda. She was started on prednisone 1 mg/kg for her acquired Factor VIII inhibitor and repeat studies 2 weeks later revealed PTT of 121.2, a continued undetectable Factor VIII level, and a continued Factor VIII inhibitor level greater than 1000 bethesda. She later developed a left hand hematoma and was admitted to the hospital for FEIBA (factor eight inhibitor bypassing agent). While hospitalized she showed no further signs of bleeding and her hematoma remained stable in size. The patients prednisone was continued, and she was started on Rituxan 375 mg IV weekly and Cyclophosphamide 100 mg daily. Despite 4 weeks of this therapy, her Factor VIII level remained undetectable, her PTT prolonged, and her Factor VIII inhibitor level although initially decreased to 614.4 bethesda later increased to 901 bethesda. She currently continues to exhibit no active signs of bleeding and stability in her hand hematoma.

Given the extreme rarity of this disease of 1 to 4 million/year, studies and literature regarding treatment are limited primarily to case reports, small retrospective studies, and personal clinician experience. Approaches to inhibitor eradication typically require a combination of immunosuppressive agents, high dose intravenous immunoglobulin (IVIG), and immune tolerance. Given this patients persistent elevated inhibitor level despite steroids and immunosuppressive agents we will need to pursue other agents such as calcineurin inhibitors, mycophenolate mofetil, and/or IVIG to achieve inhibitor eradication and restore the patients normal hemostasis.

A RARE CASE OF ISOLATED HYPOTHALAMIC-PITUITARY LANGERHANS’ CELL HISTIOCYTOSIS

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Introduction Langerhans’ cell histiocytosis (LCH) is a rare disease with isolated neurological involvement in 5–10% of cases. We report a case of isolated hypothalamic-pituitary LHC in a woman presenting with altered mental status.

Case description A 35-year-old woman presented with increasing confusion for several weeks with occasional headaches and blurred vision. Her mental status was altered; she was hypotensive, afebrile, and dehydrated. We intubated her for airway protection and started inotropes after her condition did not improve with intravenous fluid boluses. Her sodium level was 167 mmol/L. After admission to the intensive care unit, her urine output was 1000 mL/hr. A diabetes insipidus (DI) workup revealed a serum osmolality of 350 mOsm/kg and urine osmolality of 100 mOsm/kg; her urine output decreased after desmopressin administration. Further testing revealed panhypopituitarism.

Magnetic resonance imaging (MRI) of her brain revealed a mass in the optic hypothalamic region involving the optic chiasm and medial walls of the third ventricle with extension into the pituitary stalk. Tissue biopsy from a right craniotomy showed atypical cells in focal aggregates positive for CD68, CD1a, and Langerin consistent with LCH. She was managed with hydrocortisone, desmopressin, and levothyroxine. A skeletal survey was negative for lytic lesions, and we found no bone marrow involvement. She received 2 cycles of vincristine and cytarabine; her overall condition improved, and her sodium levels normalized.

Discussion LCH is a rare multisystemic disease with uncertain pathogenesis characterized by clonal proliferation of bone marrow-derived immature dendritic cells and usually affects children. Adult-onset LCH occurs in approximately 2 million populations/year. LCH is often misdiagnosed given its rarity, multisystemic involvement, and various presentations. DI seems to be the most common, well-described manifestation of hypothalamic-pituitary involvement. Anterior pituitary dysfunction is reported in <20% of patients with LCH and is usually concurrent with DI. Physicians should suspect LCH in patients developing central DI regardless of anterior pituitary dysfunction and underlying intracranial mass on MRI.

Oligometastatic Disease: An Emerging Concept in Oncology

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Purpose OGM breast cancer case report and increase awareness on the use of locoregional therapies (LRT) in metastatic cancer.

Methods Review of Electronic Health Records and medical literature.

Results A 46-year-old woman with a known diagnosis of triple negative breast cancer (TNBC) in 2008 treated with SRG, radiation (XRT) and chemotherapy (CTX). She received adjuvant chemotherapy for several years with disease progression or unacceptable toxicity. If coadministration with a strong CYP3A4 inducer cannot be avoided, osimertinib dose of 160 mg once daily was recommended. We present a rare case with unique dosing schedule of every other day osimertinib 40 mg in metastatic NSCLC with excellent response. A 78-year-old male with a known diagnosis of early-stage lung adenocarcinoma was status post lobectomy followed by adjuvant 6 cycles of chemotherapy. Approximately two years later, the patient experienced local recurrence and was treated with concurrent chemotherapy. Surveillance scans three years later showed widespread progression and biopsy confirmed the metastatic disease. EGFR exon 19 p. E746A A750 deletion was detected. The patient was started on erlotinib 150 mg daily; eventually, it was switched to osimertinib 80 mg once daily due to lack of tolerance and requiring multiple interventions secondary to diarrhea, rash and hand-foot syndrome. Osimertinib was subsequently dose reduced to 40 mg CTX and XRT and with an unresectable chest wall mass in 2018. Due to prior XRT she was considered at high risk for tissue necrosis with additional XRT. She received chest wall cryoablation (CAB) x 2 with symptom resolution. Pain was under control for 8 months.

Metastatic TNBC (mTNBC) is an incurable disease. CTX is the cornerstone of treatment with goals of improving survival and palliation. Median survival (MS) is 2 years. Second line CTX has modest activity with response <20% and time to tumor progression <6 months. XRT and SRG are reserved for symptomatic or non-responsive disease. OGM cancer is an emerging concept, in which some metastatic tumors remain locoregionally confined while others are widely disseminated. It was not until recently that this concept is gaining more relevance. RNA analysis shows that oligo- and poly-metastases are distinct entities. OGM tumors may benefit from LRT which include stereotactic body radiation (SBRT), minimally invasive SRG or ablation. Ablation may be achieved by heat (radiofrequency, microwave and laser), or by the use of CAB which cools tissue to <40°C producing tissue necrosis. CAB can be used in the treatment of bone lesions, renal masses, lung, prostate and breast tumors. Recent data supports the use of LRT combined with systemic therapy in these malignancies. The SABR-COMET trial compared the use of SBRT alone to SBRT plus systemic therapy in the treatment of lung, breast, and prostate malignancies. The results showed significant improvement in survival with the addition of SBRT. A phase II trial is underway in mTNBC with survival >6 years. The use of local therapies probably contributed to her survival. This case also exemplifies the value of CAB in treating recurrent tumors, particularly when other techniques, such as SRG or XRT are not appropriate.
Abstracts

MULTIPLE SQUAMOUS CELL SKIN CANCERS AS A COMPLICATION FROM LONG-TERM HYDROXYUREA THERAPY

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Case report
Hydroxyurea is an antimetabolite that selectively inhibits ribonucleoside diphosphate reductase thereby halting the cell cycle at the G1/S phase. Patients with myeloproliferative neoplasms at high risk for venous or arterial thrombosis should be treated with cytoreductive therapy to reduce the risk of thrombosis. Hydroxyurea is the preferred cytoreductive agent for most patients. Squamous cell carcinoma is a rare side effect reported in less than 1% of patients on Hydroxyurea and is not widely known. A seventy-two-year-old male with JAK2 V617F mutation-positive essential thrombocytosis was treated with hydroxyurea for 6 years, which was effective in controlling his platelet count. After 6 years of therapy, the patient developed several skin lesions over the scalp, face, and extremities (sun-exposed areas). He was evaluated by dermatology and biopsies were consistent with multiple squamous cell skin cancers. He had recurrent squamous skin cancers requiring treatment/removal almost on a weekly basis. Hydroxyurea was slowly tapered and discontinued, and we noted an improvement in skin lesions that required weekly intervention to no further new lesions requiring removal. The patient was simultaneously started on Ruxolitinib, which selectively inhibits Janus Associated Kinases based on phase 2 data refractory to or intolerant of hydroxyurea. Following discontinuation of hydroxyurea, WBC increased from 9.4 K/µL to 36 K/µL and platelets increased from 439 to 1762 K/µL. Ruxolitinib was increased to 10 mg Bid and WBC improved to 15.5 K/µL and platelet count of 836 K/µL. Cutaneous cancers associated with the use of hydroxyurea are often multiple and include both squamous cell carcinomas and basal cell carcinomas. They typically appear on sun-exposed surfaces. Despite being rare, these complications often have clinical consequences affecting a patient’s quality of life and requiring dermatologic intervention. This case highlights the need to be cognizant of this rare toxicity and advocate expedited dermatological evaluation if concerning symptoms arise. Patients may need skin surveillance for many years after the discontinuation of hydroxyurea therapy because of the apparent prolonged duration of the risk of skin cancers.

ERYTHEMA NODOSUM – A RARE SIDE EFFECT OF IMMUNOTHERAPY

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Case report
Erythema nodosum (EN) is a delayed-type hypersensitivity reaction that most often presents as erythematous, tender nodules on the shins. EN can occur secondarily to a wide variety of conditions. We present a rare case where EN developed while receiving nivolumab immunotherapy. A 38-year-old female with a history of invasive malignant melanoma involving her right foot plantar surface (pT3ApN0). She noticed another skin lesion in close proximity to her existing scar. It was biopsied and demonstrated acral lentiginous melanoma with a Breslow thickness of 0.4 mm, mitoses 0/mm², and no ulceration. She subsequently underwent wide excision of her right great toe melanoma and split-thickness skin grafting. Biopsy results were negative for residual melanoma. While completing wound healing, she had recurrent acral lentiginous melanoma. PET/CT showed interval development of a right inguinal lymph node measuring 1.4 × 1.1 cm with a maximum SUV value of 2.2. Right inguinal core biopsy confirmed involvement with metastatic melanoma. Neoadjuvant immunotherapy with nivolumab for three months followed by right inguinal dissection and excision of the primary lesion was planned. After receiving the third cycle of nivolumab, she developed diarrhea and bilateral skin and soft tissue changes in her lower extremities. She was evaluated by dermatology and underwent a left shin biopsy that showed septal panniculitis most consistent with EN. To date, no reports of nivolumab causing EN have been reported in the literature. Common triggers for EN include infection, drugs, pregnancy, malignancy, and inflammatory conditions. However, many cases are idiopathic. EN usually resolves spontaneously within several weeks. When necessary, treatment can be given to reduce symptoms or hasten resolution. Our patient was not a candidate for first-line NSAID therapy, so second line prednisone was used with excellent response and resolution of all EN lesions. She was also referred to gastroenterology for a colonoscopy to rule out inflammatory bowel disease and immune-mediated colitis. There is a resurgence of interest in the rapidly evolving field of immunotherapy treatment of advanced solid tumors but the understanding of toxicity profiles is incomplete. Our patient was a cautionary tale and treating physicians should continue to monitor patients closely for rare side effects.

EARLY ONSET T CELL LEUKEMIA IN A 48-YEAR-OLD MAN PRESENTING WITH RAPIDLY PROGRESSIVE LIVER DISEASE

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Case report
T cell prolymphocytic leukemia (T-PLL) is a rare and highly aggressive proliferative disorder of lymphoid cells. It accounts for 2% of mature lymphoid leukemias in adults. Males are predominantly affected with a median age of 61 years. Clinical presentation consists of a short period of B symptoms, hepatosplenomegaly and lymphocytosis. Lymphadenopathy is usually not clinically evident.
A 48-year-old Hispanic male with no medical history presents with 3 months of progressive fatigue accompanied by abdominal pain, diarrhea and fever. He also noted hemato-spermia, choluria and epistaxis. Physical exam was positive for scleral icterus, hepatosplenomegaly and a non-pruritic maculopapular rash on the chest. No lymphadenopathy was noted on physical exam. Initial studies showed lymphocytic leukocytosis (19.88), normocytic anemia (9.9) and thrombocytopenia (23). Laboratory findings also revealed transaminitis (ALT 112, AST 123), elevated ALP (507) and hyperbilirubinemia (5.1) with mild elevation in INR (1.54). Workup was consistent with anemia of chronic disease with normal haptoglobin and direct coombs test. Peripheral blood smear was significant for leukoerythroblastosis with 5% blasts. Imaging studies revealed hepatosplenomegaly and multiple small lymph nodes in retroperitoneum and mesentry. Hepatitis B, C and HIV screening were negative as well as acute infection with EBV, CMV, HSV-1 and HSV-2. Patient had a rapid decline in liver function within 10 days of hospitalization. Other causes of liver disease including hemochromatosis, alpha 1 antitrypsin deficiency, Wilson disease, autoimmune hepatitis and primary biliary cirrhosis were ruled out. Liver biopsy showed acute hepatitis with bridging necrosis, no lymphocytic infiltration was observed. Bone marrow biopsy results finally revealed the diagnosis of T cell prolymphocytic leukemia. Patient is currently receiving treatment with alemtuzumab.

The prognosis of T-PLL is poor with a median survival of 1–2 years with treatment. Current management is determined on best available evidence as no randomized controlled trials have been developed. More observational and experimental studies are required to understand this rare disease.

AN INCIDENTAL CASE OF TRANSIENT ERYTHROBLASTOPENIA OF CHILDHOOD

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Introduction Transient erythroblastopenia of childhood (TEC) is a transient red cell aplasia characterized by a temporary cessation of erythrocyte production in previously healthy children. It is the most common pure red cell aplasia in children. The etiology is unknown, although possible causes of TEC include viral illness, serum inhibitors against erythroid progenitor cells, and cell-mediated suppression of erythropoiesis. TEC is seen in children between the ages of 6 months to 6 years, with a predilection for males. Patients generally have an anemia with Hb between 6–8 g/dL and reticulocytopenia due to transient suppression of RBC production by bone marrow. Case Our patient is a healthy 12 month old African American male born to a 21 year old mother with a history of asthma. Patient was born at 39 weeks with no complications. Prenatal history was unremarkable. No reported family history of anemia, bleeding disorders, or hemoglobinopathies. The patient presented to our clinic for his 12 month well child visit in which routine CBC and lead levels were drawn. Besides a resolving viral illness reported 2 weeks prior to his clinic visit, his checkup was normal. Labs showed severe anemia with a Hb of 5.5, MCV of 76, and a reticulocyte count of 1.7. The patient was subsequently admitted to the hospital for further evaluation. Labs for Parvovirus B19, EBV, and CMV were drawn and were found to be negative, and blood smear showed normocytic normochromic anemia. Patient received PRBC transfusion at 15cc/kg during hospital admission. He remained clinically stable and was discharged to follow-up with Heme/Onc as an outpatient. Repeat CBC post-transfusion revealed Hb of 14.2. The constellation of lab results, history of recent viral illness, and quick resolution of symptoms led to the diagnosis of transient erythroblastopenia of childhood.

Discussion TEC is a diagnosis of exclusion; therefore, it is important for the clinician to have a broad differential diagnosis of anemia. These include congenital hemolytic anemias such as hereditary spherocytosis, RBC enzyme defects, and hemoglobinopathies. Another important consideration is Diamond-Blackfan anemia, which presents with abnormal physical exam findings including microcephaly, growth failure, and triphalangeal thumbs.

206 AN INCIDENTAL CASE OF TRANSIENT ERYTHROBLASTOPENIA OF CHILDHOOD

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ACUTE GRAFT VERSUS HOST DISEASE IN A PATIENT WITH AUTOLOGOUS HEMATOPOIETIC STEM CELL TRANSPLANT

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Case report Acute graft-versus-host disease (GVHD) is an unpredictable severe inflammatory complication of allogeneic hematopoietic cell transplantation. Theoretically should not exist in autologous-hematopoietic stem-cell-transplant (auto-HSCT).

We report the case of a 61-year-old female diagnosed with multiple myeloma (MM) in May 2017. Treatment was started with 6 courses of bortezomib-dexamethasone regimen. Bone Marrow biopsy on December 2017 revealed complete remission. After evaluation; patient was considered a candidate for auto-HSCT. Mobilization of stem cells was performed with fil-gastrin-perixaltor regimen followed by collection of cells with no complications. Conditioning chemotherapy was given with melphalan (200 mg/m²) for two days. The regimen was tolerated without complications, stem cell infusion was performed with a total dose of 2.82 × 10^6 CD34 negative cells/kg. During the post- transplant period low hemoglobin and platelets counts were managed with transfusions. Granulocyte colony stimulating factor was started on day+7 until successful engraftment on day+12. On day +14 patient developed gastrointestinal discomfort and watery diarrhea that got worse despite treatment with anti-motility and anti-microbial agents. Work up for infective causes of diarrhea, such as Clostridium difficile assay, PCR for Cytomegalovirus, Epstein-Barr virus, and stool cultures for bacteria, parasites and fungal pathogens were negative. Further evaluation with a sigmoidoscopy and biopsy revealed the presence of mucosa with regenerative changes, crypt architectural distortion, crypt abscess, and focal crypt loss and increase apoptosis. Findings consistent with acute GVHD.

Acute GVHD is a common and serious complication of allogeneic HSCT. The presence of acute GVHD in autologous HSCT is extremely rare. There is no proven explanation for the pathophysiology of auto-GVHD. Our case illustrates a rarely seen complication of auto-HSCT and a possible different etiology for the mechanism of GVHD. Also the
Abstracts

208 5-FLUOROURACIL INDUCED CARDIOMYOPATHY IN A PEDIATRIC PATIENT: RARE EVENT
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Case report 5-fluorouracil (5-FU) is a commonly used chemotherapy agent in adult solid tumor patients but is less frequently used in pediatrics. In adults, 5-FU is a well-recognized inducer of cardiotoxicity, particularly among patients with underlying cardiovascular disease. 5-FU mediated cardiotoxicity has rarely been reported in the pediatric population.

Objectives We report a rare case of 5-FU induced cardiomyopathy in a pediatric patient with nasopharyngeal carcinoma (NPC), successfully managed with milrinone and uridine triacetate, underscoring the need for awareness and prompt recognition and medication administration for this potentially reversible condition.

Design/Method A literature search was conducted for 5-FU induced cardiomyopathy in pediatric patients. We identified 2 previously reported cases published in 1995 and 2011, both in patients with similar diagnoses and chemotherapy regimens.

Results/Conclusion A 16 year old female diagnosed with stage IVA NPC began treatment with a regimen of Cisplatin and 5-FU. Echocardiogram prior to chemotherapy demonstrated normal cardiac function. Planned initial chemotherapy regimen consisted of 3 cycles of Cisplatin (80 mg/m²) on day 1 and 5-FU (1,000 mg/m²/day continuous infusion) on days 1–4. On day 3 of cycle 1, she acutely developed hypotension and tachycardia. Electrocardiogram demonstrated sinus tachycardia and echocardiogram showed significantly compromised cardiac function, with LV ejection fraction (EF) of 33% (previously 68%). She was transferred to the pediatric ICU and milrinone drip was initiated. Chemotherapy was continued and the 5-FU infusion was completed. Cardiac function continued to decline. Due to the temporal relationship, 5-FU cardiotoxicity was considered as the etiology of the patient’s cardiomyopathy. At hour 60 past the completion of 5FU infusion, uridine triacetate therapy was initiated. Within 48 hours, LV EF had improved to mid-40%. By 96 hours, EF normalized and milrinone was weaned off. She completed the full regimen of uridine triacetate (10 grams q6 hours; total of 20 doses). Prompt recognition and appropriate management is essential to achieve favorable outcomes, and normalization of cardiac function is possible following an event.

209 SYMPTOMATIC ANEMIA DUE TO UPPER GASTROINTESTINAL BLEED IN THE SETTING OF ITP
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Case report This is a 60-year-old African America male with past medical history of diabetes type 2, hyperlipidemia, and hypertension that came to the emergency room with shortness of breath, dizziness, and multiple syncopal events throughout the past four weeks or so. Patient admitted to having worsening symptoms with increased activity, he also noticed dark sticky stools for the past 2–3 weeks as well. In the emergency room the patient was found to be severely anemic with hemoglobin of 3 g/dL (normal range 14–18 g/dL) as well as thrombocytopenic with an undetectable number of platelets, thus he was admitted to internal medicine service for severe symptomatic anemia and thrombocytopenia. Upon physical exam patient had a fairly unremarkable exam except for a mildly tearful/angry, tachycardic, pale conjunctiva, fingerling clubbing, and a guaiaic positive digital rectal exam. Patient had not been on any anticoagulation, hasn’t been compliant with any medication, has never had a colonoscopy and has no known family history of colon cancer or any other neoplasm. Patient admits to being a current every day smoker with 52 years at 1–1.5 packs per day, but denies drugs and alcohol use. In total the patient was given 6 units of packed red blood cells, 1 unit of fresh frozen plasma, and 2 units of platelets. These blood products helped to increase the hemoglobin to a safer level, but did not help the platelets move above 1 thou/cu mm. He was monitored closely; the gastrointestinal team was consulted for possible need for EGD/Colonoscopy due to suspected cause of the anemia being a bleed somewhere in the gastrointestinal tract. Hematology oncology was also consulted due to the near zero count of platelets, and common things being common a hemoglobin this low usually is not accompanied with an undetectable thrombocytopenia. Once hemolysis labs and iron panel were negative, this pathology most closely pointed to Immune Thrombocytopenic purpura (ITP). Hematology decided to treat as such with IVIG and decadron 40 mg daily for four days. Patient was monitored closely and with the stabilization of his hemoglobin and slight rise and up trend of his platelets the patient was safely discharged home.

210 COMPLETE CLINICAL AND HISTOLOGICAL RESPONSE TO COMBINATION NIVOLUMAB AND IPILIMUB IN A PATIENT WITH METASTATIC RENAL CELL CARCINOMA
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Introduction About 25% of the patients with renal cell carcinoma (RCC) present at an advanced stage. The treatment approach of metastatic RCC depends on various prognostic risk factors. Currently, Immunotherapy with checkpoint inhibitors and targeted therapy with vascular endothelial growth factor inhibitors are the primary systemic modalities for the management of advanced RCC. We present a unique case of metastatic RCC with heavy disease burden and poor-risk features treated with combination checkpoint therapy resulting in a complete radiological and pathological response.

Case description A 56-year-old male presented with gross hematuria, left flank pain and weight loss. Initial laboratory workup showed hemoglobin of 10.7 g/dL, platelet of 3.3 × 10^9/L, neutrophil count of 8.7 × 10^9/L, creatinine of 1.2 mg/dL, lactate dehydrogenase (LDH) of 674 U/L and corrected calcium of 11.5 mg/dL. Computed tomography (CT) scan revealed large enhancing mass in the left kidney measuring 10.2 cm × 11.8 cm × 11 cm with extension into the left renal vein, renal pelvis, left ureter, bladder, multiple liver
nODULES, LEFT ADRENAL NODULE AND MULTIPLE SUBCENTIMETER LUNG NODULES. ULTRASOUND-GUIDED NEEDLE BIOPSY OF THE LIVER CONFIRMED CLEAR CELL RCC. THE PATIENT WAS CATEGORIZED AS STAGE IV RCC WITH THE HIGH-RISK DISEASE BY IMDC PROGNOSTIC MODEL. THE PATIENT WAS STARTED ON COMBINATION NIVOLUMAB AT 3 MG/KG AND IPILIMUMAB AT 1 MG/KG AT EVERY THREE WEEKS FOR FOUR CYCLES FOLLOWED BY NIVOLUMAB AT 3 MG/KG EVERY 4 WEEKS. RE-STAGING CT SCAN DONE AFTER 36 WEEKS SHOWED A SIGNIFICANT REDUCTION IN LEFT RENAL SIZE WITH COMPLETE RESOLUTION OF RENAL METASTASIS, LUNG NODULES, LEFT ADRENAL MASS AND LEFT RENAL VEIN INFECTION. THE PATIENT SUBSEQUENTLY UNDERWENT LEFT RADICAL NEPHRECTOMY AND PATHOLOGY REVEALED COMPLETE TUMOR NECROSIS WITHOUT EVIDENCE OF Viable RCC. THE PATIENT CONTINUES TO BE ON MAINTENANCE NIVOLUMAB MONOTHERAPY WITHOUT EVIDENCE OF RECURRENCE.

CONCLUSION CURRENTLY, COMBINATION NIVOLUMAB AND IPILIMUMAB IN COMBINATION IS A PREFERRED OPTION FOR INTERMEDIATE- AND POOR-RISK PATIENT WITH CLEAR CELL STAGE IV RCC. FURTHER MOLECULAR STUDIES ARE NEEDED TO BETTER UNDERSTAND WHY SOME PATIENTS HAVE A DRAMATIC RESPONSE, WHILE SOME HAVE ONLY A PARTIAL RESPONSE TO IMMUNOTHERAPY.

211 RUPTURED ANGIOMYOLIPOMA: AN UNCOMMON CONSEQUENCE FOR A COMMON ASSOCIATION

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CASE REPORT Renal angiomyolipomas are found in approximately 2% of the general patient population. There is an increased frequency in patients with tuberous sclerosis complex (TSC) where the frequency rises to 50–60%; however, most patients with TSC remain asymptomatic. A small subset will have spontaneous rupture, leading to potentially life-threatening hemorrhage. We present the case of a 16-year-old male with tuberous sclerosis who presented with a life-threatening hemorrhage and was found to have a large retroperitoneal angiomyolipoma.

A 16-year-old male with tuberous sclerosis complex presented to the emergency department with two days of suprapubic pain associated with hematuria, dysuria and dizziness; two weeks prior, he had experienced blunt trauma to the left flank with intermittent pain. Initial urine studies showed macroscopic and microscopic hematuria as well as proteinuria, without white blood cells or infectious etiology. Lab work showed a microcytic anemia with elevated PTT and fibrinogen, but a normal PT/INR, factors 8, 9, 11 and 13 assays, platelet count, electrolytes and kidney function. CT scan demonstrated a large heterogeneous mass consistent with a large pseudoaneurysm with possible active extravasation. Patient was stabilized with intravenous fluids and pain control with temporary resolution of gross hematuria. On day two of admission, patient developed worsening dizziness and increasing amounts of gross hematuria with orthostasis. He received red blood cell transfusion and emergently underwent intervention radiology-guided embolization. Due to the vascularity of the lesion, biopsy was unable to be obtained but follow-up MRI showed a left-sided bleeding angiomyolipoma with small bilateral renal lesions. The patient returned with a Foley catheter in place that was able to be removed as hematuria gradually improved prior to discharge with resolution of symptoms.

This case demonstrates an important tumor association of tuberous sclerosis complex presenting with a life-threatening hemorrhage. It stresses the importance of initiating potentially life-saving interventions, while also limiting the possible risks of additional hemorrhage for a definitive diagnostic biopsy.

212 MUCINOUS ADENOCARCINOMA OF LUNG MIMICKING INTERSTITIAL LUNG DISEASE

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10.1136/jim-2020-SRM.212

CASE REPORT A 72-year-old gentleman with multiple comorbidities presented to our hospital as a transfer with symptoms of progressive dyspnea. He developed productive cough and dyspnea over a 4-month span and was treated with IV antibiotics and steroids without relief. He reported night sweats but denied any fevers, chills, decreased appetite or weight loss. CXR and subsequent CT chest revealed bilateral consolidative reticulo-nodular opacities suggestive of interstitial lung disease. Progressive worsening of symptoms and radiographic imaging led to a bronchoscopy which was nonconclusive. Eventually video-assisted thoracoscopic surgery with wedge biopsy of right upper, middle and lower lobes revealed invasive adenocarcinoma with predominant mucinous pattern, positive for CK7, CK20 and CDX2. The tumor cells were negative for TTF-1, napsin 1 and SATB2. Staining pattern was concerning for a primary lung or pancreatic tumor. Labs reported normal LFT’s. CT abdomen and pelvis did not reveal any suspicious pancreatic lesions. CT head was negative for intracranial metastatic disease and Bone scan was normal. Recent EGD and a colonoscopy within the last year was reported as normal. In the setting of bilateral extensive lung lesions on CT chest, he was diagnosed with stage IV invasive mucinous adenocarcinoma of lung. Invasive mucinous adenocarcinoma (IMA) is a rare subtype of lung adenocarcinoma with an incidence of 0.2% among lung cancers. The mucin produced by these tumors is usually expressed as phelegm. Multilobar consolidation pattern with air bronchograms on CT chest is a characteristic radiographic picture. IMA lack TTF-1 expression, correlate with KRAS mutation and lack EGFR mutation. Tumor cells with intracytoplasmic mucin and lepidic growth pattern with microscopic skip lesions are a histologic hallmark. Absence of significant atypia can make the diagnosis challenging on biopsy. IMA may be associated with poor survival outcomes when compared with other subtypes of lung adenocarcinoma. This case highlights the importance of keeping IMA in our differential when evaluating patients with clinico-radiographic findings of interstitial lung disease.

213 ANDROGEN DEPRIVATION THERAPY IN ANDROGEN RECEPTOR POSITIVE SALIVARY GLAND TUMOR: A TISSUE AGNOSTIC APPROACH

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CASE REPORT A 65-year-old reported gradually enlarging right parotid mass over 2 years. Superficial parotidectomy with facial nerve dissection revealed high-grade poorly differentiated...
sclerosing epithelioid fibrosarcoma (SEF). The tumor was also shown to have 20% necrosis after pre-surgical chemotherapy, radiation and surgical resection of tumor sites, indicating EWSR1-CREB3L1 fusion, a characteristic finding in clear cell sarcoma of kidney. After one round of treatment, the patient had evidence of disease progression. Genetic sequencing was pursued and demonstrated EWSR1-CREB3L1 fusion and led to myelofibrosis. As the disease worsens, patients may experience worsening symptoms from anemia, thrombocytopenia, and splenomegaly. However, extramedullary hematopoiesis is rarely seen in sites beyond the liver and spleen. We present a rare case of renal extramedullary hematopoiesis presenting with urinary obstruction in an elderly male with prior ET.

Case presentation A 72-year old Caucasian male with prior diagnosis of ET treated with Agrylin presented to the ED for generalized weakness, 20lbs weight loss from early satiety, and anasarca. Initial workup found anemia with acute renal failure, obstruction, and biopsy of the masses was initially recommended for further evaluation. However, considering the patient’s diagnosis of ET and hepatosplenomegaly, it was decided to investigate the possibility of progression from ET to myelofibrosis. Placement of bilateral nephrostomy tubes relieved the outlet obstruction, and biopsy of the masses was initially recommended for further evaluation. However, considering the patient’s diagnosis of ET and hepatosplenomegaly, it was decided to investigate the possibility of progression from ET to myelofibrosis. Bone marrow biopsy confirmed severe myelofibrosis. Sulfur colloid scan of the abdomen indicated extramedullary hematopoiesis in the liver, spleen, and renal masses. Biopsy of the
renal masses was not pursued, and the patient was placed on Ruxolitib to treat symptomatic myelofibrosis.

Discussion Extramedullary hematopoiesis in hematologic disorders can present in a variety of ways, such as early satiety in splenomegaly. However, renal manifestations of extramedullary hematopoiesis are not well discussed. Biopsy of renal masses would typically be pursued, however, the complications of biopsy are numerous, with severe morbidity and mortality resulting from bleeding. This patient with essential thrombocytosis with progression to myelofibrosis demonstrates the importance of consideration for extramedullary hematopoiesis in atypical locations for patients with myeloproliferative neoplasms.

216 ATYPICAL SARCOIDOSIS IN AN ATYPICAL PATIENT DEMOGRAPHIC

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10.1136/jim-2020-SRM.216

Case report The most common presentation of sarcoidosis involves bilateral hilar lymphadenopathy on CXR, with non-caseating granulomas on biopsy that stain negative for AFB/GMS in a young, African American adult who clinically presents with cough and dyspnea. Sarcoidosis, however, can also present with extrapulmonary manifestations. We present a rare case of oesophageal and hepatic sarcoidosis with skin manifestations in an elderly Caucasian patient.

Case presentation A 74-year-old Caucasian female, who lives in Arizona, presented to the ED in Texas for a closed intertrochanteric fracture of the right femur after a ground-level fall. X-rays showed multiple lytic lesions in the skull, thoracic spine, and lumbar spine. Workup revealed lucent liver lesions, pelvic mass, and lymphadenopathy in the mediastinum, retroperitoneum, and pelvis.

Multiple myeloma was suspected, but bone marrow and liver biopsy were negative for malignancy. Two months prior to hospitalization, she developed a posterior scalp rash with hair loss, which was being treated as psoriasis. She also noted recent onset bilateral lower extremity neuropathy. She has otherwise been hemodynamically stable, afebrile, and without leukocytosis throughout hospitalization.

The patient tested negative for HIV, hepatitis panel, syphilis, TB, and ANA. LDH, and B12 levels were within normal limits. Coccidioides, Brucella IgG/M results are pending. AFB/GMS stains of biopsies were negative making fungal etiology unlikely. Procalcitonin was elevated at 0.34 ng/mL, ESR was elevated at 104 mm/hr., CRP was elevated at 3.5 mg/L and ACE levels were elevated at 57 nmol/mL/min. 25-hydroxyvitamin D level was low at 9 ng/mL. Calcium level was high-normal at 10.4 mg/dL. As all other workups were negative, sarcoidosis was suspected. Dermatologic pathology conducted showed non-caseating granulomas in her scalp skin. Liver biopsy and bone marrow biopsy conducted also revealed non-caseating granulomas.

Discussion Sarcoidosis is a diagnosis of exclusion that must be kept in a differential, particularly when presented with atypical features in an atypical patient demographic. This patient with disseminated sarcoidosis is being treated with methotrexate and hydroxychloroquine. Disease progression will continue to be monitored clinically and radiographically.

217 A CASE OF CUTANEOUS EWING SARCOMA

10.1136/jim-2020-SRM.217

Case report Ewing sarcoma is a rare solid tumor with a pediatric annual incidence of 250. Approximately 85% of cases arise from bone and 15% from soft tissue. Cutaneous Ewing sarcoma is exceedingly rare. There is a paucity of research and thus a lack of consensus on the treatment of this form of the disease.

Case presentation A 17 year old female presented with a 2 cm palpable, soft, reddish-blue nodule on her anterior left thigh that had been growing slowly over four years. The lesion was originally diagnosed as a varicose vein. Initial ultrasound showed a solid, vascular mass. MRI revealed a 2.5 × 1.5 × 2.4 cm, well-circumscribed, cystic cutaneous/subcutaneous lesion thought to be compatible with a hemangioma. The mass was surgically excised and pathologic investigation yielded markers positive for CD99. RT-PCR was positive for EWSR1-FLI1 translocation, confirming the diagnosis of Ewing sarcoma. Initial margins were negative, but narrow, so the patient underwent a wider excision with satisfactory margins. Metastatic work-up was negative.

Discussion Cutaneous Ewing sarcoma is rare and there is a lack of clinical consensus on appropriate treatment. Given a few reported cases of relapses and fatalities, some pediatric oncologists recommend a full course of 28 weeks of chemotherapy. Other oncologists feel that the indolent course and overall favorable outcomes justify a shortened 12 week course of chemotherapy. After a literature review and discussions with the patient, her family and other experts who have treated cutaneous Ewing sarcoma, it was decided to treat her with a shortened course of chemotherapy consisting of 12 weeks of induction therapy following COG AEWS1221 protocol, but not the 16 weeks of consolidation. Sequencing of the patient’s tumor DNA is underway to look for a unique genetic fingerprint that might distinguish cutaneous Ewing sarcoma and possibly explain its more indolent course.

218 WALDENSTRÖM MACROGLOBULINEMIA: AN UNUSUAL CAUSE OF SEVERE IMMUNE THROMBOCYTOPENIC PURPURA

10.1136/jim-2020-SRM.218

Case report A 64-year-old male with no significant past medical history presented to the hospital with a two-month history of progressive sweats, weight loss, and malaise. Vital Signs on arrival revealed Blood Pressure 139/84 mm/Hg, Pulse 72 beats/min, Temperature 98.3F. Physical Examination was significant for extensive ecchymosis and petechiae on the lower extremities, with no signs of lymphadenopathy or splenomegaly. On arrival his CBC was significant for platelet count of 7,000/μL. Hemolytic Anemia was ruled out, and Hemoglobin remained stable after one unit of packed red blood cells was transfused. Infectious workup was initiated and was negative for HIV and Hepatitis. Autoimmune workup for Systemic Lupus Erythematosus was also negative. He was
not taking any prescribed medications outpatient, and his urine drug screen was unremarkable. The patient was adminis-
tered high-dose IV corticosteroids, Intravenous Immunoglobu-
lin, and platelet transfusion however thrombocytopenia failed to resolve. Due to his poor response to treatment a bone
marrow aspirate and biopsy was performed. Marrow was con-
sistent with Lymphoplasmacytic Lymphoma/Waldenström mac-
roglobulinemia, with adequate megakaryocytes. CT Chest,
abdomen, and pelvis with IV contrast were negative for lym-
phadenopathy or extramedullary involvement. Decision was
made to start treatment with Rituximab as this would treat both his low-grade lymphoma and his Immune Thrombocyto-
penia. With the initiation of Rituximab his platelets increased,
and his constitutional symptoms resolved. Prolonged non-ste-
roid dependent remission was induced, and on follow-up patient is doing well and back to performing his daily activ-
ities with no limitations.

Discussion Waldenström macroglobulinemia (WM) is a rare
lymphoproliferative disorder characterized by the presence
of lymphoplasmacytic cells in the bone marrow and IgM monoclonal protein in the serum. Immune thrombocyto-
penic purpura is a rare manifestation of Waldenström mac-
roglobulinemia and is seen in fewer than 5% of patients
with WM. When ITP is diagnosed in the setting of a B-cell
malignant disorder, treatment of the underlying disease is
often more beneficial than standard regimens for idiopathic
ITP.

Case report A 56-year-old male with no prior medical history
presented with fever and painful skin lesions. One week
prior he presented to an urgent care clinic with the same
issue and was prescribed Clindamycin for suspected cellulitis.
On admission he was febrile and his body temperature was
38.7°C with tachycardia at 102 bpm. Skin exam revealed
a 6.5 cm × 2.5 cm raised, tender, erythematous, and edema-

tous plaque on the left side of his neck, a 3.5 cm circular
erythematous lesion on the left elbow, as well as an erythemat-
ous papule on his left leg. In setting of multiple skin
lesions concerns for sepsis secondary to bacterial skin infec-
tion arose. He was started on IV Vancomycin and Cefepime.
Infectious workup returned with unremarkable results.
Lesions failed to improve despite being on broad spectrum
antibiotics. Labs revealed leukocytosis, macrocytic anemia,
and thrombocytopenia. CBC differential showed 21% immu-

ture mononuclear cells. Bone marrow biopsy revealed Acute
Myeloid Leukemia. Skin biopsy of lesions demonstrated
dense neutrophilic infiltrates in the dermis without vasculitis,
suggestive of Sweet’s syndrome. He was promptly started on
chemotherapy for leukemia. Corticosteroids were initiated for
treatment of the skin lesions.

Discussion Sweet’s syndrome, also known as acute febrile
neutrophilic dermatosis, is characterized by fever, leukocyto-
sis, characteristic skin lesions, and dense dermal infiltrate on
histology. Skin lesions are painful, red, edematous papules
or plaques usually present on the upper extremities, face, or
neck. Etiologies of Sweet’s syndrome include malignancy,
drug-induced or idiopathic. The characteristic lesions seen
in Sweet’s syndrome can be the presenting sign in malign-
ancy as seen in our patient. Skin biopsy is essential in
making the diagnosis, and corticosteroids are used to treat
the lesions.

Conclusion Malignancy-associated Sweet’s syndrome is an
uncommon clinical entity. It is imperative to have a high
index of suspicion for Sweet’s syndrome in patients with unre-
solving cutaneous lesions, and to search for an underlying
cause. This can lead to earlier diagnosis of malignancy and
prompter initiation of chemotherapy.

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219 MALIGNANCY-ASSOCIATED SWEET’S SYNDROME MIMICKING CELLULITIS

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Malignancy-associated Sweet’s syndrome presents with atypical clinical features leading to delayed diag-

nosis and often resulting in poor outcomes. A high degree of clinical suspicion is the key to prompt diagnosis and improved outcomes.

220 THE CLINICAL CONUNDRUM OF INTRAVASCULAR LARGE CELL LYMPHOMA

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Case report (ILCL) is a rare type of large cell lymphoma char-

acterized by the proliferation of lymphoma cells within the
lumen of small blood vessels without an obvious extravascular
tumor mass. It tends to have an aggressive course often with
poor outcomes with a majority of cases recognized only at
autopsy. We present two unique cases of ILCL.

Case 1: A 60-year-old male was admitted for a 4-month
history of dry cough, malaise, intermittent fever, night
sweats, and unintentional weight loss. The patient was
febrile, ill-appearing and icteric on examination. Initial
blood work-up showed anemia and elevated liver enzymes.
The infectious work-up including bacterial and fungal cul-
tures, viral panel, tick-borne illness serology, and HIV serol-
ogy was negative. The bone marrow exam was consistent
with ILCL. The patient received rituximab combined with
gemcitabine and oxaliplatin. The hospital course was com-
plicated by tumor lysis syndrome and sepsis. The patient's
clinical course continued to deteriorate with hypotension
and acute renal failure despite appropriate antibiotics. The
patient pursued comfort care and passed away shortly in
the hospital.

Case 2: A 71-year-old male was admitted for further evalu-

ation of a 2-month history of worsening shortness of breath,
dry cough, generalized fatigue, and weight loss. On initial
evaluation, the patient was found to have hemolytic anemia,
splenomegaly, and lactic acidosis without clear etiology. The
patient underwent extensive infectious and serological workup
which was all normal. Bone marrow biopsy showed hypercel-
ularity. Various imaging modalities including Positron Emission
Tomography-Computed Tomography (PET-CT) of the vertex
to feet were performed which showed non-specific findings.
The patient continued to deteriorate despite supportive treat-
ment. The patient pursued comfort care and passed away shortly in
the hospital. The autopsy showed intravascular lymphoma cells within small vascular spaces of most vital organs.

Conclusion ILCL is an aggressive subtype of lymphoma which
presents with atypical clinical features leading to delayed diag-
nosis and often resulting in poor outcomes. A high degree of
clinical suspicion is the key to prompt diagnosis and improved outcomes.
RARE CASE OF VISION LOSS IN A PATIENT WITH WALDENSTROM MACROGLOBULINEMIA

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Case report – Waldenstrom Macroglobulinemia (WM) is a rare hematological disorder characterized by the presence of monoclonal IgM gammapathy in the blood and clonal lymphoplasmacytic cells in the bone marrow. Clinical presentation is linked to the IgM monoclonal protein the blood (hyper-viscosity, cryoglobulinemia, bleeding disorders, and autoimmune hemolytic anemia), marrow or tissue involvement (anemia, hepatosplenomegaly, or lymphadenopathy), or autoimmune disorders (neuropathy). We present a rare case of vision loss due to cancer associated retinopathy in patient with newly diagnosed WM.

This is a 78-year-old Asian male with history of Hypertension, Type II Diabetes Mellitus, and Chronic Obstructive Pulmonary Disease who presented with five-month history of vision changes. His symptoms initially started with floaters that progressed to visual loss in a few months. He was evaluated by multiple ophthalmologist without any definitive findings. He had associated symptoms of dyspnea on exertion, cough, epistaxis, weight loss, and night sweats. Patient had Computed Tomography imaging of chest, abdomen, and pelvis without suspicious adenopathy or hepatosplenomegaly. He was evaluated by ophthalmology at our institution and lab work at that time was significant for elevated IgM level at 2117 mg/dl and normal serum viscosity. Cancer Associated Retinopathy (CAR) Panel returned positive for anti-Aldolase, anti-Enolase, and anti-glyceraldehyde 3-phosphate dehydrogenase (GAPDH). Patient was evaluated by hematology and admitted for therapeutic plasma exchange. Patient vision improved after five treatments of plasma exchange and completion of weekly rituximab. Currently patient is on ibritinib for treatment for his WM with stable disease and no further vision changes.

CAR is rare in patients with WM In CAR, retinal degeneration occurs in presence of auto-antibodies that cross react with normal retinal tissue. The vision loss can proceed the diagnosis of the underlying illness. Long term immunosuppression and treatment of the underlying disease in the mainstay of treatment for CAR. Many different immunosuppressive combinations (high dose steroids, intravenous immunoglobulins, plasma exchange) have been used with varying results alongside treating the underlying disease.

IDENTIFYING HEREDITARY BREAST CANCER (HBC): A CASE OF LI-FRAUMENI SYNDROME (LFS)

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Case report – LFS case report and increase HBC awareness. Methods Review of Electronic Health Records and medical literature. Results A 28-year-old female presented with a left breast mass. Workup, including bilateral breast MRI, revealed masses in both breasts. Biopsies showed ductal carcinoma in situ in the left breast and triple-negative invasive ductal carcinoma in the right. Significant maternal family history (FH) revealed uterine cancer at 40 in an aunt and breast cancer (BC) at 63 in a first cousin once removed. The patient received genetic counseling and panel germline testing. A mutation was found in TP53 (c.1025G>C), confirming a diagnosis of LFS. She was treated with neoadjuvant chemotherapy and bilateral mastectomies with reconstruction.

Approximately 5–10% of BC is due to hereditary causes. Identification of patients with HBC is crucial as there are implications for the patient’s and family members’ management. Clinicians should be aware of the genetic referral/testing criteria, including the NCCN criteria. Suspicious personal/family histories include early-onset, triple-negative, bilateral or male BC, and ovarian, pancreatic and high-risk/metastatic prostate cancers.

Clinicians are aware of the role of BRCA1/2 mutations in patient care but may not be as familiar with other HBC syndromes. LFS is a rare autosomal dominant disorder that is caused by mutations in the tumor suppressor gene, TP53. The core cancers seen in LFS are sarcomas, brain tumors, adrenocortical carcinoma, leukemia, and extremely early-onset BC. The overall lifetime risk of cancer is over 90% in females and 75% in males. Cancer surveillance recommendations include whole-body MRI, colonoscopy and skin exam. Radiation therapy and X-ray diagnostic imaging should be avoided.

Conclusions This case highlights the importance of HBC knowledge beyond BRCA1/2 and is particularly interesting as testing confirmed the TP53 mutation was inherited from the patient’s father, who is in his 60s with no personal or FH of cancer. This is unusual for an individual with LFS and highlights that family history alone may not identify all candidates with HBC. The patient’s daughter tested positive for the familial TP53 mutation. She is now undergoing surveillance protocols that would not have been available without the genetic diagnosis.

ACQUIRED COMBINED FACTOR VIII & XI DEFICIENCY: AN UNCOMMON HEMOPHILIA PRESENTATION


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Case report – An 80 year old male with past medical history of diabetes mellitus, hypertension, atrial fibrillation, history of head trauma and dementia was brought to the emergency room with altered mental status after having a mechanical fall. He did not have prior history of major bleeding or abnormal coagulation tests in the past. On examination, he was found to have multiple body bruises with an expanding left pectoral hematoma that lead to a significant drop in hemoglobin requiring multiple transfusions. He underwent an angiography of the left shoulder with embolization of the lateral thoracic artery with continued bleeding from the catheter insertion site after the procedure. Further work up found a prolonged Partial Thromboplastin Time (PTT). A thromboelastographic study reported elevated R time and K time reflecting a difficulty to form the clot. Mixed studies did not correct PTT immediately and after incubation suggesting factor inhibitors. A Bethesda assay result above 60 units representing very high levels of a factor VIII inhibitor. Blood clotting factor activity levels showed a deficiency in Factor VIII and XI. He received factor VIII, Aminoacaproic acid, IVIG, and steroids. Further work up for malignancies and autoimmune disorder was negative. His bleeding stopped, hemoglobin stabilized and prolonged PPT.
Abstracts

A SAILOR’S CURE FOR PETECHIAE

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10.1136/jim-2020-SRM.224

Case report To report a case of a 12-year-old female with acute lymphoblastic leukemia who presented with scattered petechiae on her extremities and found to have scurvy.

Summary Patient is 12-year old female with acute lymphoblastic leukemia who presented to the emergency room with petechiae and foot pain. She had petechiae on her extremities and was previously asymptomatic. She had an injury to her right foot when a door fell on it on two weeks prior but showed no evidence of fracture. She has fatigue, arthralgias, joint swelling, easy bruising, bleeding, osteopenia, and neuropathy. For the past year, she has had a poor diet consisting of junk foods.

On exam, she had severe petechiae on bilateral upper and lower extremities. She had swelling to her right ankle with decreased range of motion due to pain and hypersensitivity greater on the right foot than the left. Her hemoglobin was 9.1 and platelet count of 81,000. Both remained stable throughout her admission. Her PT was 12, PTT was 28.6, and fibrinogen was 286.7. Because of the petechiae that was out of proportion to her level of thrombocytopenia, a vitamin C level was obtained and was <5 umol/L. A previous bone density test showed low bone mineral density less than two standard deviations below the mean for age.

Vitamin C is a required in making collagen, an important component of connective tissues that are essential in providing structure and support to blood vessels. Because of patient’s poor nutrition, severe vitamin C deficiency, fatigue, neuropathy, arthralgias, osteopenia and depression, she was diagnosed with scurvy. The patient was treated with 200 mg of ascorbic acid daily for 2 weeks and then decreased to 100 mg daily for at least a month. Her petechiae resolved within a week and returned one month later. After 2 weeks of increased ascorbic acid daily for 2 weeks, she was asymptomatic with scurvy.

UNDIAGNOSED ACQUIRED HEMOPHILIA A- CULPRIT FOR RECURRENT GASTROINTESTINAL BLEEDING

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Case report Acquired Hemophilia A (AHA) is a rare bleeding disorder caused by autoantibodies against clotting factor VIII (FVIII) which predisposes to life-threatening hemorrhage. Unlike joint bleeds that characterize congenital hemophilia A, AHA manifests as spontaneous hematomas and extensive bruises, very rarely gastrointestinal bleeding (GB), and intracranial hemorrhage may occur. We present a unique case of AHA which presented as recurrent GB and was undiagnosed for a year.

Case 74-year-old female with Myasthenia Gravis, small bowel perforation requiring bowel resection and anastomosis admitted for melena with a hemoglobin of 5.8. She had a history of GB from Mallory Weiss tear and esophagitis. She had multiple admissions for anemia which were treated with blood transfusions and endoscopies which revealed no bleeding sources. During the admission for melena, tagged red blood cell scan, CT angiogram (CTA), capsule endoscopy showed oozing from the bowel anastomotic area. Surgical exploration was deferred given her multiple comorbidities. Coagulation studies performed in the setting of repeated bleeding showed isolated activated partial thromboplastin time (APTT) prolongation which was not corrected by mixing study. Her FVIII activity was markedly reduced to <1% and Factor IX activity was normal. Fibrinogin, lupus anticoagulant, malignancy workup, hepatitis panel were normal. Bethesda titer showed elevated inhibitor levels at 91 Units. Steroids and rituximab were given and discharged with a plan of weekly rituximab for four weeks. She was readmitted with spontaneous chest wall hema-toma. CTA showed large pectoral hematoma with active extravasation. Factor Eight Inhibitor Bypassing Agent (FEIBA), recombinant Factor VIIa and steroids were given to control active bleeding. Her clinical condition worsened, and she passed away. Intracranial hemorrhage was considered as a possible cause for her sudden death although an autopsy was not performed.

Conclusion Coagulation studies should be considered when patients with autoimmune disease present with any bleeding. Prompt diagnosis and treatment are vital which includes controlling bleeding and eradication of inhibitors, as it can lead to fatal hemorrhages.

IS THIS WORKING WELL FOR PEDIATRICS? DIAGNOSIS AND TREATMENT OF THROMBOEMBOLIC DISEASE IN A PEDIATRIC PATIENT WITH PROTEIN C DEFICIENCY

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Case report In the pediatric population, a pulmonary embolism is a medical emergency. Currently there are neither evidence based screening tools for diagnosis nor oral anticoagulants for treatment.

Our patient is an 18-year-old female with a complicated medical history including seizure disorder and protein C deficiency. She was admitted to the hospital with abdominal pain post hepatic transplant for autoimmune hepatitis. On the third postoperative day, she developed melena with a hemoglobin of 5.8. Her hepatic panel was normal. CTA, capsule endoscopy, and tagged red blood cell scan showed no bleeding sources. Her FVIII level was markedly reduced to 6% and Factor IX activity was normal.

During her hospital course, after a series of gastrointestinal bleedings, her vitamin K levels were normal. Multiple blood transfusions were required to stop excess bleeding and dilutional coagulopathy from multiple blood transfusions without fresh frozen plasma.
deficiency. She presented with acute shortness of breath and right hip pain without any recent trauma, surgery, or prolonged immobility.

She was tachycardic with otherwise stable vital signs. Laboratory values were within normal limits apart from a D-dimer elevated to 10.3. The Wells Score for DVT was 4 (high risk). A lower-extremity venous ultrasound showed occlusive thrombus involving the right common iliac, common femoral, femoral, and popliteal veins. The Wells Score for pulmonary embolism (PE) was 9 (high risk). Chest CT demonstrated multiple subsegmental pulmonary emboli. An echocardiogram demonstrated mild tricuspid valve insufficiency without right heart strain. The patient was started on a Lovenox drip and admitted to the Pediatric Intensive Care Unit. She underwent rheolytic aspiration thrombectomy and catheter placement for site-directed thrombolysis. She was started on a TPA drip for one day before another thrombectomy and venoplasty. Per pediatric hematology recommendations she was discharged on Rivaroxaban 15 mg twice a day for 21 days, then 20 mg daily for 3 months minimum.

The events of this case are notable for a genetic coagulopathy, DVT/PE development while taking aspirin, and the lack of guidelines in pediatric PE diagnosis and treatment. While the Wells criteria can be applied to pediatric cases, its low specificity and moderate sensitivity for the pediatric population should be taken into account. Per recommendations by the American Heart Association and American College of Chest Physicians, provoked PEs and DVTs should be treated with low molecular weight heparin. However, long term use is not advised. With prominent side effects of traditionally used medications more studies are needed to determine the long term efficacy of direct-acting oral anticoagulants in children, especially in the case of coagulopathy.

THE NATURAL KILLER
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**Case report** Peripheral T-cell lymphomas comprise a heterogenous group of uncommon non-Hodgkin Lymphomas in adults. While they are rarely encountered in clinical practice, here we present a unique case of Extraneodal natural killer/T-cell lymphoma, nasal type (ENKL) in someone without significant risk factors for the disease. A 58-year-old white male presented to an ENT physician for chronic nasal congestion and difficulty breathing. Review of systems were otherwise unremarkable and underwent nasal endoscopy and biopsy that came back as ENKL, nasal type. He then underwent staging PET-CT and bone marrow biopsy/aspirate that were negative for extensive disease involvement of lymphoma. He then underwent chemotherapy treatment (SMILE) with subsequent radiation therapy to the area of the mass. ENKL is typically located in the nasopharynx, but the non-nasal type can be found in other extranodal locations such as the skin or gastrointestinal tract. It is typically associated with the Epstein-Barr Virus, as well as having a strong association with those of Asian and South American ancestry. Additionally, it tends to favor men in the 5th-6th decades of age. Interestingly, he does not have Asian ancestry, but did live in Japan for seven years as a child. Localized disease typically presents with obstructive nasal symptoms or epistaxis. Although much less common, advanced stage disease can present with bone marrow involvement or B-symptoms of fever and weight loss. Definitive diagnosis is obtained by pathology from a lymph node at the site of suspected involvement with flow cytometry consistent with Natural Killer cell origin that express CD2, cCD3 and CD56. A majority of patients with localized disease have improved significant response rates to a combined chemotherapy and radiation therapy approach, while extensive stage disease is treated with chemotherapy regimens only. Growing evidence is in support of the SMILE regimen (dexamethasone, methotrexate, ifosfamide, l-asparaginase, and etoposide) for treatment of this aggressive neoplasm with improved overall response rate. Extraneodal natural killer/T cell lymphoma is a rare malignancy in the United States. However, due to its progressive course and harsh chemotherapy regimens, it is critical to consider this pathology early on in those with obstructing nasal tumors.
Case report Multiple myeloma is a neoplastic proliferation of plasma cells producing monoclonal proteins. Symptoms and signs of multiple myeloma are usually due to infiltration of plasma cells into the bone or other organs, and can manifest as anemia, acute kidney injury, hypercalcemia and bone pain with osteolytic lesions. Extramedullary plasmacytomas (EMP) may present at the time of diagnosis, or will develop later in the disease indicating relapsed/refractory disease. The extramedullary plasmacytomas most often involve the upper aerodigestive tract – including oro-nasopharynx and paranasal sinuses.

Case presentation A 58 year old Caucasian male patient with known history of multiple myeloma diagnosed 6 months ago, with lambda-light chain restriction on bone marrow biopsy with complex cytogenetics and ISS - Stage III with high risk features and multiple osteolytic lesions presented with uncontrolled epistaxis for past several weeks. On examination, patient was found to have a large pale mass filling the left nasal cavity, tender to manipulation. CT sinuses showed soft tissue mass in the anterior aspect of the left nasal passageway, along with mucosal thickening of the left maxillary sinus and inferior aspect of left frontal sinus. Patient underwent left-sided image-guided endoscopic sinus surgery along with excision of left intra-nasal mass. Biopsy of the mass was positive for malignant sheets of markedly pleomorphic lymphoid cells with prominent nucleoli with lambda-light chain restriction consistent with plasmacytoma.

Conclusion The incidence of EMP is 7 to 17% at the time of diagnosis and around 20% at the time of relapse. Possible mechanisms of extramedullary spread include decreased adhesion molecule expression and downregulation of chemokine receptors. EMPs usually arise from local growth of soft tissue masses from focal bone involvement, sometimes it can also occur via hematogenous spread. It is unclear if presence of high risk cytogenetics is associated with increased incidence of EMPs. The incidence of EMPs in patients with MM is high and is associated with poor outcome in patients treated conventionally.

'1 AM A NON-BLEEDER' EXTREME PTT PROLONGATION SANS BLEEDING – A CLASSIC CASE OF FACTOR XII DEFICIENCY

Case report Factor XII (Hageman factor) plays a key role in activation of intrinsic coagulation system gauged by the activated partial thromboplastin time (aPTT). Factor XII deficiency during pre-operative work-up. A fifty-seven-year-old Caucasian male presented with atypical chest pain and work up revealed mediastinal lymphadenopathy. Patient underwent bronchoscopy, endo-bronchial ultrasound and right carinal lymph node aspiration. Cytology was positive for necrosis with atypical cells. PET scan showed increased uptake in the sub-carinal and mid para-esophageal lymph nodes, low-grade uptake in right lower paratracheal and mesenteric lymphadenopathy. During pre-operative work-up for mediastinoscopy, patient was found to have a very prolonged partial thromboplastin time (PTT) of 112. Repeat testing was still high - PTT 189, with normal prothrombin time on both the occasions. Patient had normal platelet count and normal thrombin time. He had no history of bleeding diathesis and had no bleeding complications with multiple previous surgeries. Mixing study showed complete correction of PTT-32, consistent with a factor deficiency affecting the intrinsic (PTT) pathway. Factor level VIII, IX and XI were normal, however Factor XII activity was markedly low at 1%. Patient was diagnosed with factor XII deficiency which can cause abnormally prolonged PTT. As Factor XII deficiency carries no risk of clinically significant bleeding, patient was cleared for mediastinoscopy and underwent the procedure successfully with no complications. Factor XII deficiency is commonly diagnosed incidentally with abnormally prolonged aPTT. Patients usually do not exhibit a bleeding diathesis. Homozygous patients have non-detectable levels of factor XII, while heterozygous individuals have variable levels ranging from 20–60%. It could be associated with paradoxical fatal thromboembolic complications including myocardial infarction and pulmonary emboli.
generally appears in childhood and is typically caused by genetic defects causing T and NK cell dysfunction. Secondary HLH occurs in patients without known familial mutation, typically in the setting of lymphoma, autoimmune disease, or viral infection. Most cases of viral-associated HLH are due to Epstein-Barr, Cytomegalovirus, and herpes virus infection. Patients often present with a wide variety of clinical manifestations and may quickly deteriorate. Treatment involves managing the underlying cause and administering immunomodulatory and immunosuppressive therapy. As mortality is high in patients left untreated, prompt diagnosis and initiation of treatment are vital in increasing chances of survival in these patients. We report a case of HLH associated with Epstein-Barr virus in a patient presenting with gastrointestinal symptoms.

232 EXTRASOSSEOUS MANIFESTATION OF MULTIPLE MYELOMA: AN UNUSUAL PRESENTATION

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Case report We present a 61-year-old African-American female with a past medical history of pulmonary embolism and IgG Kappa multiple myeloma diagnosed nine years prior who was admitted to the hospital for evaluation of increased liver enzymes, bilirubin, and alkaline phosphatase. Her myeloma has followed an aggressive course, requiring multiple changes in chemotherapy and two autologous peripheral blood stem cell transplants. Two weeks prior to the current admission, she was hospitalized for altered mental status and was found to have a pseudomonas UTI. She was treated initially with cefepime, with increase in her bilirubin and liver enzymes. GI was consulted and initially felt this was secondary to a drug induced liver injury. Liver ultrasound at that time showed hepatic steatosis. Antibiotics were changed and her liver enzymes trended downward to near normal at the time of discharge. She presented to clinic for hospital follow up and was found to have marked increase of her liver tests with an obstructive pattern so she was readmitted. An ultrasound showed cholecystitis without choledolithiasis. Further evaluation with CT of the abdomen showed perihepatic enhancing soft tissue extending from the porta hepatis to the distal common bile duct with extensive common bile duct narrowing. ERCP was performed which also illustrated common bile duct narrowing; a stent was placed into the common bile duct to allow for bile flow. Biopsies of the soft tissue masses obtained during the ERCP showed plasma cell neoplasm, consistent with extrasosseous myeloma. She was begun on VD-PACE (bortezomib, dexamethasone, platinum agent, doxorubicin, cyclophosphamide, etoposide) and had near resolution of the masses and normalization of her liver enzymes. Unfortunately, despite that improvement, she has developed CNS involvement requiring weekly intrathecal methotrexate. She remains hospitalized with a poor overall prognosis.

Extrasosseous myeloma is not uncommon in cases of multiple myeloma, especially in cases of aggressive and refractory disease such as in this patient. Hepatic and common bile duct involvement is uncommon, though not impossible. It is important to consider extrasosseous myeloma in the differential when evaluating hepatic dysfunction in patients with aggressive disease.

233 BILATERAL WILMS TUMOR IN A PATIENT WITH ISOLATED HEMIHYPERTROPHY

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Case report Children with body asymmetry or other signs of tissue overgrowth including hemihyperplasia are at increased risk for developing embryonal tumors like Wilms tumor. Based on this association it is recommended that children with hemihyperplasia undergo screening with renal ultrasound every 3 months after birth till age of 7. Here we present a case of delayed diagnosis of Wilms Tumor in a patient with hemihyperplasia syndrome.

A 2 years old girl with no significant past medical history was evaluated by pediatrician for chief complaint of asymmetry of lower extremities. She was referred to orthopedic clinic, but no other intervention was recommended. Months later, the patient was seen in the Emergency department for fever and abdominal pain. US of the abdomen revealed bilateral kidney masses. Considering that bilateral renal tumors in pediatric population usually represent Wilms tumor, the patient received neoadjuvant vincristine, actinomycin, doxorubicin followed by bilateral partial nephrectomy. Final pathological diagnosis was stage 2 Wilms tumor on the right, with diffuse anaplasia and indeterminate stage Wilms tumor of the left kidney, favorable histology. Therefore, therapy was augmented to vincristine, doxorubicin, etoposide and cyclophosphamide, and right flank irradiation. Patient is currently disease free 3 years off therapy.

Most Wilms tumors occur in otherwise well children, but a small proportion occur in children with genetic syndromes. In our patient the presence of hemihyperplasia and bilateral Wilms tumors prompted genetic testing for underlying Beckwith–Wiedemann syndrome (BWS). Extensive genetic testing did not identify an inherited growth disorder, but 15–20% of individuals with classic BWS would have normal test results.

Our case serves as a great example of importance in early surveillance of children with hemihyperplasia for underlying embryonal tumors. Early detection leads to decreased treatment-related morbidity and possibly mortality.

234 BREAST CANCER THERAPY IN AFRICA IS SEVERLY LIMITED

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Case report Provision of health care in resource-poor environment can present unique challenges. In June 2019 in Monrovia, Liberia, West Africa, a 40 yo F presented with 4 month ho breast cancer with mets, hypoxia, bilateral pleural effusions and SOB.

Four months ago at DX, consideration was given to curative resection but effusion on CXR ruled out curative surgery. She presented w right breast mass and evidence of mets, but surgery and biopsy were not carried out due to poor prognosis. The hospital has provided chemotherapy to 3 children in
the past 2 years but lacks reliable access to chemotherapy and training for adult nurses.

We attempted to obtain two drugs, but both were unavailable in Liberia. The patient asked to go to Ghana, 1000 miles away, but had no transportation. The patient continued to suffer from SOB as we found access to 'palliative care' unavailable as well. She was lost to follow up.

Discussion Liberia lacks access to care in many areas, including chemotherapy and palliative care. GDP is only $460 US per capita, 4% of the world average. We were unable to find suitable chemotherapeutic meds. Furthermore, nursing staff outside of the pediatric ward did not feel comfortable giving chemotherapy. Training for nursing staff is not currently available. We also had concerns regarding our ability to monitor the patient for adverse effects from chemotherapy. Access to palliative care such as narcotic analgesic medications and home care is not available. Many people also believe that discussing death promotes death, and discussions about hospice and comfort in dying are believed to increase the likelihood of adverse outcomes.

Abstract 234 Figure 1

Abstract 235 A RARE CASE OF ANAPLASTIC LARGE CELL LYMPHOMA PRESENTING AS OBSTRUCTIVE UROPATHY

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Case report Anaplastic large cell lymphoma (ALCL) constitutes about 2% of all Non-Hodgkin lymphomas (NHL). We are reporting a case of ALCL in an elderly female with no B-symptoms and no BM or extranodal involvement. NHL is a great mimicker of retroperitoneal fibrosis and can cause obstructive uropathy.

Case presentation A 79-year-old female with no significant PMH who presented with acute bilateral flank pain. Associated with distended abdomen, frequency, urgency, and hematuria. She was hemodynamically stable. Examination showed bilateral costovertebral angle tenderness and bilateral inguinal LAD. CBC showed normocytic normochromic anemia. CMP showed AKI. LDH was elevated. UA showed hematuria. CT abdomen showed bilateral hydronephrosis with enlarged retroperitoneal bilateral pelvic and inguinal LNs. Bilateral nephrostomy tubes were inserted and switched later to ureteric stenting. Inguinal LN excisional biopsy revealed anaplastic Large T-cell NHL which was BCL-2 positive as well. Serum protein electrophoresis showed IgA-Kappa Monoclonal gammopathy. BM biopsy showed Normocellular marrow with no BM involvement by lymphoma. Renal function normalized after stent insertion and chemotherapy was started.

Discussion Anaplastic large cell lymphoma is a very rare disease. ALCL is a bimodal disease with a median age of onset of 34 years. ALCL has a male predominance. B symptoms occur in 60% of patients. Skin is a common extranodal site sparing the BM. Our patient was an old female with neither B symptoms nor skin involvement labeling it as a very rare presentation. Patients with ALCL are candidates for upfront BM transplant after chemotherapy. However, the patient's age and comorbidities opposed this approach. Treatment options include miniCHOP, CVP, or replacing vincristine with brentuximab and other palliative protocols. CVP was started with fair response.

Conclusion ALCL is a rare and aggressive type of NHL that can present as obstructive uropathy which is a sign of extensive disease. It has a poor prognosis and treatment is usually challenging.

Abstract 236 A STORMY DIAGNOSIS OF HEMOPHAGOCYTIC LYMPHOHISTIOCYTOSIS AND HODGKIN LYMPHOMA SECONDARY TO EBSTEIN-BARR VIRUS

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Case report Hemophagocytic Lymphohistiocytosis (HLH) is a defect in NK and cytotoxic T-cell function, resulting in...
excessive cytokine production and accumulation of T cells and macrophages leading to multisystem damage. We present a case of HLH with HL in the setting of EBV infection.

Case presentation An 18-year-old man with CVID and recurrent pneumonia who presented with fever of unknown origin (FUO), night sweats and weight loss for 3 months. He was hemodynamically stable with a temperature of 102.5 °F. Physical exam showed marfanoid features, differential clubbing, organomegaly with no LAD.

CBC showed pancytopenia, CMP showed transaminitis, serum ferritin was high. EBV viral load was very high (>1,000,000 copies). Hepatitis and HIV tests were negative. All cultures were negative. Serum IL-2 (CD25) was high. CT of the abdomen and pelvis showed hepatosplenomegaly and no LAD. BM biopsy confirmed Hodgkin lymphoma. The patient was started on Dexamethasone for the HLH and (ABVD+R) regimen. He responded well with complete resolution of his symptoms.

Discussion HLH is diagnosed with 5 out of 8 criteria: fever, splenomegaly, pancytopenia, hypertriglyceridemia, hemophagocytosis (in BM, spleen or LN biopsies), low or absent NK cell activity, high serum ferritin and high IL-2 (CD25). Our patient met 6 of these criteria and hence diagnosed with HLH.

HLH can be genetic or acquired secondary to infections (e.g., EBV), cancers (e.g., lymphomas), immune disorders (e.g., SLE) and transplant recipients. Our patient developed HL secondary to EBV which is the leading infectious cause of HLH. Mortality is very high without specific therapy which includes treatment of the cause plus a combination of chemotherapy and immunosuppressive therapy or BM transplant in resistant cases.

Conclusion We should rule out lymphoma and HLH in patients with FUO and pancytopenia. Prompt diagnosis of HLH in the setting of Lymphoma and early treatment will regulate the impaired cytolytic activity of T-cells and NK cells with the ultimate resolution of HLH and a better outcome.

SUCCESSFUL TREATMENT OF ACCELERATED SMALL LYMPHOCYTIC LEUKEMIA WITH SINGLE AGENT IBRUTINIB

We report three cases of A-CLL/SLL from our institution. All cases were males in the 60–70s age range who presented with enlarging adenopathy. Excisional lymph node biopsies confirmed a diagnosis of A-CLL/SLL. They were treated with anthracyclines, purine analogue, and alkylating agent-based chemo-immunotherapy, which resulted in a brief period of remission. However, the adenopathy re-appeared after several months, and ibrutinib was then given. All achieved rapid, deep and durable responses following treatment with single-agent ibrutinib, as evidenced by resolution of symptoms and improving adenopathy. To date, treatment of A-CLL/SLL with ibrutinib has not been reported to our knowledge.

Case report Solid organ transplant patients require lifelong immunosuppression to prevent organ rejection. Complex immunosuppressive regimens render the patients susceptible to infections and malignancy.

Case presentation A 30-year-old man with previous two renal transplants in 1995 and 2003 presented to our hospital after having an episode of seizure-like activity. His immunosuppressive regimen consisted of mycophenolate mofetil, prednisone, and sirolimus. Brain MRI showed multiple enhancing brain lesions in both frontal lobes and temporal lobes and the right caudate nucleus.

Brain biopsy from his right frontal lobe lesion confirmed polymorphous post-transplant lymphoproliferative disorder (PTLD), Epstein-Barr virus positive.

Patient did not have any other seizure activity during his hospital stay. His mycophenolate dose was reduced, and he was treated with rituximab and brain irradiation. He is currently stable with no further seizure episodes or focal neurological symptoms reported.

Discussion PTLD is a lymphoproliferative disease that can occur as an uncommon complication of immunosuppression after solid organ transplantation.

While most commonly occurring within the first year after transplant, our patient presented after 16 years of his second renal transplant. Epstein-Barr virus activation of B cells is reported in 90 to 95% of PTLD cases. In our case, serum EBV specific IgM and IgG antibodies were negative, whereas...
EBV DNA was detected by PCR in his blood and his brain biopsied lesions.

Conclusion Understanding nature of solid organ transplant patients’ immune status and possible complications is pivotal for the timely diagnosis and treatment of life-threatening complications of immunosuppression. High clinical suspicion and early imaging and biopsy can ensure early diagnosis of PTLD cases and hence early treatment.

**Case report**

A 38 year old African American man with newly diagnosed HIV presented to the Emergency Department after his girlfriend became concerned about his neurologic function. She noticed he completely ignored his left side, was getting into car accidents and drifting leftward while driving. He was also noted to have issues with his gait. In addition to neurologic deficits, the patient seborrheic keratosis covering his entire face and chest. He was noted to have white plaques covering his tongue. His CD4 count was 10/cu mm and CD4% was 2.4%. MRI showed numerous ring-enhancing lesions in the cerebral hemispheres and posterior fossa. Lumbar puncture was negative except for a positive serum toxoplasma IgG. The patient was started on treatment for toxoplasmosis. After 2 weeks of intravenous sulfamethoxazole/trimethoprim (TMP-SMX), he had a repeat MRI that demonstrated slight improvement in the ring enhancing lesions. He was switched to oral TMP-SMX and was discharged to inpatient rehab. Even after 2 weeks of treatment and improvement on MRI, he had significant neurologic deficits, requiring assistance with transfers and he still had left side neglect.

**Discussion**

Toxoplasmosis is a parasitic infection due to *Toxoplasma gondii*. Humans typically contract Toxoplasma from eating undercooked meat, exposure to cat feces, or mother to fetus transmission. Initial signs of infection typically are flu-like, including fever and body aches. In the immunocompromised population, headaches, loss of balance, issues with coordination, and seizures are more common. The classic finding on imaging is ring-enhancing lesions, though malignancies, abscesses, tuberculomas, and neurocysticercosis can also present similarly on imaging. All of these are more common in immunocompromised patients, so a good history and examination of cerebrospinal fluid are imperative in the diagnosis. Our patient’s immunocompromised state placed him at high risk for toxoplasmosis.

**TOXOPLASMOSIS IN NEWLY DIAGNOSED HIV**

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10.1136/jim-2020-SRM.239

**SEVERE ACNE IN HIV AND HIDRADENITIS SUPPURATIVA**

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10.1136/jim-2020-SRM.240

**Case report**

Introduction: We present a case of HS with severe facial involvement, possibly triggered by HIV acquisition.
Case A 26 yo male, a bisexual student, was admitted with severe facial folliculitis (figure 1). His symptoms progressed in 3 weeks, despite clindamycin and TMP/SMZ. He denied constitutional symptoms. Routine HIV testing in the ED was positive (viral load 30k, CD4 531/18%). On day 3 of admission, he was febrile to 102F and a draining right groin abscess was noted. Over the next 2 days, he developed abscesses in groin and axillae bilaterally, which were surgically drained. He was discharged on metronidazole, TMP/SMZ, and antiretroviral therapy. He was seen in dermatology clinic, diagnosed with HS, and prescribed isotretinoin. Over 9 months, his folliculitis improved significantly.

Discussion A retrospective study of 2 large CDC databases examined 3.45 million ambulatory visits for HS from 2002–15 and found a significant association with HIV (OR 6.39), relative to smoking (OR 2.65) and obesity (OR 2.86). The virus activates the immune system via specific pro-inflammatory cytokines that also play a role in HS. The severity of facial involvement seen in our patient is unique, which may represent the rare diagnosis of acne conglobeta (AC), a severe form of acne causing deep burrowing abscesses. AC is seen with HS as part of the follicular occlusion tetrad, which includes dissecting scalp folliculitis and pilonidal cyst.

Our patient is a unique case HIV and HS with severe facial involvement, likely representing AC.

241 ABSCESS PREVENTING GAP CLOSURE IN DIABETIC KETOACIDOSIS

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10.1136/jim-2020-SRM.241

Case report Perinephric abscesses are caused by one of two mechanisms: hematogenous seeding or reflux from the lower genitourinary tract. Risk factors include pregnancy, female gender, diabetes mellitus and urinary tract abnormalities. Dysuria and urinary frequency are frequently absent in these patients. A 22 year old female with a history of poorly controlled insulin dependent diabetes presented with abdominal pain, nausea and vomiting. She also reported she had diarrhea, fevers and malaise and stopped her insulin due to decreased appetite. Urinalysis was remarkable for pyuria. Her chemistry and symptoms were consistent with diabetic ketoacidosis likely due to urinary tract infection. She was admitted to the intensive care unit and started on broad spectrum antibiotics, insulin infusion and intravenous fluids. However, her nausea persisted and her anion gap never definitively closed. Given her tachycardia, leukocytosis in conjunction with her persistent acidotic state and abdominal pain, decision was made to obtain a CT abdomen and pelvis. This imaging was significant for a 5.6 cm mixed cystic and solid lesion on the posterior aspect of the right kidney. She was started on empiric broad spectrum antibiotics and underwent CT guided drainage of the lesion. Cultures of aspirated fluid grew candida albicans sensitive to fluconazole. She was started on a two week course of oral fluconazole 200 mg daily. Follow up imaging during that admission showed reabsorption in size of the perinephric abscess but showed a new collection in the inferior aspect of the right hepatic lobe concerning for extension of adjacent perinephric abscess. She underwent drainage of this collection which again grew candida albicans sensitive to fluconazole. She finished a new course of oral fluconazole 400 mg daily. Follow up imaging one month later showed resolution of abscesses. A persistently elevated anion gap frequently prompts the search for occult abscess. Empiric coverage of renal and perinephric abscess generally includes antimicrobials aimed at gram negative, staphylococcus aureus or polymicrobial infections. Fungal genitourinary tract abscesses are uncommon and generally associated with diabetes mellitus. This case confirms the need for drainage and rule out of less common causative organisms such as fungus in patients with relative immunocompromised states such as uncontrolled diabetes.

242 TWISTED ANKLE WITH A TWIST ENDING: NECROTIZING FASCIITIS FROM AN ANKLE SPRAIN

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Case report We present a case of necrotizing fasciitis (NF) necessitating an above knee amputation (AKA) following an ankle sprain.

A 33-year-old woman with no prior medical history sustained a right ankle twisting injury while dancing at a wedding. She presented 48 hours after initial injury for progressive right leg swelling and pain. Exam showed an ecchymotic, diffusely tender and swollen ankle with no skin breaks nor crepitus. X-rays showed no fractures. She was placed in observation for possible compartment syndrome and over the next 12 hours she developed tachycardia, hypotension, and tachypnea but was afebrile. Laboratory and radiologic findings were within normal range except for a mild lactic acidosis. At 18 hours hospitalization she went to the operating room for fasciotomy and decompression. Intra-operative findings noted dishwater fluid upon incision with myonecrosis concerning for NF. At this time, blood cultures grew Streptococcus pyogenes (S. pyogenes). IV antibiotics were empirically started, and the wound was closely monitored. Two hours post-operative, the foot became progressively necrotic with ascending progression requiring AKA. Following AKA, the patient experienced a good recovery with few complications.

This case demonstrates the importance of early recognition of NF to prevent significant morbidity and mortality. NF spreads rapidly and requires prompt surgery and antibiotics. Early signs and symptoms of the infection can be difficult to recognize, especially in cases of antecedent blunt trauma where pain and swelling can mimic a musculoskeletal injury. Studies that propose a mechanism for this syndrome have shown that S. pyogenes strains associated with NF avidly adhere to vimentin, a cytoskeletal element that is highly expressed in regenerating muscle cells in vitro. Increased vimentin production in a patient with musculoskeletal injury could potentially increase vulnerability to S. pyogenes infection. This case of an ankle twisting injury leading to NF is a possible manifestation of this mechanism. Furthermore, it highlights the importance of a high index of suspicion for NF in a decompensating patient with pain out of proportion even in the absence of fever or leukocytosis.
THE TUBERCULOSIS MASQUERADE – DISSEMINATED TUBERCULOSIS PRESENTING AS EFFECT OF LEUKEMIA TREATMENT

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10.1136/jim-2020-SRM.243

Case report

Tuberculosis (TB) is an ancient disease that has become a modern-day challenge. Immunocompromised individuals, such as those with leukemia, are at great risk of not only infection but also dissemination of TB. Herein we describe a case of disseminated tuberculosis in the context of acute myeloid leukemia and chemotherapy, thus complicating the course and therapy of both entities.

Case report

A 24-year-old male presented to the emergency department with complaints of intermittent fever for the past several weeks. His history includes immigrating from Congo one year ago. Upon admission, he was found to be febrile and neutropenic with 85% myeloblasts found on peripheral smear. Acute promyelocytic leukemia M3 was confirmed on subsequent fluorescence in situ hybridization (FISH) that showed t(15:17). He was started on all-trans-retinoic acid (ATRA), idarubicin, arsenic trioxide (ATO) plus vancomycin and cefepime for neutropenic fever. After induction chemotherapy, the patient developed transaminitis and his chemotherapy was subsequently discontinued. Steroids were also initiated due to concern for differentiation syndrome. Liver biopsy was performed due to persisting transaminitis which showed necrotizing granulomas with acid-fast bacilli. This combination with mycobacterium tuberculosis complex in sputum and blood cultures were consistent with miliary tuberculosis. The patient was started on levofloxacin, rifampin, isoniazid, pyridoxine, ethambutol (RIPE) for concern for multidrug-resistant TB. As the patient’s neutropenia resolved and liver enzymes improved on RIPE therapy, he was started on his chemotherapy regimen ATRA and ATO at half the original dosing. He completed his full course of consolidative chemotherapy without worsening of his disseminated TB. Repeat bone marrow biopsy showed complete response to treatment.

Discussion

To prevent lethal outcomes, a high index of TB suspicion is warranted in immunocompromised patients especially during treatment of malignancies. A dilemma in treatment priority may present in such cases. In this presentation, concern for chemotherapy side effects led to TB diagnosis. TB treatment took precedence during hepatic recovery but AML treatment with complete response was ultimately achieved without worsening of the patient’s disseminated TB.

MALIGNANT BORDETTA PERTUSSIS: AN ATYPICAL PRESENTATION WITH LEUKEMOID REACTION IN A VACCINATED ADOLESCENT

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10.1136/jim-2020-SRM.244

Case report

Bordetella Pertussis is known to cause severe symptoms with leukemoid reaction in infants. We describe a 16 year old vaccinated female with past medical history of mild pulmonary hypertension (group 3 diagnosed 10 years ago by a right heart catherization), and idiopathic adolescent scoliosis presenting with clinical deterioration secondary to pertussis.

The patient was initially admitted to undergo a posterior spinal fusion for scoliosis but was transferred to our pediatric service on the first POD for progressive respiratory distress and hypoxia requiring oxygen. She did not have cough, congestion or chest pain. The initial chest x-ray was concerning for pulmonary edema versus pneumonia and the patient was started on ceftriaxone. Despite antibiotics her respiratory distress progressed and she was transferred to the pediatric intensive care unit. Initially her white cell count was 29,000, C-reactive protein was 280 and early sputum culture grew Streptococcus Pneumoniae. Ultimately she experienced respiratory failure requiring intubation and sedation. Leukemoid reaction was noted on day 4 of her hospitalization with a WBC of 60,000. Further infectious workup revealed Bordetella Pertussis. She was started on Azithromycin. She improved clinically over the course of one week and was able to discharge home on 1L of oxygen via nasal cannula.

This case illustrates the emergence of severe pertussis in the USA, even among vaccinated patients. Although malignant pertussis, the most severe form, is better identified and studied in infants, it is important to consider pertussis within the differential diagnosis in patients who present with respiratory failure and leukemoid reaction, regardless of age and vaccination status. We hope to educate through this case, the importance to consider bordetella pertussis, even among vaccinated individuals, when evaluating patients who present with severe respiratory distress or develop respiratory failure. Pertussis can be diagnosed in all spectrums of age, in all geographical locations, especially after the revision of vaccination schedule and formulation, especially in those patients with underlying immunodeficiency, pulmonary, or cardiac pathology to avoid lethal consequences.

THROMBOPHLEBITIS AS AN INITIAL FINDING IN HANSEN’S DISEASE

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10.1136/jim-2020-SRM.245

Case report

Hansen’s Disease is an uncommon infectious disease caused by M. lepromatosis and M. leprae that classically infects the skin and peripheral nerves and can present with hypopigmented or reddish skin lesions with overlying loss of sensation as well as enlarged, tender peripheral nerves. Hansen’s disease is rare in the United States with 150–200 cases yearly. The following case is an instance of thrombophlebitis as the initial finding in Hansen’s disease.

A 21-year-old male originally from Micronesia presented to his primary care clinic with a 2 week history of left dorsal hand numbness and palpable cord on the radial dorsal wrist. He was diagnosed with thrombophlebitis of the cephalic vein, started on aspirin and referred for a left upper extremity venous duplex which confirmed superficial thrombophlebitis of the left cephalic vein. 2 weeks later the patient began to develop a reddish lesion over the dorsum of his hand that widened to about 5 cm with increased numbness. At this time the patient was referred to dermatology and started systemic and topical antifungals. The lesion did not improve at follow up and topical steroids were started with no resolution of the skin lesion. Ultimately the patient underwent a punch biopsy which showed sarcoidal granulomas.
with surrounding lymphocyte predominant inflammation. AFB, gram stain, and PAS stain of this biopsy were negative. Repeat biopsy revealed a single appropriately sized and stained possible organism. A vascular biopsy of the lesion was obtained, however the sample was not sent for histopathology and AFB. The patient’s clinical presentation as well as skin biopsy showing no AFB organisms was consistent with the tuberculous form of Hansen’s disease. The patient was started on dapsone and rifampin for a planned total duration of 12 months.

Leprous phlebitis was first described in the 1800’s with several cases reported in the 1980’s. It is believed to be caused by deposition of mycobacterium in the intima of vessels which spreads to peripheral nerves via the Vasa nervorum resulting in overlying paresthesia. This case represents a rare initial presentation of thrombophlebitis in Hansen’s Disease and highlights the importance of keeping a broad differential and using clinical presentation to make a diagnosis when laboratory tools are not useful in diagnostic confirmation.

**Abstract 246**

A TODDLER WITH REFRACTORY ATYPICAL KAWASAKI AND CONCOMITANT ENTEROVIRUS VIREMIA

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Case A 2 year old previously healthy male was admitted for dehydration and symptoms of a viral illness, including 4 days of fever, emesis, bilateral conjunctivitis and rash. Initial work up revealed Enterovirus viremia, a likely source of the patient’s presentation. However during the patient’s hospital stay, he remained persistently febrile, and labs were consistent with Atypical Kawasaki (anemia, elevated ALT, hypoalbuminemia and elevated inflammatory markers.) Initial echo was normal, and he was treated with IVIG. His fever responded dramatically to initial treatment of IVIG, and the patient was discharged home after remaining afebrile 24 hours. He was readmitted for recurrence of fever the following day. He received a second round of IVIG for recurrent Kawasaki. The patient underwent repeat echo revealing a right coronary artery more dilated than in the prior study but within upper limits of normal. He developed fever again and received Infliximab for refractory atypical Kawasaki on fourth day of readmission. After Infliximab he remained afebrile and was discharged home with cardiology follow up and continued aspirin course.

**Discussion** Kawasaki Disease (KD) remains a disease without a known cause. Several researchers have suggested that KD may be linked to common viral illnesses, including enterovirus. One population based cohort study in Taiwan found the incidence of KD was 56% higher in a cohort of children infected with enterovirus when compared to a cohort of children without enterovirus infection. (Weng, K.P, et al) Several other common viruses have been considered in the etiology of KD, but further studies suggest that enterovirus infection alone may be more strongly associated with KD.

Conclusion As researchers continue to search for a cause of Kawasaki Disease, the increased association of enterovirus with KD supports claims that the virus is linked to the etiology of the disease. Our patient’s KD may have been closely linked to his concurrent enterovirus viremia.

**REFERENCE**

MENINGOENCEPHALITIS: THE GREAT MIMIC

A 46 y/o African American woman with known HIV on anti-retroviral therapy was admitted with progressively worsening dyspnea. She endorsed orthopnea, ankle swelling with NYHA class 3 symptoms. Chest radiograph showed cardiomegaly with no acute infiltrate. On examination she was tachycardic and hypoxic with distant heart sounds. She had a palpable left supraclavicular lymph node and multiple axillary lymph nodes. She also had tenderness in her right calf. Her white cell count was minimally elevated with a left shift. EKG showed sinus tachycardia. An Echo cardiogram revealed moderate pericardial effusion with a normal ejection fraction. A pericardiocentesis performed drained serosanguinous fluid which was negative for infection. Doppler of the right lower extremity revealed a deep vein thrombosis and she was started on heparin drip. A chest CTA showed no pulmonary embolism but did reveal right paratracheal adenopathy, right hilar mass and subcarinal nodes. Further imaging showed bilateral breast masses, bilateral pleural effusions, bilateral adrenal nodules, vertebral translucency and two brain lesions. Her CD4 count was 116 cells/mm\(^3\) and with T: lymphocyte CD4/CD8 ratio -0.11. She was started on prophylaxis with Bactrim in addition to her anti-retroviral therapy. An excision biopsy of the supraclavicular lymph node was consistent with metastatic adenocarcinoma. Pericardial fluid studies showed malignant large epithelioid cells, favoring metastatic adenocarcinoma. Patient continued to have worsening dyspnea prompting a repeat pericardiocentesis. However due to continued symptoms and re-accumulation of pericardial fluid, patient received a pericardial window. Patient decompensated shortly after pericardial window and was transferred to a higher center for further management, but died later.

Discussion

Lung cancer is associated with unique HIV-related causal mechanisms, and may be associated with worse outcomes in some people with HIV. The mean age of HIV infected patients at the time of lung cancer diagnosis is 45 years. Lung cancer is an important complication associated with chronic HIV infection. The clinician must remember that patients with chronic HIV are at higher risk for solid tumors from the rest of population and include this in their differential.

A NOT SO TYPICAL PRESENTATION OF LUNG ADENOCARCINOMA IN AN HIV PATIENT

AT Kunnumpurath*, R Huang, DG Jacobs. White River Health System, Batesville, AR

Case report

A 46 y/o African American woman with known HIV on anti-retroviral therapy was admitted with progressively worsening dyspnea. She endorsed orthopnea, ankle swelling with NYHA class 3 symptoms. Chest radiograph showed cardiomegaly with no acute infiltrate. On examination she was tachycardic and hypoxic with distant heart sounds. She had a palpable left supraclavicular lymph node and multiple axillary lymph nodes. She also had tenderness in her right calf. Her white cell count was minimally elevated with a left shift. EKG showed sinus tachycardia. An Echo cardiogram revealed moderate pericardial effusion with a normal ejection fraction. A pericardiocentesis performed drained serosanguinous fluid which was negative for infection. Doppler of the right lower extremity revealed a deep vein thrombosis and she was started on heparin drip. A chest CTA showed no pulmonary embolism but did reveal right paratracheal adenopathy, right hilar mass and subcarinal nodes. Further imaging showed bilateral breast masses, bilateral pleural effusions, bilateral adrenal nodules, vertebral translucency and two brain lesions. Her CD4 count was 116 cells/mm\(^3\) and with T: lymphocyte CD4/CD8 ratio -0.11. She was started on prophylaxis with Bactrim in addition to her anti-retroviral therapy. An excision biopsy of the supraclavicular lymph node was consistent with metastatic adenocarcinoma. Pericardial fluid studies showed malignant large epithelioid cells, favoring metastatic adenocarcinoma. Patient continued to have worsening dyspnea prompting a repeat pericardiocentesis. However due to continued symptoms and re-accumulation of pericardial fluid, patient received a pericardial window. Patient decompensated shortly after pericardial window and was transferred to a higher center for further management, but died later.

Discussion

Lung cancer is associated with unique HIV-related causal mechanisms, and may be associated with worse outcomes in some people with HIV. The mean age of HIV infected patients at the time of lung cancer diagnosis is 45 years. Lung cancer is an important complication associated with chronic HIV infection. The clinician must remember that patients with chronic HIV are at higher risk for solid tumors from the rest of population and include this in their differential.
AN UNUSUAL CAUSE OF ACUTE PYELONEPHRIS WITH HYDRONEPHROSIS : AEROCCUS URINAE PYELONEPHRIS

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Introduction Aerococcus urinae is a rare cause of urinary tract infection in older adults. Aerococcus urinae is usually seen among males, nursing home residents or those with prostate disease.

Case 94 y/o caucasian female with past medical history of breast cancer in remission, history of intermittent urinary tract infections presented with abd pain and confusion. On exam, her abdomen was soft with no peritoneal signs. Significant labs included a white cell count of 13.4 k/ul with 84% neutrophils and acute kidney injury with Bun of 34 mg/dl and creatinine of 1.5 mg/dl (Baseline creatinine of 0.9–1.0 mg/dl). Urine analysis showed 6–10 red cells, too numerous to count white cells, 1 + bacteria, small leukocyte esterase and negative nitrite. A CT of abdomen and pelvis showed left pyelonephritis and hydronephrosis with no obstructing stone. Due to unclear etiology of hydrenephrosis, urology performed cystoscopy, a diagnostic left retrograde pyelogram and a left ureteroscopy. The cystoscopy revealed large amounts of mucus in the bladder. The retrograde pyelogram went up to the level of the proximal ureter. A large amount of pus was extracted from beyond this area which was sent for culture and sensitivity (including fungal cultures which were negative) and a ureteral stent was placed. Final cultures grew Aerococcus urinae and patient was treated with two weeks of intravenous Ceftriaxone and discharged home. Patient did better, had good urine output and acute kidney injury resolved.

Discussion Our case shows that Aerococcus urinae infection continues to be reported in persons without typical risk factors and is an emerging cause of urinary tract infections and/or pyelonephritis. The presence of hydrenephrosis with no obstructing stone prompted a retrograde pyelogram and ureteroscopy which helped make the accurate diagnosis. Aerococcus urinae is often difficult to isolate and initial gram positive growth often misguides the clinician to think of other gram positive organisms such as staphylococcus and enterococcus.
of herpetic whitlow and acute bacterial paronychia in an immunocompromised patient.

**Case presentation** A 21-year-old African American female with SLE on chronic immunosuppression, lupus nephritis, and atypical HUS on eculizumab presented with pain and swelling around her fingernails. She reported that the symptoms started on two digits of the left hand. She presented to local ED due to worsening pain and violaceous discoloration where she was diagnosed with paronychia. She underwent incision and drainage and was discharged on oral clindamycin.

Despite antibiotics, she had worsening symptoms and progression of involvement to multiple digits on the right hand. She was advised by local provider to transfer to University of Mississippi Medical Center for further care. On arrival to our ED, patient was noted to have erythema, edema, and crusting of the proximal and lateral nail folds on bilateral hands. Crusted erosions were noted on lower lip, and she disclosed that she had a habit of onychophagia. Regarding other exposures, she had used a chemical hair treatment the week prior.

Laboratory data revealed no leukocytosis. X-rays of bilateral hands showed soft tissue swelling and a small pocket of gas along the right fourth digit at the site of recent I&D. There was no radiographic evidence of osteomyelitis. A bacterial culture from an affected area grew MRSA with resistance to clindamycin; PCR detected HSV1. The patient was diagnosed with herpetic whitlow and acute bacterial paronychia involving multiple digits. She was started on acyclovir, doxycycline, and metronidazole with improvement in pain and swelling.

**Discussion** We present a complex presentation of herpetic whitlow in the setting of acute bacterial paronychia secondary to poor hand hygiene and nail biting. Incision and drainage should be avoided as it can worsen symptoms and lead to viremia or superimposed bacterial infection. In immunocompromised patients, treatment with systemic acyclovir is indicated with any form of herpes infection, localized or disseminated. Recognizing and diagnosing herpetic whitlow promptly is important for the treatment of the affected patient and for the prevention of transmission to other individuals.

**Case report** Neonatal suppurative parotitis (NSP) is an uncommon disease with a previously studied prevalence of 3.8:10,000 of neonatal admissions. While uncommon, its broad differential with daunting complications presents therapeutic necessities. Cellulitis-adenitis syndrome represents a possible focal manifestation of late-onset GBS infection, which is more common than parotitis, with an incidence estimated at 4%. Bacteremia is present in up to 90% of the cases and there can be meningitis associated in 33% of cases making aggressive treatment a consideration. We present the case of a 14-day-old male who presented with right-sided facial swelling and erythema and was diagnosed with NSP.

A 14-day-old full-term twin male born at 38 weeks without complications presented to the emergency department with one day of unilateral facial swelling. Physical exam demonstrated right-sided facial swelling with expression of purulent drainage from Stensen’s Duct following parotid massage. Initial lab-work showed a slight leukocytosis with neutrophil predominance. Electrolytes, inflammatory markers including C-reactive protein and procalcitonin, and nasal PCR for viruses were all normal. Cerebrospinal fluid (CSF) was grossly bloody but did not have white blood cells and meningitis PCR panel was negative. Head and neck ultrasound demonstrated a swollen, hypervascular right parotid gland consistent with parotitis without abscess. Empiric intravenous antimicrobial coverage was initiated with vancomycin, cefepime, and metronidazole. CSF and blood cultures remained without growth. Following clinical improvement, ENT and infectious disease agreed with the transition to oral clindamycin for an additional ten days with subsequent resolution symptoms.

Although rare, NSP should be suspected in newborns presenting with an erythematous pre-auricular mass with or without any predisposing factors. S. aureus is the most common pathogen isolated from infants with NSP. Expression of purulent fluid from Stensen’s Duct is pathognomonic of NSP and culture should be collected if possible. Most patients can be treated conservatively, provided that the empiric antibiotic treatment covers the causative agents according to the local sensitivity pattern and is started early. The prognosis of the disease is generally excellent.
ABRUPT THROMBOCYTOPENIC CRISIS IN AN IMMUNODEFICIENT PATIENT

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10.1136/jim-2020-SRM.256

Case report 53 yo male with history of AIDS (CD4+ 78), presented to the ED with flank pain and fevers for two days. On initial exam he was ill appearing and tachypneic with BP of 99/70 mmHg. Labs were significant for a creatinine of 5.0 mg/dL, AST/ALT of 156/290, and LDH of 3,965 U/L. Urinalysis, renal ultrasound, chest X-ray and chest/abdomen CT were unremarkable. The patient was started on Rocephin and Zithromax. He developed severe sepsis on day two and antibiotics were broadened to Linezolid, Cefepime, and Amphotericin B with resolution of sepsis. He was started on dialysis. Due to concern for HIV nephropathy, antivirals were started. On day five the platelet count dropped abruptly from 215k to 84k and continued to drop to 12k. Blood cultures and urine antigen came back positive for Histoplasma capsulatum. He was discharged with improving platelets and meropenem. CT AP noted fluid collection vs abscess in right anteromedial thigh musculature and air-hyper-density near pubic symphysis. Abscess confirmed on US as 7.4 × 3.2 × 6.4 cm heterogenous mass. IR consulted for percutaneous drainage and placed right thigh drain, cultures without growth. MRI pelvis was obtained and found findings consistent for osteomyelitis of bilateral pubic bodies and septic arthritis centered at pubic symphysis with fluid collection concerning for abscess extending into right adductor longus musculature. A CT cystogram was performed that demonstrated a vesico-pubic symphseal fistula, likely resulting in pelvic osteo and septic arthritis with tracking into right thigh. Bilateral nephrostomy tubes were placed for urinary diversion. He was discharged in stable condition to LTAC for 6 weeks of antibiotic therapy.

Case report Prostate cancer is the second most common malignancy in men worldwide. Treatments have generally consisted of surgical and radiation therapies. Well-known complications include urinary incontinence, cystitis, ED, osteitis pubis and voiding difficulties. Not as well known, pelvic osteomyelitis or fistulation into pubic symphysis may also be seen.

Case A 69 yo male with history of recent UTIs, prostate cancer s/p radical prostatectomy and external beam radiation therapy and urinary incontinence presented with confusion x1 day. Patient’s acute medical problems began 1 month prior to admit when he was admitted for UTI. Since that time he had noted progressive generalized weakness, difficulty getting out of bed and walking unassisted, fever, chills, purulent penile discharge and pain in right inguinal region. On admit, patient was febrile to 102.4°F, altered, tachycardic and tachypneic, UA with >100 WBC, many bacteria, 40 RBCs, UCx polymicrobial. He was started initially on vanc and meropenem. CT AP noted fluid collection vs abscess in right anteromedial thigh musculature and air-hyper-density near pubic symphysis. Abscess confirmed on US as 7.4 × 3.2 × 6.4 cm heterogenous mass. IR consulted for percutaneous drainage and placed right thigh drain, cultures without growth. MRI pelvis was obtained and found findings consistent for osteomyelitis of bilateral pubic bodies and septic arthritis centered at pubic symphysis with fluid collection concerning for abscess extending into right adductor longus musculature. A CT cystogram was performed that demonstrated a vesico-pubic symphseal fistula, likely resulting in pelvic osteo and septic arthritis with tracking into right thigh. Bilateral nephrostomy tubes were placed for urinary diversion. He was discharged in stable condition to LTAC for 6 weeks of antibiotic therapy.

BAD TO THE BONE

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Case report Lemierre Syndrome (LS) is a rare life-threatening condition secondary to progressive oropharyngeal infection. It may extend to pharyngeal spaces of neck with complications such as internal jugular vein septic thrombophlebitis and bacteremia. Estimated 1/1,000,000 cases are reported worldwide annually in increasing trend. Most commonly seen in immunocompetent patients within 19–22 years old. We present the case of an immunocompetent elderly female with an unresolved sore throat which progressed to left neck swelling and dysphagia.

Case of 77-year-old female who came to the emergency room with complaints of sore throat of one week of
A RARE CASE OF SERRATIA ENDOCARDITIS

R Pate*, K Sanders, M Oye. University of Florida, Jacksonville, Jacksonville, Fl. 10.1136/jim-2020-SRM.259

Case report Serratia marcescens is an uncommon cause of infective endocarditis. While this disease has historically been associated with intravenous drug use, more recent reports suggest that it is now largely a consequence of opportunistic infections of the chronically ill. Our case highlights several characteristic features of this infection, including isolation of a non-pigmented strain of the organism, an antibiotic susceptibility profile suggestive of AmpC β-lactamase production, and rapid clinical deterioration with multiple embolic complications resulting in death. In this review we discuss the history, epidemiology, and management of endovascular infections due to Serratia spp., emphasizing the continued importance of considering this organism in the differential diagnosis of endocarditis among intravenous drug users and as a potential indication for surgical therapy.

Infected endocarditis from Serratia marcescens is rare. Endocarditis is typically right-sided in intravenous drug users however Serratia tends to involve left-sided valves. Coincidentally; our patient’s echo findings show only right heart-valve involvement despite the presence of a PFO. With valvular insufficiency of intravenous drug use on the rise, patients are at a heightened risk of pathogen exposures. When picking an antibiotic for therapy; it is important to remember to place susceptibilities at the forefront of medication management.

A SEVERE CASE OF COAGULASE-NEGATIVE STAPHYLOCOCCUS PROSTHETIC VALVE ENDOCARDITIS

1-2JT Rapoza*, A Chao, 1Dickey, 2Rountree, 1Mupfumira. 1Liberty University College of Osteopathic Medicine, Lynchburg, VA; 2Medical College of Georgia at Augusta University, Augusta, GA 10.1136/jim-2020-SRM.261

Case report Infective endocarditis (IE) is of continued clinical importance, occurring in up to 15 per 100,000 people per year in the United States. While bacteria like Staphylococcus aureus and viridans group streptococci remain among the most common causative organisms, we continue to see a significant amount of disease by coagulase-negative staphylococci (CONS). While often dismissed as contaminant or of no significance, CONS remain a formidable cause of extensive disease pathology, notably in patients with prosthetic valves (PV). A 70-year-old man presented to the hospital with complaints of shortness of breath in the setting of recent bioprosthetic aortic valve replacement 3 months prior for moderate-severe aortic stenosis. He experienced progressive dyspnea on exertion for 4 days, occurring with minimal exertion as well
as new orthopnea. He had been started on furosemide by his cardiologist without relief. He denied any other symptoms.

He was noted on exam to have a new 4/6 holosystolic murmur and 3/4 diastolic murmur at the right upper sternal border, but no peripheral stigmata of IE or embolic disease. Due to these new exam findings and complaint of dyspnea, he underwent transthoracic echocardiography (TTE), finding partial dehiscence of his PV with severe paravalvular aortic regurgitation.

IE was suspected in the setting of his presenting complaints as well as new TTE findings. Blood cultures grew *Staphylococcus epidermidis* on sequential tests and he was started on vancomycin. A transesophageal echocardiogram confirmed the TTE findings as well as a peri-valvular abscess around his PV extending up the aortic root towards his mitral valve. He was also noted to have progressive PR prolongation to over 0.4 seconds and required transcutaneous pacing.

CONS are often underestimated in the clinical setting. This patient’s course highlights how CONS infections may insidiously develop, yet still have catastrophic infectious complications. This patient required multidisciplinary care closely managed by Cardiology, Electrophysiology and Infectious Diseases services and was ultimately referred to Cardiothoracic Surgery at a quaternary medical center for advanced care.

**262 SEPTIC LUMBAR FACET JOINT ARTHRITIS DUE TO STREPTOCOCCUS AGALACTIAE: A REAL PAIN IN THE BACK**

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10.1136/jim-2020-SRM.262

Case report Back pain is one of the most common reasons for visits to emergency clinics in the United States. Often degenerative diseases are the cause of back pain, however, less frequently, it can be caused by infective processes. Rarely septic lumbar facet joint arthritis (SLFJA) have been reported as underline back pain etiology. SLFJA is a potentially fatal condition with high risk for devastating complications including spinal cord compression. *Staphylococcus epidermidis* is the main causative micro-organisms of SLFJA, but *Streptococcus agalactiae* is extremely rare. We describe a case of a male patient who presented to our institution with complaint of worsening back pain diagnosed with SLFJA due to *Streptococcus agalactiae*.

58 y/o male with past medical history of hypertension and diabetes arrived at the emergency clinic complaining of worsening back pain with associated night sweats, chills, and fever. Physical examination revealed tachycardia, and lumbar vertebral tenderness. Initial workup revealed leukocytosis and elevated inflammatory markers. Further questioning revealed a recent hospitalization for left leg cellulitis. The patient was admitted with diagnosis of sepsis secondary to possible bacteremia and started on broad spectrum antibiotics. Blood culture were positive for *Streptococcus agalactiae* sensitive to Ceftriaxone for which antibiotics were adjusted. MRI of the lumbar spine reported L4-L5 and L5-S1 facet joint septic arthritis. Neurosurgery services were consulted but in view of absence of signs of cord compression, medical management was advised. He completed 72 days of Ceftriaxone. MRI was repeated which showed significant decrease in extension of the epidural collection. Patient was discharge with a corset for back support and ambulating with assistance.

SLFJA as the underlying cause of back pain is rarely encountered. For this reason, diagnosis might be illusive at evaluation and proper management delayed. It is imperative to identified risk factors which might point to an infection as the etiology of backpain. Having a low threshold for suspicion for hematogenous bacterial seeding to vertebrae is important because of high risk of progressive adjacent structural damage, sepscemia and ultimately death.

**263 THE IMPORTANCE OF PRE-TRANSPLANT SCREENING IN SOLID ORGAN TRANSPLANTATION DURING THE OPIOID CRISIS**

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10.1136/jim-2020-SRM.263

Case report Due to the demand for kidneys for transplantations, deceased donor kidney transplants (DDKT) account for nearly 68% of all kidney transplantations. All transplants warrant a thorough history of both donor and recipient with screening for infections and exposures. This is especially pertinent during the current opioid crisis. In this case, we report the discovery and management of a polymicrobial bloodstream infection in a kidney donor who died of an acute opioid overdose.

In our case, a 31-year-old female with a past medical history of end-stage renal disease on hemodialysis had received a DDKT. She had previously undergone pre-transplant screening for infections which included testing for human immunodeficiency virus (HIV), cytomegalovirus (CMV), Epstein-Barr virus, hepatitis C virus (HCV) and tuberculosis, with only a positive CMV IgG. She tolerated the surgery well and had steady improvement in both her clinical condition and transplant function.

On post-transplant day 2 we were notified that additional microbiological data from the donor was available. The kidney donor was a 23-year-old male who had overdosed while using IV heroin 2 days prior to the surgery. Donor screening was performed as well as blood and urine culture. The donor was HIV and HCV negative, but had positive blood culture growth for *E. coli*, meticillin-susceptible *Staphylococcus aureus* (MSSA) and *Pantoea agglomerans*. The recipient was treated with cefepime and ciprofloxacin and serial blood cultures drawn. Fortunately, no bacteremia occurred post-transplant and the recipient did well. We recommended follow-up HIV and HCV screening 4 weeks post-transplant.

In addition to the interesting challenge of antibiotic management in this post-transplant patient, this case highlights areas of concern for transplantation as a whole. Transplant protocols are aimed at screening for chronic disease conditions, however organs from high-risk donors such as those actively using IV drugs are at risk for acute acquisition of infections like HIV and HCV in addition to more common bacterial infections. Careful attention must be paid to ensure appropriate monitoring both pre- and post-transplant.
A RARE CASE OF NOCARDIA PERITONITIS WITH SUSPECTED NOCARDIA ENDOCARDITIS

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10.1136/jim-2020-SRM.264

Case report Nocardiosis is commonly a disease of immunocompromised; however, one-third of infected patients are immunocompetent. Although Nocardia has the potential to disseminate, it most commonly affects lungs, brain, and subcutaneous tissues. We describe a unique case of nocardia peritonitis in a peritoneal dialysis (PD) patient with infective endocarditis and aortic valve perforation.

A 40-year-old patient with End-Stage Renal Disease (ESRD) on PD presented with abdominal pain and confusion. He was afebrile, tachycardic, abdomen was diffusely tender. Peritoneal fluid cell count was 18,190/uL with 88% neutrophils. Treatment was initiated with vancomycin, cefepime, metronidazole for peritonitis. HIV, hepatitis panel, Clostridium difficile, blood culture, fungal culture were negative. Body fluid culture turned out to be positive for gram-positive, weakly-acid-fast filamentous bacteria. Antibiotics were changed to meropenem and trimethoprim-sulfamethoxazole (TMP-SMX) was added. The organism found to be Nocardia nova which was sensitive to both meropenem and TMP-SMX. Chest x-ray was negative for infiltrates or abscess. MRI brain showed multiple acute punctate infarcts. CT abdomen showed multiple splenic infarcts. Physical exam then revealed a decrescendo diastolic murmur at the left sternal border. Transesophageal echocardiography showed an 8×3 mm vegetation on the left coronary cusp of the aortic valve with leaflet perforation and severe aortic regurgitation, also a concern for aortic root abscess. He underwent aortic valve replacement with bioprosthetic valve. PCR and culture of aortic valve specimen were negative for Nocardia. He already received 2 weeks of antibiotics by then for which he responded well clinically. Meropenem was changed to ceftriaxone based on sensitivities. Intravenous ceftriaxone and oral TMP-SMX was continued for 6 weeks post-surgery and plan made to continue TMP-SMX alone for 3–6 months.

CNS and cardiac evaluation should be considered in patients with nocardiosis as it has an affinity to the CNS and both native and prosthetic heart valves. Majority of cases with Nocardia endocarditis resulted in valve replacement, despite being on the potent antibiotics. Early diagnosis and prompt initiation of proper antibiotics are necessary to prevent dissemination.

TRYING TO STOMACH EXTRAPULMONARY TUBERCULOSIS

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10.1136/jim-2020-SRM.266

Case report E.M. is a 2-year-old previously healthy Latino male who initially presented to Le Bonheur Children’s Hospita in Memphis, TN with 2 weeks of fever. His parents also reported intermittent abdominal pain, diarrhea, and anorexia. Prior to admission, he had completed a course of amoxicillin-clavulanate for suspected pneumonia as well as ciprofloxacin due to history of typhoid exposure. Despite these treatments and scheduled antipyretics, his fevers persisted for a total of 16 days prior to admission. Parents denied any recent tick or tuberculosis exposure, but they did endorse recent proximity to the United States-Mexico border as well as unpasteurized cheese intake. He was born in the US and had never traveled internationally. Upon admission, we obtained extensive workup. Labs showed non-specific signs of infection with leukocytosis and elevated C-reactive protein. Given gastrointestinal symptoms with no discernable cause, abdominal ultrasound was obtained—a large mass was quickly visualized. CT chest, abdomen, and pelvis then revealed a 6 cm right retroperitoneal mass and scattered pulmonary nodules. PPD and AFB gastric aspirates were positive. A biopsy during EGD ultimately confirmed the diagnosis of Mycobacterium tuberculosis complex (MTC).

ISOLATED CRYPTOCOCCURIA AS A MANIFESTATION OF DISSEMINATED CRYPTOCOCCOSIS: A DIAGNOSTIC DILEMA

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10.1136/jim-2020-SRM.265

Case report Disseminated cryptococcosis is a rare, life-threatening infection commonly seen in HIV patients. It is infrequently seen in immunocompetent patients. Pulmonary and central nervous system are the commonly involved sites of infection in an immunocompromised host. Here, we present a rare case of isolated cryptococcuria as a manifestation of disseminated cryptococcosis in a non-HIV patient.

A 71-year-old patient with a history of hypertension, diabetes, ulcerative colitis on steroids presented with altered mental status, vomiting, headache, shortness of breath for a month. On admission, he was having high-grade fever and was hypoxic. Lab studies showed anemia, leukocytosis, acute kidney injury and urinary tract infection. CT head was negative for acute process. CT chest showed multifocal pneumonia. His clinical condition deteriorated despite being on broad-spectrum antibiotics. Blood culture was negative. Fungal culture, urine histoplasma antigen, blastomycosis antigen were negative. Fungal Beta-glucan was elevated. His urine culture grew Cryptococcus neoformans. Lumbar puncture was not consistent with cryptococcal meningitis, opening pressure was normal, gram stain, culture were negative. CSF cryptococcal antigen was negative. In the setting of respiratory failure, multifocal pneumonia and immunosuppression from chronic steroid use, we made the presumptive diagnosis of disseminated cryptococcosis, even though his serum cryptococcal antigen was negative initially. Serum cryptococcal antigen was repeatedly tested and was finally turned out to be weakly positive. He improved drastically after starting amphotericin and flucytosine. After two weeks of therapy, antifungals changed to fluconazole and he was discharged with a plan of continuing fluconazole for a total of one year.

Disseminated cryptococcosis is very rare in non-HIV patients. Isolated cryptococcuria can be a manifestation of disseminated infection. A high index of clinical suspicion is needed as it can be easily missed in non-HIV and immunocompetent patients and delayed diagnosis leads to unfavorable outcomes.
MTC comprises a slew of Mycobacterium species including organisms like M. tuberculosis, M. africanaum, and M. bovis. MTC cases are uncommon in the United States, but immunocompromised patients and patients from areas with high tuberculosis burden are at increased risk. In 2018, the CDC reported an incidence of about 2.8 cases of MTC per 100,000 persons. Extrapulmonary tuberculosis is rarer still—in 2016, it accounted for only about 20% of MTC cases in the US. This patient encounter demonstrates the importance of knowing the varied presentations of tuberculosis, how to diagnose it, and how to treat it.

FREQUENCY AND SEVERITY OF CRANIAL ULTRASOUND ANOMALITIES IN A COHORT OF NEWBORNS MOLESTALLY SCREENED FOR CONGENITAL CYTOMEGALOVIRUS INFECTION

Purpose of study Infants congenitally infected with cytomegalovirus (cCMV) may develop permanent neurological sequelae, but most are asymptomatic at birth. Cranial ultrasound (cUS) can determine gross brain abnormalities in newborns that may indicate silent cCMV damage.

Methods used

To describe cUS abnormalities in infants with cCMV, a retrospective analysis was performed on cUS obtained from 60 known cCMV-infected infants identified by universal newborn CMV screening. For blinding, we randomly added controls. A single radiologist, blinded to cCMV diagnosis and previous cUS reading, evaluated each subject’s first cUS, and systematically categorized any hyperechoic areas in the basal ganglia and/or thalamus using a grading scale (0–3) of lenticulostriate vasculopathy (LSV). Other abnormalities and the presence of classic LSV defined by the radiologist were noted.

Summary of results

91.7% (55/60) of cCMV-infected infants had some LSV hyperechoic finding (15/55 LSV grade 1, 23/55 LSV grade 2, 17/55 LSV grade 3, 8/55 classic LSV). 90% (27/30) of classically asymptomatic cCMV infants had some LSV finding. A significant difference was found between viral load Ct value and presence of classic LSV (p=0.007). 12/30 (40%) infants with classic symptoms of cCMV had grade 3 vs 5/30 (16.7%) of those with asymptomatic cCMV (p=0.084). 10/20 (50%) of symptomatic newborns detected by routine evaluation had grade 3 vs 7/40 (17.5%) of asymptomatic infants (p=0.014). The kappa values for IRR between our reader and the original report for cCMV-infected (n=60), controls (n=27), and both groups combined (n=87) were 0.573 (fair), 0.471 (moderate), and 0.401 (fair), respectively. Significant differences were found between viral load copy number and having a LSV grade ≥2 (p=0.033).

Conclusions

A high percentage of asymptomatic and symptomatic cCMV infants have some degree of abnormal LSV hyperechoic findings along the lenticulostriate vessels on cUS. Viral load correlates to more hyperechoic findings and the presence of classic LSV on cUS of cCMV infected infants. Adopting a grading system for LSV may improve accuracy of presence of classic LSV defined by the radiologist were noted.

FREQUENCY AND SEVERITY OF CRANIAL ULTRASOUND ANOMALITIES IN A COHORT OF NEWBORNS MOLESTALLY SCREENED FOR CONGENITAL CYTOMEGALOVIRUS INFECTION

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SIGNIFICANTLY ELEVATED PROCALCITONIN IN SETTING OF HEPATITIS C VIRUS INDUCED CRYOglobulinemia AND Septic Shock

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10.1136/jim-2020-SRM.268

Case report

Procalcitonin (PCT), first described as a marker of sepsis in 1993, is a biomarker that over the past twenty years has been increasingly studied as a diagnostic tool in clinical medicine. PCT is well studied in bacterial and fungal infections, but can also be elevated in patients with noninfectious processes such as autoimmune disease, trauma, and rhabdomyolysis.

Case A 25 year old man presented with a history of IV heroin use presented to the Emergency Department with generalized body aches, fevers, dark urine, left hand swelling, and bilateral plantar foot pain and discoloration of 2 days duration. He was tachycardic (122 beats/min), hypotensive (83/51 mmHg) and tachypneic (22 breaths/min). He was toxic appearing, with active rigors. He had no heart murmur but he did have bilateral plantar non-blanching/non-palpable purpur of his feet and toes. Initial labs were significant for a white blood cell count of 20.71, platelet count of 104, a creatinine of 3.9, bicarbonate of 17, and lactate acid of 3.8. He was started on broad spectrum antibiotics for presumed endocarditis and levophed for pressure support. However, echocardiogram was unremarkable. Blood cultures grew Pseudomonas aeruginosa. He had a markedly elevated procalcitonin level of 190.70 ng/ml. He was hepatitis C positive with cryoglobulinemia. His symptoms resolved with antibiotics, plasma exchange, rituximab, and steroids.

Discussion

The initial extreme elevation of PCT was thought to be due in part from sepsis, but largely attributed to underlying cryoglobulinemia. Although PCT is most frequently elevated in bacterial and fungal infections, there is an increasing amount of evidence of elevated PCT levels in noninfectious disease processes such as, pancreatitis, rhabdomyolysis, heatstroke, cardiogenic shock, trauma, and autoimmune disease.

A CLASSIC PRESENTATION OF LEGIONNAIRE’S DISEASE IN A 73 YEAR OLD PATIENT

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10.1136/jim-2020-SRM.269

Case report

Legionella pneumonia accounts for 2–10% of community acquired pneumonias with over 75% of cases occurring in patients older than 50 years of age.

Case A 73 year old woman with type 2 diabetes mellitus on insulin, hypertension, obstructive sleep apnea, and hypothyroidism presented with a 2-day history of fatigue, rigors, chills, non-bloody diarrhea, and a non-productive cough. On evaluation, her temperature was 100.8 F, BP 155/68, Heart rate 70s, O2 Sats 96% on 2LNC. Physical exam was remarkable for bibasilar crackles, dullness to percussion in the lower lobes, and the presence of diaphoresis. Laboratory studies were notable for Sodium 132 mmol/L (baseline 135–136), Chloride 91 mmol/L, BUN 29 mg/dL, Cr 2.0 mg/dL, WBC 16.14 K/uL, normal lactate, and normal liver enzymes. CXR showed a retrocardiac opacity concerning for aspiration or pneumonia. CT Abdomen...
& Pelvis showed mild hepatosplenomegaly and a patchy consolidative change concerning for pneumonia or aspiration. She was was started on ceftriaxone and azithromycin. Overnight, she began having fevers up to 103°F and antibiotic coverage was broadened to piperacillin-tazobactam plus azithromycin to cover for aspiration pneumonia and legionella. Her clinical state improved over the next few days and her antibiotics were de-escalated to clindamycin and azithromycin. Legionella urine antigen returned positive.

**Discussion**

Legionnaire’s Disease is often misdiagnosed due to the clinically and radiographically similar presentation to other forms of pneumonia. Although patients may present with similar symptoms such as fever, cough, and fatigue; certain features such as gastrointestinal symptoms of nausea, vomiting, diarrhea as well as laboratory findings such as hyponatremia and transaminitis should raise the suspicion for Legionella. Studies have shown early diagnosis and appropriate antibiotic management is associated with improved outcomes; which makes it important to consider Legionnaire’s Disease.

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**LUDWIG’S ANGINA: AN EXTRAVAGINAL INFECTION CAUSED BY GARDNERELLA VAGINALIS**

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10.1136/jim-2020-SRM.270

**Case report**

Introduction: Ludwig’s angina is defined as a bilateral infection of the submandibular space, which commonly arises from a dental infection. This is an aggressive, rapidly spreading cellulitis, and if not treated in a timely manner can lead to respiratory compromise.

Case A 61-year-old man presented to an outside hospital with a week of progressive tooth pain and neck swelling. Prior to presentation, a dentist evaluated him but due to swelling, no intervention was performed. Despite penicillin, his pain and swelling had progressed, and he was unable to swallow. In the Emergency Department, he was found to be in respiratory distress. He was resuscitated and successfully intubated. He received vancomycin, piperacillin-tazobactam, and clindamycin. A CT head and neck showed pneumomediastinum and multiple abscesses. He underwent incision and drainage of the bilateral submandibular space, sublingual space, and submental space with extraction of teeth. Wound cultures grew Gardnerella vaginalis and parvimonas micra. Over the next month, his hospitalization was complicated by renal failure requiring intermittent hemodialysis, tracheostomy placement due to compromise of his upper airway, pleural catheter placement for a right sided pleural effusion concerning for an empyema. Additionally, patient was started on pleural lymphatic drainage for ascites formation related to recurrent CT imaging. He ultimately required a 2nd catheter placed in his right pleural space, which was complicated further by a pneumothorax. He slowly improved and was eventually discharged on day 56 of hospitalization to an LTAC to continue rehabilitation.

**Discussion**

Our patient’s condition progressed rapidly from dental pain to respiratory compromise, illustrating the importance of dental health. With a mortality rate of up to 8%, prompt intervention is required for suspected Ludwig’s Angina. Treatment includes airway management, antibiotics, and surgical drainage for complicated deep neck infections.

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**PARASPINAL THORACIC MASS WITH HISTOLOGY STRONGLY SUGGESTIVE OF CAT SCRATCH DISEASE**

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10.1136/jim-2020-SRM.271

**Case report**

Cat Scratch Disease (CSD) typically presents as self-limited, tender lymphadenopathy following inoculation with Bartonella henselae from an infected cat bite or scratch. The disease manifests histologically with granulomatous inflammation and a hallmark description of central stellate micro-abscesses. Warthin starry staining confirmation occurs in approximately two-thirds of cases. Several atypical presentations of CSD have been described, including ones with neurologic manifestations and visceral involvement. We present the case of a patient with a right thoracic paraspinal mass. Pathologic findings were suggestive of Bartonella henselae infection.

A 10-year-old male presented with abdominal pain imaging at an outside clinic. He complained of a dry cough, fevers, fatigue, and increased work of breathing associated with a 15 pound weight loss. A posteriorly-located right lower lobe mass was noted on chest X-ray and was confirmed with CT imaging. The initial differential diagnosis included malignancy, bronchopulmonary sequestration, and infection. MRI of the chest revealed a heterogeneous right posterior paravertebral soft tissue mass most consistent with tumor of neurogenic origin or granulomatous infection. Quantiferon Gold was obtained, and a PPD was placed to rule out tuberculosis (TB).

A tissue sample was collected via core needle biopsy. Preliminary biopsy results were negative for malignant cells. Quantiferon Gold and PPD were negative. Final pathology report revealed stellate microabscesses and granulomatous inflammation with epithelioid histiocytes. These findings were all suggestive of CSD. Warthin starry stain was negative. The family later reported that the patient frequently played with a kitten at his grandparents’ home. Diagnosis was unable to be confirmed by serology.

This case highlights the importance of keeping a broad differential diagnosis in patients with atypical presentations. Although neoplasm is initially suspected in a large percentage of atypical cases of CSD, it is important to explore other potential diagnoses through further lab testing and consultation with an infectious disease specialist when granulomatous inflammation is a consideration – as was the case in our patient.

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**TEEMING WITH TREPONEMES**

O Van Gerven*, CA Muzzy. University of Alabama at Birmingham, Birmingham, AL

10.1136/jim-2020-SRM.272

**Case report**

True to its nickname ‘the great imitator’, syphilis is easily mistaken for other diagnoses, especially in HIV+ patients. Our case of secondary syphilis presenting as oral mucous patches was initially mistaken for thrush.

A 36yo HIV+ man presented to clinic with persistent oral plaques. He was seen in clinic one week prior and treated...
A Rare Case of HLH Triggered by MRSA Cryptococcal Meningitis Presenting with Cranial Nerve 6 Palsy in a Renal Transplant Patient

K Vedala*, M Keel, S Khan, A Kunnumpurath, K Kakker, White River Medical Center, Batesville, AR

10.1136/jim-2020-SRM.273

Case report Hemophagocytic lymphohistiocytosis (HLH) is a rare disease that results due unregulated activation of the immune system. This activation can be because of multiple causes which are classified into Primary Familial HLH, Secondary HLH, and Malignancy-Associated Hemophagocytic Syndrome (MAHS) [1]. Secondary HLH is usually a result of immune activation through viral illnesses, most commonly EBV [2]. Here, we describe a case of HLH which was triggered because of MRSA bacteremia.

Patient is a 67-year-old male with history small cell lung cancer with Carboplatin and Etoposide, who was admitted to the hospital with fevers, mucositis, confusion, weakness and fatigue. He rapidly worsened with GI tract bleeding and septic shock requiring admission to ICU. He was initiated on Antibiotics and supportive therapy. Work up revealed hypertriglyceridemia (at 385), elevated ferritin (32,100) and severe pancytopenia. Both initial and repeat blood cultures (5/5) persistently grew MRSA raising suspicion for endocarditis.

A soluble IL2 receptor assay was sent and in view of high suspicion for HLH (met 4/5 criteria) he was initiated on high dose steroids. Despite aggressive measures including initiation of steroids for HLH, patient’s condition deteriorated and family decided to withdraw care with comfort measures only. He subsequently expired within the day. Post-mortem, an elevated soluble IL2 receptor (sIL2-r) at 22268 U/ml supports a diagnosis of HLH.

With this case we wish to draw attention to the fact that MRSA sepsis can be a trigger for HLH likely through reactivation of EBV. Although our patient was being treated with chemotherapy, his most recent cycle was four months ago and imaging from a month prior to admission showed no recurrence of disease. For this reason, secondary HLH triggered by MRSA-septicemia is suspected to be more likely than MAHS.

REFERENCES

A 52yo African American woman with history small cell lung cancer with Carboplatin and Etoposide, who was admitted to the hospital with fevers, mucositis, confusion, weakness and fatigue. He rapidly worsened with GI tract bleeding and septic shock requiring admission to ICU. He was initiated on Antibiotics and supportive therapy. Work up revealed hypertriglyceridemia (at 385), elevated ferritin (32,100) and severe pancytopenia. Both initial and repeat blood cultures (5/5) persistently grew MRSA raising suspicion for endocarditis.

A soluble IL2 receptor assay was sent and in view of high suspicion for HLH (met 4/5 criteria) he was initiated on high dose steroids. Despite aggressive measures including initiation of steroids for HLH, patient’s condition deteriorated and family decided to withdraw care with comfort measures only. He subsequently expired within the day. Post-mortem, an elevated soluble IL2 receptor (sIL2-r) at 22268 U/ml supports a diagnosis of HLH.

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REFERENCES
therapy with IV amphotericin B liposome and flucytosine and was transferred to Tulane. Here, repeat antigen titer showed 1:160. Her hospital course was complicated by AKI, focal neurologic deficits, and persistently elevated LP opening pressures. As a result of her high fungal burden, persistent neurologic symptoms, and increased ICP, she required a longer length of induction therapy and VP shunt placement. Three days after VP shunt placement she began maintenance therapy with Fluconazole.

Discussion

The number of SOT recipients acquiring Cryptococcus is steadily increasing. As there is currently no prophylactic therapy, it is imperative we diagnose and begin treatment early. A more acute onset and a higher antigen level, as well as a presentation with less typical clinical manifestations has been noted in patients with T-cell suppression. Most patients are diagnosed within 17–28 months post SOT, however our patient presented 7 years after SOT. With internists normally being the first physicians to engage in a patient’s care, having an advanced organizer for diplopia (specifically CN6 palsy) can assist with correct diagnosis. With this case, we present an advanced organizer for diplopia (CN6 palsy) to assist with the differential diagnosis of CN6 palsy.

275 FREE AIR IN LIBERIA

1RM Walker*, 1M Morrison, 1,3 Jr Walker. 1Oklahoma Baptist University, Shawnee, OK; 2ELWA Hospital, Monrovia, Liberia; 3Texas Tech, Amarillo, TX

10.1136/jim-2020-SRM.275

Case report A 62 yo M x ray technician came to ER in Liberia, West Africa co 2 day ho severe abdominal pain with severe rebound tenderness and w no bowel sounds.

Upright CXR showed large free air. He was taken to surgery and a 2 cm perf of the ilium was found repaired.

He recovered well.

Abstract 275 Figure 1

276 RARE CAUSE OF PULMONARY EMPYEMA

U Wardan*. UF Health, Jacksonville, Fl.

10.1136/jim-2020-SRM.276

Case report 60 year old male with past medical history of diabetes mellitus and end stage renal disease presented with respiratory distress. His blood pressure was 130/70, heart rate was 119/min, respiratory rate was 30/min and temperature was 100.8E. Significant laboratory findings included WBC count 3,000 with 10% bands and procalcitonin of 194. Computed tomography of chest revealed left fibrothorax and pleural effusion. He was admitted to intensive care unit for sepsis and hypoxic respiratory failure requiring intubation. Blood cultures and endotracheal aspirate returned positive for non-typhi Salmonella. Cardiothoracic surgery was consulted and pleurectomy with thoracotomy decortication was performed. Tissue culture obtained intraoperatively was also positive for Salmonella. He was treated with Ciprofloxacin based on susceptibilities with subsequent improvement. He later reported few episodes of diarrhea before admission. However, stool culture was negative for salmonella likely as it was ordered after he had already been on antibiotics. Despite negative stool culture, our patient likely had Salmonella gastroenteritis, which

Abstract 275 Figure 2

As a senior radiology technician, he had taught the technician working in the ER that day!

Discussion Typhoid fever is a public health challenge which is concentrated in impoverished areas of the developing world which is due to unsafe drinking water.

Typhoid intestinal perforation (TIP) is the most serious complication observed in 0.8–39%.

TIP mortality rate fluctuates from 5 – 80% due to many factors including access to care.
led to bacteremia, seeding in his pleural space, with resultant empyema.

Salmonella is an anaerobic gram-negative bacilli which most commonly causes gastroenteritis. Other clinical manifestations include bacteremia, endocarditis, meningitis and very rarely, pulmonary empyema. Initial diagnostic workup for empyema includes stool cultures and blood cultures. Computed tomography scan of the chest with intravenous contrast should be ordered to evaluate for effusions and loculations. Diagnostic thoracentesis sample should be sent for LDH, glucose and protein. Sample should also be tested for aerobic, anaerobic, fungal and acid-fast bacilli cultures. Enteric Salmonella infection is generally susceptible to fluoroquinolones, trimethoprim-sulfamethoxazole, macrolides, and third-generation cephalosporins. In addition to antibiotics, treatment for empyema includes drainage by catheter thoracostomy or video assisted thoracoscopic surgery.

277 LYM DISEASE PRESENTING AS ATRIOVENTRICULAR BLOCK
U Wardan*, H Patel. UF Health, Jacksonville, FL
10.1136/jim-2020-SRM.277

Case report A 21 year old male without any past medical history presented with chest pain. He reported substernal and non-radiating pain without any relationship to rest or exertion. He also complained of generalized myalgia and arthralgias. Electrocardiogram showed a first-degree heart block with a prolonged PR interval of 300 ms and an incomplete right bundle branch block. Cardiac enzymes were negative. Physical exam was notable for left facial droop. On further questioning patient reported that he had a rash on his right thigh with a noted ‘target’ appearance about 2 months ago which resolved on its own. He is an active member of the Navy and had recently visited Pittsburgh and Pennsylvania. Lab workup was significant for positive Lyme IgG antibodies. Magnetic resonance imaging of the brain was unremarkable. Transthoracic echocardiogram showed mildly reduced systolic function with an ejection fraction of 45%. Cardiac MRI with stress was negative for ischemia, myocarditis, or fibrosis. He was diagnosed with disseminated Lyme disease, with cardiac and neurologic involvement. He was started on ceftriaxone with subsequent improvement of first-degree heart block as well as his left sided Bell’s palsy.

Lyme disease is caused by Borrelia which is a type of spirochete. It is most prevalent in the northeast region and is transmitted by Ixodes Ricinus ticks. Following exposure, patients first develop erythema migrans which is most commonly described as a bull’s eye rash. This may be accompanied with symptoms of fatigue and malaise. This can further progress to early disseminated disease which includes atrioventricular block, myopericarditis, facial palsy and lymphocytic meningitis. Late disseminated disease presents as monoarticular or oligoarticular arthritis. Diagnostic workup includes enzyme linked immunosorbent assay followed by western blot. Current guidelines recommend testing patients who have traveled to endemic areas, have been exposed to ticks and have findings concerning for disseminated disease. Localized disease can be treated with Doxycycline, Amoxicillin or Cefuroxime for 2 weeks. Early disseminated disease is treated with IV Rocephin, Cefotaxime or Penicillin. Patients will heart block should also be admitted for telemetry monitoring and pacemaker evaluation. Lyme associated arthritis is treated with oral Doxycycline or Amoxicillin.

Medical education/medical ethics/advocacy
Joint plenary poster session and reception
4:30 PM
Thursday, February 13, 2020

278 BREAST IS B.E.S.T. BREASTFEEDING IMPROVEMENT THROUGH RESIDENT EDUCATION AND SUSTAINABILITY TEACHING
L. Key*, JH Purvis, S Taylor, AJ Talati. University of Tennessee Health Science Center, Memphis, TN
10.1136/jim-2020-SRM.278

Purpose of study We sought to improve our rates of exclusive breastfeeding by surveying women delivering in our hospital to determine their impressions regarding breastfeeding and to use this to develop a specialized and targeted curriculum to teach pediatric residents in direct contact with post-partum mothers.

Methods used Women admitted to the postpartum unit of our hospital were surveyed regarding the barriers they encounter when considering breastfeeding. After analyzing 500 surveys, we developed a targeted curriculum for residents rotating through the well baby nursery, that they in turn teach to post-partum women.

Abstract 278 Table 1 Resident opinions pre and post rotation

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<td>Comfort (1–5)</td>
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<td>Ability to help with a feeding (1–5)</td>
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Abstract 278 Figure 1 Rates of any and exclusive breastfeeding over time

Abstracts

Abstracts

**EVALUATION OF PROCEDURAL SEDATION CURRICULUM IN PEDIATRIC EMERGENCY MEDICINE FELLOWSHIPS**

MJ Sims*, B Jackson, O Titus, L Robinson. MUSC, Charleston, SC

10.1136/jim-2020-SRM.279

**Purpose of study** Pediatric procedural sedation has been performed with increasing frequency by pediatric emergency physicians over recent years. ACGME Pediatric Emergency Medicine fellowship core competency requirements do not specify the manner in which fellows should become proficient in pediatric procedural sedation. We surveyed the variety of training experience provided during fellowship and whether those surveyed felt their training was sufficient.

**Methods used** A 35-question survey offered to pediatric emergency fellows and recent (within 10 years) graduates collected data on pediatric procedural sedation training during fellowship. A follow-up questionnaire was sent to fellowship directors at programs where fellow or graduate respondents stated that a sedation curriculum existed asking details of their program.

**Summary of results** There were 95 respondents to the survey, 62% of which had completed PEM fellowship training. Of respondents, 43% reported having a formal sedation curriculum during fellowship. 54% of all respondents reported feeling comfortable in performing pediatric procedural sedation after formal training. 66.6% of responding programs include evidenced-based medicine literature review and 6/9 (66.6%) include simulation. Ketamine was the most frequently used agent for sedation (87%). Propofol use, both as a primary agent and adjunct, was limited (84% reported using the drug in less than 10% of sedations) and only 56% of respondents reported that they expect to feel or did feel proficient in propofol use upon completion of fellowship.

**Conclusions** Pediatric emergency medicine fellowship requirements lack a clearly defined pathway for training in procedural sedation. Data collected from both current and former fellows depicts inconsistency in training experience and suboptimal comfort level in performing these procedures. We suggest that fellows receive a more comprehensive and varied experience with multiple teaching modalities in order to improve proficiency with this critical and complex aspect of emergency pediatric care.
A MISSED CASE OF OSTEOMYELITIS

M. Chavez*, F Abu-Farsakh, L Al, R Pattabhi, TM Reske, EA Aguilar. LSU Health Sciences Center in New Orleans, New Orleans, LA

10.1136/jim-2020-SRM.282

Case report Non-hematogenous osteomyelitis occurs as a result of bone infection from adjacent soft tissue such as diabetic wounds or decubitus ulcers. Stage IV pressure ulcers can lead to osteomyelitis especially in the elderly costing millions of dollars to our healthcare system. Many times, these ulcers are preventable if they are detected in the early stages.

Case description 92-year-old Caucasian male nursing home resident has a history Parkinson disease, Alzheimer’s dementia was evaluated for right 3rd digit worsening redness for 2 weeks. Patient had a 2-month history of recent right-hand contracture. 3rd digit examination revealed a stage IV ulcer once adjacent 2nd finger was lifted. 3rd digit showed a 1 × 1 cm bone exposure on the 3rd digit where the recent contracture had been reported and also had erythema, discharge and tenderness to palpation. Patient’s vital signs were stable. After discussion with family, decision was made to send to wound care for father debridement and ID consult. The patient’s labs showed a normal WBC and elevated ESR at 70 and CRP at 58. The rest of the labs were unremarkable. X Ray showed acute osteomyelitis. No biopsy was obtained per ID recommendation. Patient’s hand was placed in a splint so that fingers would not rub on each other to cause blisters. Patient was treated with Bactrim DS twice a day for two weeks. His ESR/CRP levels showed improvement as well. Wound healed in 4–5 weeks.

Discussion Non-hematogenous osteomyelitis can be preventable with frequent assessment of patient’s conditions, in our case a recent right-hand contracture. Non-hematogenous osteomyelitis costs our healthcare millions of dollars each year, puts patients at high risk for re-admission, and increases morbidity/mortality. With good education to all nursing home staff members on dealing with new contracatures, we can possibly decrease the incidence of non-hematogenous osteomyelitis.

283 ENZYME REPLACEMENT THERAPY IN HUNTER SYNDROME DOES NOT PREVENT ISCHEMIC STROKE

J Cummock*, P Maertens. University of South Alabama, Mobile, AL

10.1136/jim-2020-SRM.283

Case report Enzyme replacement therapy (ERT) in Hunter syndrome (HS) has limited effect on neurologic, skeletal and cardiovascular lesions. Acute ischemic stroke is rarely reported in HS; it is difficult to recognize due to progressive mental regression and epilepsy. We report an 11 YO male with HS diagnosed at age of 4 years of age and treated weekly with ERT idursulfase (Elaprase) presented while awake with acute right hemianopia and right sided flaccid palsy. Brain MRI not only showed restricted diffusion in the cortex of the insular ribbon and left cerebral hemisphere as well as centrum semiovale in the left frontal periventricular white matter consistent with recent infarction. In addition, there was diffuse atrophy. MRA diagnosed of left M2 occlusion was too late for IV tPA or intra-arterial treatment. Septicemia due to port infection was thought to be a contributing factor. Extensive etiologic work-up was otherwise negative as demonstrated. Echocardiogram showed aortic root dilatation and moderate aortic valve insufficiency. Our case suggests the importance of glycosaminoglycans in the activation of toll-like receptor 4 pathway as a cause of stroke in HS.
CEFEPIME-INDUCED GENERALIZED TRIPHASIC WAVES: PATHOPHYSIOLOGICAL IMPLICATIONS

V Losada*, JCB Baby, MM Nguyen, EC Mader. LSUHSC, New Orleans, LA

10.1136/jim-2020-SRM.284

Case report Generalized triphasic waves (GTWs)—now known as generalized periodic discharges with a triphasic morphology—were historically viewed as a distinctive electroencephalographic (EEG) feature of hepatic encephalopathy. It is now clear that GTWs may occur in the EEG of patients with toxic, metabolic, post-anoxic, or epileptic encephalopathy. GTWs have also been detected during isolated seizures and during nonconvulsive status epilepticus (NCSE). Although certain characteristics of GTWs (e.g. blunted waves, low discharge rate, symmetry, reactivity) make NCSE less likely, no features alone or in combination can reliably distinguish between GTWs due to simple diffuse encephalopathy and GTWs due to NCSE.

Case report A 78-year-old right-handed woman presented with a large right hemisphere infarct. Her hospital course was complicated by hemorrhagic conversion of the infarct and by aspiration pneumonia requiring intubation. Vancomycin and cefepime were started, the latter at a dose of 2 mg q12h. Ten hours after the first cefepime dose, she had a convulsion followed by isolated myoclonic jerks. EEG showed GTWs with anterior preponderance. Levetiracetam and valproate were administered. The lack of electroclinical improvement after 2 days prompted the addition of propofol. The GTWs started to break up at a propofol rate of 10 mcg/kg/min and GTWs were fully suppressed at 20 mcg/kg/min. A rate of 60 mcg/kg/min was required to maintain burst suppression at 12 bursts/min. When propofol was put on hold, the EEG reverted back to baseline showing the same GTWs. Cefepime was discontinued after 3 days and propofol was weaned off after 36 hours with no recurrence of GTWs. With resolution of encephalopathy, the patient was extubated and transferred to the floor.

Conclusion Toxic encephalopathy and seizures, with or without GTWs, are well-known complications of cefepime therapy. Because cefepime is a direct antagonist of GABAergic neurotransmission, it is reasonable to hypothesize that epileptic mechanisms are responsible for generating and perpetuating cefepime-induced GTWs. In our patient, GTWs were easily suppressed by propofol and reemerged when propofol was put on hold. This finding supports the notion of GTWs as epileptiform discharges that represent ongoing NCSE.

ISCHEMIC STROKE FOLLOWING PLASMA DONATION: A CASE REPORT

H Mallah*, J Makram, D Vangipuram, K Creed, J Abdelmalek, E Islam. Texas Tech University Health Sciences Center, Lubbock, TX

10.1136/jim-2020-SRM.285

Case report Plasmapheresis is a procedure that involves the separation of all cellular elements of blood. It is considered relatively safe and used frequently for donation and therapeutic purposes.

We report a rare case of a patient who developed a fatal ischemic stroke after plasma donation.

Case report A 53-year-old male, known to have well-controlled hypertension, and light tobacco smoking, was transferred from the plasma donation center due to seizure, immediately after plasma donation. CT head without and CTA head neck were negative. His labs showed Hemoglobin 19.5 g/dl, and serum creatinine 1.7 mg/dl, with baseline hemoglobin 15 g/dl, and serum creatinine 1.1 mg/dl, last done four months prior. He was intubated due to unresponsiveness and respiratory failure. Head MRI showed an extensive area of restricted diffusion involving cerebellar hemispheres, vermis and right occipital lobe, compatible with ischemic stroke in the distribution of the posterior cerebral arteries. Head CT scan 18 hours following the event showed extensive infarction in the cerebellar hemispheres, vermis, pons, midbrain, and right occipital lobe, with posterior fossa edema, obstructive ventriculomegaly, and inferior tonsillar herniation. His clinical evaluation was consistent with brain death.

Discussion Even though Apheresis is a very safe procedure, fatal complications have been reported. They are extremely rare and can occur as a result of cardiac arrhythmia, adult respiratory distress syndrome, venous thrombosis, and hemorrhagic events. However, few cases of stroke were reported. These patients were found to have thrombophilia. Unfortunately, no thrombophilia workup was done on our patient due to his rapid demise.

His labs with relative polycythemia and acute kidney injury reflect volume depletion, likely due to the plasma donation, which is thought to have contributed to the stroke, as elevated levels of hematocrit is independent risk factor for stroke.

The timing strongly suggests that the procedure may have disturbed the homeostatic balance in favor of arterial thrombosis.

This case suggests that there may be an increased tendency to arterial thrombosis in donors following apheresis. Therefore, the effects of apheresis on the coagulation system should be studied thoroughly.

A CURIOUS CASE OF INTERNUCLEAR OPHTHALMOPLEGIA THAT NEITHER INFARCTION NOR DEMYELINATION CAN EXPLAIN

M Nguyen*, V Losada, EC Mader. LSUHSC-NO Department of Neurology, New Orleans, LA

10.1136/jim-2020-SRM.286

Case report Disruption of the medial longitudinal fasciculus (MLF) in the dorsal paramedian pons or midbrain will manifest as internuclear ophthalmoplegia (INO). The two most common causes of INO are brainstem stroke (BS) and multiple sclerosis (MS). Other diseases can also cause INO but these are rare. Thus, the most common mechanisms of MLF injury are infarction and demyelination. We present a case of INO in which neither infarction nor demyelination is sufficient to explain the patient’s clinical course and magnetic resonance imaging (MRI) findings.

Case report A 42-year-old woman with well-controlled mild hypertension experienced a 20-minute episode of blurred vision in the left eye, horizontal gaze diplopia, dizziness, and mild gait imbalance. The symptoms resolved completely but reoccurred 8 hours later. She was diagnosed with left INO due to BS in the emergency room. CT head was normal. The next day, she was transferred to another hospital. MRI brain showed DWI hyperintensity in the left paramedian midbrain at the exact location of the left MLF. The lesion was not seen on ADC map, T2-weighted, FLAIR, and contrast-
enhanced images. MRA brain and neck did not show arterial stenosis or occlusion. Repeat MRI brain 3 days later showed the same DWI hyperintensity with corresponding hyperintensity on T2 FLAIR images. Three days after onset of symptoms INO was barely detectable but the patient continued to experience diplopia with oblique gaze. Inpatient work-up was significant for anti-SSB/La autoantibodies. She received 3 doses of methylprednisolone 1g q24h intravenously. After the first dose, she was totally asymptomatic and neurologic exam was normal. She was discharged after 5 days on aspirin with plans to complete the work-up in the outpatient clinic.

**Conclusion** BS can explain the initial 30-minute episode but not the 4-day time course of normalization and the absence of restricted diffusion on MRI. MS can explain the MRI findings but not the initial brief episode and the rapid time course of normalization. As an isolated immunologic finding, anti-SSB/La positivity is of uncertain clinical significance. A possible mechanism of MLF dysfunction in our patient is reversible intramyelitic edema in response to transient ischemia, neuroinflammation, or both.

### 287 BACK TO BASICS: HISTORY AND PHYSICAL EXAMINATION IN THE DIAGNOSIS OF A PSYCHIATRIC EMERGENCY

**JG Rodriguez Velez**. San Juan City Hospital, San Juan, PR

10.1136/jim-2020-SRM.287

**Case report** Neuroleptic malignant syndrome (NMS) is a rare potentially life-threatening iatrogenic reaction to antipsychotic drugs characterized by hyperthermia, altered mental status, autonomic dysfunction, and Parkinsonian-like muscle rigidity, and tremors. It has been associated with virtually all neuroleptics. Despite being a well describe condition, it can be easily overlooked. However, NMS should remain a critical consideration in the differential diagnosis of patients with fever and altered mental status because it carries a mortality as high as 10% if not promptly recognized and managed.

29-year-old male with past medical history of hepatitis C and schizophrenia brought to the urgency clinic from a psychiatric hospital due to hypotaxis. Transfer documentation explain patient had presented frequent episodes of aggressiveness in prior days for which multiple psychotropic drugs were given. Physical findings were remarkable for fever, tachycardia, upper extremities resting tremor and rigidity, as well as altered mental status. Laboratory workup was significant for elevated Hgb/Hct 7.6/24.0, MCV 91, ferritin 435.1 (range 7.1–140 ng/mL), and a negative lumbar spine x-ray. She was sent home after reported improvement following Ibuprofen and IV fluids. She returned to ED with persistent difficulty ambulating and worsening bilateral leg weakness. She had a normal MRI of her brain and spinal cord and normal CSF studies. Upon admission for further work-up, it was noted that the patient had decreased proopiopeptin and ataxia. Notable labs were Hgb/Hct 7.5/22.8, MCV 95, Vitamin B12 <146 (213–816 pg/mL), methylmalonic acid 129 (<0.40 nmol/mL), and homocysteine level 147.2 (3.4–20.4 umol/L). Her exam and labs were consistent with vitamin B12 deficiency and she started daily IM injections of 500 mcg of cyanocobalamin. Her macrocytic anemia and neurologic exam began to improve after the initiation of therapy.

Vitamin B12 deficiency may happen at any time in life for patients who have undergone gastrointestinal resections during infancy or childhood. Laboratory work up including methylmalonic acid and homocysteine are adjuvant diagnostics to confirm suspected cobalamin deficiency. Pediatricians should consider Vitamin B12 deficiency, with or without macrocytic anemia, for any patient at risk of malabsorption in order to prompt diagnosis and avoid symptomatic anemia, thrombosis and severe neurologic sequelae.
understood. However, it is usually considered benign and self-limited. This case report presents two pediatric patients with Rett syndrome that were eventually diagnosed with gratification syndrome, which has never been reported. This is significant because GD may be an early sign of Rett syndrome.

The first patient presented at 35 months with paroxysmal stereotypic crossing of the right leg over the left with leg straightening and curling of the toes. During episodes, there was a vacant facial expression but eye movements were intact. Over the following 8 months, episodes increased in frequency and length and became more complex, frequently associated with breath-holding, body shivering and hand stereotypes. Concomitantly there was gradual loss of ambulation. The second patient presented at 12 months with paroxysmal, stereotypic straightening of both legs with toes curling down and frequent crossing of one leg over the other. There was occasional elevation of the legs. Change in facial expression and stereotypic hand twirling frequently accompanied these episodes. In both patients, MECP2 sequencing revealed a pathogenic mutation diagnostic of Rett syndrome. EEG showed no epileptiform activity during GD phenomena. We conclude that GD may be an early sign of Rett syndrome and can be associated with other lower extremities stereotypes.

Case report Primary lateral sclerosis (PLS) is characterized by slowly progressive upper motor neuron (UMN) degeneration in the absence of lower motor neuron (LMN) involvement. PLS is suspected based on history, UMN signs on exam, and evidence of intact LMN function on electromyography (EMG). Other causes of UMN dysfunction must be excluded before diagnosing PLS. Although PLS is difficult to diagnose, magnetic resonance imaging (MRI) may provide additional evidence in favor of PLS.

Case report A 65-year-old woman with a 1.5-year-history of slowly progressive leg stiffness, gait instability, and frequent falls was referred to our clinic. Her left leg became stiff first followed by her left leg 6 months later. Past medical evaluations, including brain and spine MRI and EMG were unrevealing. Examination of the right lower extremity revealed moderate spasticity with mild weakness of knee and plantar flexors, central foot drop, and Babinski sign. There was some spasticity in the left lower extremity but weakness was not detected. Upper extremity, cranial nerve, and bulbar functions were normal. Sensory loss and cerebellar signs were absent. Our workup, including EMG, CSF studies, autoimmune panel, tests to rule out stiff person syndrome and familial spastic paraparesis, and spine MRI, were also unrevealing. Her past brain MRI and the one we requested (~1.5 years after disease onset) were reported as normal. However, when we carefully reviewed the images, we noted focal areas of hyperintensity in the cerebral peduncles on T2-weighted and FLAIR images.

Conclusion MRI can show focal signal abnormalities in the corticospinal tract during the early stage of PLS. The signal change can be subtle and easily overlooked. We carefully inspected our patient’s MRI and found T2 hyperintensities in the left and right cerebral peduncles. The location (corticospinal tract projection to the legs) and asymmetry (left>right) of the MRI lesions perfectly matched our exam findings of asymmetric UMN signs (right>left) in the patient’s lower extremities.

290 PRIMARY LATERAL SCLEROSIS: ENHANCING DIAGNOSTIC CONFIDENCE BY CAREFULLY INSPECTING MAGNETIC RESONANCE IMAGES

1MV Soliman*, 1EC Mader, 2JP Fernandez, 1LA Branch, 8El Abassi. 1LSUHSC-NO, New Orleans, LA; 2Hattiesburg Clinic, Hattiesburg, MS

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291 GENETIC IMPLICATIONS OF FAMILIAL CHIARI MALFORMATION: A CASE REPORT

S Swinney*, O Garcia, J Lee, T Dang, M Amodeo, BC Baronia. Texas Tech University Health Science Center, Lubbock, TX

Purpose of this study Highlight the prevalence of a large occurrence of familial Chiari I Malformation in a single family, suggesting a genetic predisposition to disease formation.

Methods used This case report involves an analysis of various family members’ clinical presentation and MRI findings that led to a diagnosis of Chiari I Malformation (CM-I). Additionally, a literature review provides more information on CM-I pathogenesis, symptoms, and diagnosis.

Summary of results Within one family, both parents and 3 out of their 4 biologic children were diagnosed with CM-I. The mother was a 43-year-old female with history of migraines, hypertension, nausea, bilateral shoulder pain, and numbness and tingling of both upper extremities. Her MRI showed 6 mm cerebellar tonsil extension below the foramen magnum, and she was subsequently diagnosed with CM-I secondary to pseudotumor cerebri. The father was a 42-year-old with history of increasing neck and shoulder pain; his MRI showed a cerebellar descent of 4 mm. Three of their four sons were symptomatic and met CM-I criteria. The second eldest child was a 22-year-old male who had a history of intermittent neck pain, headaches, and paresthesia of upper and lower extremities since middle school; MRI showed a 10 mm descent of the cerebellar tonsils. The third eldest child was a 21-year-old male with hypertension and presented with occipital headaches as well as chronic neck and shoulder pain; MRI showed cerebellar tonsils 6 mm below the foramen magnum. The youngest son was a 16-year-old who was incidentally found to have cerebellar tonsil herniation 12 mm below the foramen magnum on MRI. All four children were born without any congenital disorders and were healthy prior to CM-I diagnosis.

Conclusions While CM-I is considered to be a sporadic condition, there are two genetic theories that postulate that CM-I arises from defects in hindbrain segmentation or from collision between the caudally-directed cranial growth and rostrally-directed cervical growth. A case with such large clustering of CM-I within one family has not been previously reported. It raises concern of a mutation induced by an exogenous teratogen that warrants further investigation.
Case report In adults younger than 45 years old, incidence of ischemic stroke (IS) ranges from 3.4 to 11.3/100,000 per year. Recent data reports that while overall stroke incidence is declining, there is an increased incidence in the young. Stroke in young adults has major social and economic impact as it impairs the ability to work during the peak of their productive years.

A 24-year-old male with history of benzodiazepine, opioid, tobacco, and alcohol abuse was brought to the emergency department (ED) after being found unresponsive at home. Previous to event, patient consumed oxycodone, alprazolam and alcohol at a party. Opioid reversal agents were administered by EMS without response. In the ED, he had rapidly declining oxygen saturation and Glasgow Coma Scale of 7/15 for which he was endotracheally intubated and admitted to Intensive Care Unit. Initial head computed tomography (CT) was grossly normal. After 48 hours patient was extubated, but right sided hemiplegia and aphasia were noted. Repeated imaging showed worrisome findings of acute malignant infarction involving the anterior and middle cerebral territories of the left cerebral hemisphere and similar infarction areas contralaterally. He was successfully managed with osmotic therapy and emergent decompressive craniectomy. Transesophageal echocardiogram remarkable for patent foramen ovale. Initial hypercoagulability testing was positive for lupus anticoagulant. Patient made a good intrahospitalary recovery progress and was discharged to a skilled nursing facility to continue physical rehabilitation.

IS are classified as malignant when there is presence of space occupying cerebral edema that is severe enough to produce brain tissue shifts and herniation leading to rapid neurological deterioration. Less than 3% of the middle cerebral artery IS are classified as malignant, with up to 80% mortality rate in conservatively treated patients. Reported cases about simultaneous bilateral cerebral hemisphere ischemic events are very limited and cases with malignant features are even rarer. Awareness is warranted as we must expand research efforts to aid faster diagnosis, and treatment we report a case of vertebral artery dissection as a rare complication of cocaine use to prevent preventability of this condition.

Case report Caffeine use is well known for its detrimental effects on the neurovascular system. To increase awareness, aid faster diagnosis, and treatment we report a case of vertebral artery dissection in a young, 39-year-old female with a history of cocaine use, which is a rare and preventable presentation of cocaine abuse.

Case description A 39-year-old female with a history of migraine, presented with two-week duration of progressively worsening headache, noted after using cocaine and cannabinoids. She had only minimal improvement with analgesics. Five hours after admission she developed left-sided hemiparesis and dysarthria, after snorting cocaine. On initial evaluation, blood pressure was 127/73 mmHg, other vitals were normal. The neurological exam revealed mild left side weakness, strength (4 out of 5) while cranial nerves, sensation, and coordination were intact.

Despite unremarkable CT and MR Angiogram revealed the absence of intraluminal contrast within the right and left proximal mid V4 segments of the vertebral artery, consistent with acute or chronic occlusions/dissections with opacification of prominent right posterior communicating artery, retrograde opacification of the basilar artery and upper vertebral arteries with no significant stenosis involving the anterior circulation. She improved significantly with intravenous heparin and was discharged to home on warfarin with a target INR of 2–3. The exact mechanism by which cocaine causes dissection may be related to the stimulation of apoptosis in cerebrovascular smooth muscle cells, greatly reducing vessel wall integrity. Our patient’s initial insult may have happened two weeks before this admission, but despite enough collaterals, as she continued to use cocaine, her disease progressed and led to complete dissection of the vertebral arteries.

Long term management aims at identifying and correcting risk factors by rehab and counseling programs. Currently, there is no strong evidence to suggest an added benefit of anticoagulation compared to antiplatelet therapy for secondary prevention. Physicians should be aware of intracranial arterial dissection as a rare complication of cocaine use to prevent morbidity and mortality. Persistent headache disproportionate to the physical findings is an important clue.

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Children with metabolic acidosis can present with an array of clinical signs and symptoms. It's important to distinguish between high and normal anion gap acidosis. High-anion-gap metabolic acidosis often occurs in cases of ketoacidosis, toxic ingestion and renal failure. In their absence, further workup is required to exclude unlikely causes.

Case report 6-year-old female presented to the emergency room with a 2-day history of episodic non-bilious non-bloody vomiting. On initial presentation, she was neurologically intact, GCS 15, HR 132 and BP 124/78; >95%. Her episodes failed to resolve after oral and intravenous (IV) ondansetron which prompted further evaluation and admission. Laboratory was significant for a bicarbonate level of 14.2 mmol/l, anion gap
of 23. A urinalysis demonstrated increased ketones 159 mg/dl. Toxicology panel including salicylates level, alcohol level and drug screening were negative. A review of possible ingestions were discussed. An electrocardiogram demonstrated sinus tachycardia. Abdominal x-ray was noncontributory. She received IV ondansetron and promethazine which failed to resolve her emesis. A nasogastric tube was placed. On hospital day 2 her emesis and acidosis resolved after aggressive fluid replacement and cause was attributed to viral gastritis.

Conclusion Metabolic derangements can be a common finding in pediatric patients. It’s important to incorporate history and physical exam along with interpretation of lab values to help identify the cause. Keep in mind that not all ‘common causes’ present in a similar manner.

A CASE OF GIANOTTI CROSTI SYNDROME ASSOCIATED WITH ENTEROVIRUS

OA Akhiwu*, A Dixon, H Adib, R Steele. Tulane University School of Medicine, New Orleans, LA

Case report Gianotti Crosti Syndrome (GCS), also known as papular acrodermatitis, is a syndrome involving an acute-onset rash following a viral infection. Historically, it was linked to Hepatitis B hence, defined by three cardinal manifestations: maculopapular rash, lymphadenopathy, and acute hepatitis. In the United States, GCS is no longer defined by these, as EBV is now the most common cause. Other viruses that are linked to the syndrome include CMV, enterovirus, coxsackie, adenovirus, and parvovirus, amongst others. The rash is a 1–10 mm symmetric, erythematous papules on the extensor surfaces of limbs, buttocks, and cheeks lasting 2–4 weeks. Management is supportive. This case study highlights an association of the syndrome with enterovirus.

Our case involves an 18-month-old, African American boy who presented with a worsening, non-pruritic, erythematous rash on both arms, thighs, and cheeks that had been present for 5 days after he was given Amoxicillin for Acute Otitis Media (AOM). When the rash erupted, Amoxicillin was discontinued due to concern for medication side effects. On presentation, he also had a fever, cough, and rhinitis. On physical exam, the patient’s left tympanic membrane was bulging, consistent with AOM. He was found to be positive for enterovirus and negative for CMV, EBV, and influenza with negative blood cultures. He was given IV fluids, antipyretics and restarted on amoxicillin for his AOM.

Identification of the cause of this rash was important as management varied by etiology. In this case, the patient’s AOM was sub-optimally treated due to concern for cutaneous drug eruption. The immediate identification of GCS could have prevented this. Also, if the patient was mistakenly diagnosed with Kawasaki disease, he may have received unnecessary IVIG. GCS is likely underdiagnosed due to the shift in the most common viral etiologies. GCS is a clinical diagnosis that only requires recognition of the characteristic rash.
VITAMIN B6 DEFICIENCY ANEMIA IN A PEDIATRIC PATIENT ON HEMODIALYSIS

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Case report Vitamin B6 is a water soluble vitamin that functions as a coenzyme of erythroid specific 5-aminolevulinate synthase (ALAS2) which is involved in the synthesis of heme. Vitamin B6 deficiency can occur in patients with chronic renal insufficiency and end-stage renal disease, particularly those who require dialysis. Here we report a pediatric patient who developed an erythropoietin stimulating agent (ESA) resistant anemia that significantly improved following vitamin B6 supplementation.

A 16-year-old African American male with end stage renal disease secondary to obstructive uropathy, on chronic hemodialysis, experienced a decrease in his hemoglobin over a 3-month period from 11 to 6.5 g/dL, despite therapy with maximum dose of intravenous darbepoetin alfa (ESA) [0.9 mcg/kg/week]. His transferrin saturation was 41%, ferritin level 706 [80–388] ng/mL, mean corpuscular volume 87 [78–98] fl. His corrected reticulocytes count was 2.3% [0.2–1.8%]. Patient’s direct antiglobulin testing and stool for occult blood were negative. Additional laboratory findings were: Vitamin B12 635 [193–986] pg/ml; folate 8.4 [3.1–17.5] ng/mL; copper 1413 [665–1480] mcg/l; zinc 77 [60–120] mcg/dl and Ceruloplasmin 31.4 [15–30] mg/dl. PTH was elevated at 258 [9–69] pg/ml. Vitamin B6 level was low at 1.2 [5.3–1480] mcg/dl. His transferrin saturation was 41%, ferritin level 706 [80–388] ng/mL, mean corpuscular volume 87 [78–98] fl. His corrected reticulocytes count was 2.3% [0.2–1.8%]. Patient’s direct antiglobulin testing and stool for occult blood were negative. Additional laboratory findings were: Vitamin B12 635 [193–986] pg/ml; folate 8.4 [3.1–17.5] ng/mL; copper 1413 [665–1480] mcg/l; zinc 77 [60–120] mcg/dl and Ceruloplasmin 31.4 [15–30] mg/dl. PTH was elevated at 258 [9–69] pg/ml. Vitamin B6 level was low at 1.2 [5.3–46.7] ug/L. Bone marrow biopsy was normocellular (65%) with erythroid hyperplasia and rare dyserythropoiesis. Prussian blue staining showed increased iron storage. Supplemental Vitamin B6 (100 mg daily) was initiated and his labs improved to hemoglobin was 11.6 g/dL with transferrin saturation of 18%.

Vitamin B6 clearance is increased with standard hemodialysis and a further 50% increase in vitamin clearance is noted in patients with chronic renal insufficiency and ESA therapy. The patient’s direct antiglobulin testing and stool for occult blood were negative. Additional laboratory findings were: Vitamin B12 635 [193–986] pg/ml; folate 8.4 [3.1–17.5] ng/mL; copper 1413 [665–1480] mcg/l; zinc 77 [60–120] mcg/dl and Ceruloplasmin 31.4 [15–30] mg/dl. PTH was elevated at 258 [9–69] pg/ml. Vitamin B6 level was low at 1.2 [5.3–46.7] ug/L. Bone marrow biopsy was normocellular (65%) with erythroid hyperplasia and rare dyserythropoiesis. Prussian blue staining showed increased iron storage. Supplemental Vitamin B6 (100 mg daily) was initiated and his labs improved to hemoglobin was 11.6 g/dL with transferrin saturation of 18%.

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NOT JUST YOUR GRANDPARENT’S ILLNESS: A CASE OF HERPES ZOSTER IN AN IMMUNOCOMPETENT PEDIATRIC PATIENT

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Case report Introduction: Herpes zoster (HZ) is a well-known viral infection to commonly affect the elderly; however, it can also happen in the pediatric population, accounting for only 1% of all zoster cases - most of which have a history of Varicella infection. It presents as a vesicular rash in a unilateral dermatalional distribution and is caused by reactivation of the Varicella zoster (VZ) infection that remains dormant after the Varicella infection or vaccine. When HZ presents in a pediatric patient, the clinician should consider an underlying immunodeficiency or malignancy as it more commonly occurs in an immunocompromised state. However, there have been reported cases of HZ occurring in the immunocompetent child.

Case presentation An otherwise healthy 9-year-old Hispanic female with no past medical history presented to our ED with an acute onset of painless left-sided vesicular facial rash and oral lesions 3 days prior to admission associated with fevers and decreased oral intake. The patient’s mother and patient denied history of Varicella, and immunizations were up-to-date. On exam, the patient’s lesions followed a clear dermatomal distribution of V2 and V3 along the left side of her face and the oropharynx. There was no sign of bacterial superinfection or optical involvement. Given concern for possible Herpes simplex virus (HSV) versus VZ infection, she was started on acyclovir. She was evaluated by a dermatologist who agreed with the differential. Polymerase chain reaction (PCR) of patient’s vesicles confirmed VZ infection. She was discharged on a 7-day course of oral acyclovir.

Conclusion Children developing HZ without a history of Varicella can be explained by a mild episode of chickenpox going unnoticed by the parent, acquiring a primary Varicella infection in utero or in infancy, or reactivation of the live attenuated virus administered in the varicella vaccine. In general, the course of the disease is milder in children with complete resolution in approximately 2–3 weeks, often without symptoms of acute sharp pain which is the hallmark of HZ in adults. Although HZ is a rare disease in childhood, it should be considered in the differential diagnosis of vesicular eruptions, even in children without an underlying immunodeficiency or malignancy.

A CURIOUS CRANIAL COLLECTION IN A CHILD

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Case report Common causes of scalp swelling in neonates often presents as cephalohematomas, caput succedaneum or subgaleal hematomas due to birth trauma. In young infants, however, scalp swelling in the absence of a defined traumatic event is not as common. We present a case of a healthy 10-week-old infant who presented to the pediatric emergency department (PED) for a spontaneous, rapidly expanding scalp swelling with no known history of acute trauma.

The patient was a term female born via urgent cesarean section (C-section) secondary to prolonged rupture of mem- brane and maternal exhaustion. The C-section was compli- cated by deep engagement in the vagina requiring hand ‘push technique’ from the vaginal canal and a ‘T’ hysterotomy incision. No instrumentation or scalp electrodes were used. She was intubated for poor respiratory effort and had an exam...
notable for moderate cranial molding with caput succedaneum. After a brief stay in the neonatal intensive care unit she was discharged. There was no scalp swelling at the time of discharge.

She presented to the PED due to the sudden emergence of a fluid filled collection underneath the scalp that initially appeared at 8 weeks of age and had rapidly expanded over the previous week. The collection was soft, mobile, positionally dependent, easily trans-illuminated, and ‘ripped’ with gentle palpation. Neurologic exam was appropriate and without deficits. Computed tomography showed a 9-centimeter fluid collection at the convexity of the scalp with radiodensity consistent with cerebral spinal fluid (CSF). The fluid collection crossed midline and multiple sutures without signs of fracture, intracranial communication or congenital anomalies. Imaging and physical exam were consistent with a sub-aponeurotic fluid collection (SFC) composed of CSF.

SFC’s are a rare and poorly understood phenomenon that occurs at around 2 months of age. Though postulated to occur secondary to birth trauma associated with vacuum assisted delivery, microfractures in the skull, scalp electrodes, or CSF leak, the condition is benign. Clinicians should be aware of this condition so as to avoid unnecessary procedures and testing.

**Abstracts**

300 HYPERTROPHIC CARDIOMYOPATHY: ROLE OF GENE-DOSE EFFECT ON DISEASE SEVERITY

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**Case report**

Hypertrophic cardiomyopathy (HCM) is a genetically heterogeneous disorder characterized by unexplained enlargement of the myocardial wall in the absence of other cause. Familial hypertrophic cardiomyopathy tends to occur in the interventricular septum. Several genes have been associated with HCM, but MYH7 and MYBPC3 are responsible for most cases.1,7

We report a 19-year-old female with multiple congenital cardiac malformations including pulmonary valve stenosis, atrial septal aneurysm and defect, and membranous VSD. Later in life she had moderate ventricular septal hypertrophy with mild dysfunction complicated by significant restrictive physiology and 1st-degree AV block. Her family history is negative for heart-related disease. Molecular testing identified a homoygous likely pathogenic variant in MYH7 (c.1727 A>G; p.His576Arg). Additionally, two heterozygous variants of uncertain significance were found in FLNC and LMNA.

Pathogenic variants in MYH7 are associated with different phenotypes including cardiomyopathies and skeletal muscle diseases.1

The variant identified has been reported in the literature in individuals with HCM and in one HCM relative with myocardiomegaly. Additional variants in MYH7 are usually inherited in an autosomal dominant manner, but the proband was found to have mild myopathic face and joint hypermobility. This patient’s phenotype demonstrates a severe cardiac muscle pathology with possible mild skeletal muscle involvement.

Identification of a homozygous variant in MYH7 is likely the explanation to her presentation. Homozygosity may have a dose-dependent effect on severity of disease. Further evaluation of the patient’s family may help determine if this likely pathogenic variant in MYH7 is in a heterozygous carrier causes mild, asymptomatic, or no form of this disease.

Pathogenic variants in FLNC and LMNA are responsible for mostly AD and some AR skeletal and cardiac muscle disorders, the variants identified in the proband were classified as VUS. Their significance and contributions to the phenotype is unknown.

**REFERENCES**


301 A COLD CASE OF RISPERIDONE INDUCED HYPOThERMIA AND MULTI ORGAN FAILURE TREATED WITH VENOVENOUS EXTRACORPOREAL MEMBRANE OXYGENATION

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**Case report**

Atypical antipsychotics are being increasingly prescribed in pediatric populations for a variety of mood and mental health illnesses. Side effects range from mild to severe. The most common adverse effects of risperidone use are weight gain, extrapyramidal symptoms and daytime hypersomnia. Hypothermia is a rare side effect of risperidone with one adult case report leading to cardiac arrest. To date one pediatric case report demonstrates a case of mild hypothermia associated with risperidone without significant clinical sequelae.

We report a rare case of a 15-year-old on risperidone therapy presenting with severe hypothermia and acute hypoxic respiratory failure and cardiac arrest with progression to multi-organ failure necessitating ECMO.
ventilation. High frequency oscillatory ventilation attempted resulting in 1 minute of ventricular fibrillation with return to sinus bradycardia following chest depression. Due to refractory hypoxemia and failed attempt at HFOV patient was cannulated for VV ECMO in the right IJ with a 28Fr ECMO catheter. Upon obtaining a more detailed history it was appreciated that patient’s dose of risperidone was increased 2 weeks prior. Following this increased dose he was noted to become “unlike himself,” refusing to ambulate and attempting to climb into a warm bath indicating a more insidious set of symptoms as compared to the abrupt nature of encephalopathy and hypothermia that was initially appreciated. Patient was decannulated on ICU day 8, successfully extubated on ICU day 11 and transferred to the floor on day 13.

Hypothermia is not a common adverse effect of risperidone however prescribers and clinicians should be aware of this life-threatening drug reaction. A thorough history should be obtained including dose, duration and titrations of these medications.

302 NIEMANN-PICK TYPE A PRESENTING AS FAILURE TO THRIVE

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Case report Failure to thrive (FTT) is a common pediatric symptom, accounting for 1.4–5% of pediatric hospitalizations annually. FTT is multifactorial and can be caused by both non-organic and organic etiologies. Laboratory investigations rarely reveal a medical cause for FTT and are reserved for cases in which an underlying etiology is suspected based on the child’s history or physical exam. Here we discuss an 8-month-old female who presented to gastroenterology for FTT. She had previously been well until an episode of gastroenteritis resulted in weight loss at 4 months old. After, she had feeding difficulties and did not regain weight. At presentation, she had hypotonia and motor delays attributed to malnutrition. She was admitted to the hospital, at which time she was below the growth chart for weight and height with a normal head size. Additional evaluation revealed mild transaminitis, hepatosplenomegaly, and decreased white matter bulk on brain MRI. On physical exam she had frontal bossing, bitemporal narrowing, and a prominent occiput. Genetics was consulted and advised screening for mucopolysaccharidosis, peroxisomal biogenesis disorders, and chromosome anomalies, which returned with normal findings. Gastrostomy tube was placed and weight gain improved; however, her transaminitis and hepatosplenomegaly persisted, and she developed tachypnea with signs of interstitial lung disease on X-ray. At one year of age she underwent genome sequencing which returned with two pathogenic variants in SMPD1, consistent with a diagnosis of Niemann-Pick Type A (NPA). NPA is a rare lysosomal storage disorder caused by a deficiency of acid-sphingomyelinase and accumulation of sphingomyelin within cellular lysosomes. Infants may have a period of normal development before symptom onset. Initial symptoms may include hepatosplenomegaly and FTT, and cherry-red maculae may be seen at diagnosis. As disease progresses, interstitial lung disease develops, causing tachypnea and respiratory insufficiency. Development regresses and neurologic decline is progressive, with a life expectancy of 2–4 years. This case demonstrates the importance of considering genetic etiologies in the differential diagnosis of FTT.
LOCALIZED MITRAL VALVE INJURY FOLLOWING BLUNT CHEST TRAUMA

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Case report Trauma is the most common cause of childhood morbidity and mortality. Trauma associated with all terrain vehicles (ATV) accidents is increasing in incidence. We present a case of blunt chest trauma in a 3 year old sustained while riding an ATV which resulted in a rare cardiac injury.

A 3 year old, previously healthy male was transferred to the pediatric emergency department (PED) from an outside hospital (OSH) for evaluation of blunt chest trauma sustained while riding a side-by-side ATV. He was thrown against the dashboard when the ATV struck a ditch, resulting in blunt chest trauma. He was reported to have immediate onset of difficulty breathing, and emergency services were called who transported him to the OSH. There, he received a non-contrast computed tomography (CT) scan of the chest which showed bilateral pulmonary contusions. He was then transferred to the PED where he was noted to be in respiratory distress with tachycardia. Physical examination showed no external signs of trauma or deformity to the chest or abdomen. Auscultation of the chest was only significant for bilateral rhonchi. Bedside extended focused assessment with sonography for trauma (eFAST) was negative. A chest x-ray was obtained which suggested bilateral pulmonary contusions. Shortly after arrival in the PED, he developed hypotension and worsening respiratory distress. He was given two normal saline boluses and a blood transfusion with continued decline in his blood pressure, thus was started on an ephedrine infusion. As fluid was given, his respiratory status declined and he was intubated for hypoxia and respiratory distress. After intubation, pulmonary edema began to come from the endotracheal tube. He was transferred to the intensive care unit where an echocardiogram was performed for further workup, showing a flail posterior mitral valve leaflet and severe mitral valve regurgitation.

Cardiac injury is a rare but potentially life-threatening event associated with blunt trauma to the chest. Physicians should keep myocardial and cardiac valve injury in the differential list for any patient with blunt chest trauma, especially when the patient’s clinical course progresses in a fashion that does not match expectations.

A CASE OF GRADENIGO SYNDROME IN A SEVEN-YEAR-OLD

A 7-year-old previously healthy female was admitted to our institution for a two-week history of worsening ear pain, headache, and ocular abnormalities. Her symptoms began after swimming in a creek. A day later she complained of ear discomfort and subjective fever. She then developed right sided otorrhea, a bilateral temporal headache, diplopia, and exhibited an unsteady gait. She was evaluated at a local hospital, where she was diagnosed with otitis media and presented with large body habitus, unilateral cryptorchidism, pectus excavatum, failed hearing screens, feeding difficulties, and dysmorphic features. On exam, he had plagiocephaly, micrognathia, thin lips, hypertonic extremities, and truncal hypotonia. A chromosomal microarray was normal. By 6 months of age he failed multiple modified barium swallows, prompting G-tube placement.

Genome sequencing performed through the Alabama Genomic Health Initiative identified a variant of uncertain significance in ACTG1 (c.1000C>G; p.Glu334Gln) associated with autosomal dominant Baraitser-Winter Syndrome Type 2 (BWCFS). Though the variant remains classified as a VUS, the patient’s presentation is consistent with BWCFS. Discussion BWCFS is caused by variants in ACTB or ACTG1. ACTG1 accounts for >20% of the clinical cases of BWCFS. The disease is characterized by typical craniofacial features and intellectual disability, though there is a large range of phenotypic variability with reports of sensorineural deafness, seizures, renal anomalies, or pectus among other findings. The variant in this case has been reported once in a patient with BWCFS, who was reported to have a milder phenotype (Di Donato, et al. 2016). Further genotype-phenotype correlation may provide improved diagnostic information.

Since its inception, genetic testing has evolved from karyotyping to sequencing entire genomes. As sequencing technology becomes faster and more cost-effective, widespread use of genome sequencing may become routine in clinical care. A rising challenge includes classification of variants. Laboratories apply evidence codes (Richards, 2015), and rare missense variants may fail to reach pathogenic status, especially when patients’ parents are not available for testing to confirm if a variant is de novo. Clinical evaluation and result interpretation in light of phenotypic findings is needed to provide appropriate counseling of patients about genomic variants.
ciprofloxacin and clindamycin due to water exposure history for pseudomonal coverage. She also received methylprednisolone 30 mg/kg daily for three days given her cranial nerve involvement. She clinically improved, and transitioned to oral antibiotics and a prednisone taper to complete a four week treatment course. Gradenigo syndrome is a rare but serious complication of otitis media, characterized by a triad of symptoms including otitis media, pain in the trigeminal nerve distribution, and ipsilateral abducens nerve palsy. Gradenigo syndrome should be considered in a patient who presents with otitis media and ocular findings.

**Case report** A previously healthy 13-month-old female with no significant past medical history was transferred from an outside hospital with 4 days of fevers, decreased oral intake, and dehydration. Upon arrival, physical examination revealed left neck swelling with limited neck mobility. Given the degree of left neck swelling, a CT neck with contrast was done which revealed a retropharyngeal abscess extending into the superior mediastinum. She went to the operating room with ENT for incision and drainage of the neck abscess with placement of a penrose drain. She was empirically started on vancomycin and unasyn. Gram stain and culture from the operating room were positive for MRSA; in addition, a blood culture collected on admission was positive for MRSA. On POD 2 she developed worsening fevers with rising CRP and a chest CT showed progression of the mediastinal fluid collection to involve the great vessels with extension into the right pleural space with concern for internal jugular vein thrombosis versus external compression. She went to the OR again for re-excision and drainage with mediastinum wash out. After this, she was switched to daptomycin with improvement in her CRP and resolution of her fevers. Given the CT findings along with intraoperative findings of left internal jugular vein thrombus she was started on a heparin drip, however repeat neck US showed no thrombus so heparin was stopped. Echo was initial concern for nephritic syndrome with his urine protein to creatinine ratio 5.586 mg/g. However, additional labs including complement levels, ANA, and IgA were all unrevealing. He subsequently underwent a renal biopsy which showed thrombotic microangiopathy, acute tubular injury, and IgA nephropathy. Following the procedure, he was found to be anemic with a hemoglobin of 8.5 g/dL and thrombocytopenic with platelets of 10,000/m3. His hemoglobin continued to decline requiring PRBC transfusions, but his platelets stabilized. With no active GI symptoms to suggest infectious colitis, the working diagnosis become atypical hemolytic uremic syndrome. A few days later, new onset seizures required transfer to the intensive care unit. He received one dose of eculizumab before his ADAMTS13 activity level resulted as <5%, consistent with thrombotic thrombocytopenic purpura. Exchange transfusions and prednisone were started with initial improvement in his hemoglobin, platelets, and LDH. Three additional exchange transfusions and increased steroid dosing were eventually required. Rituximab was also initiated before his labs remained stable.

This case of a rare condition in pediatric patients highlights the importance of considering thrombotic thrombocytopenic purpura when evaluating patients for hemolytic uremic syndrome. While the two conditions share many similar features, the treatment for each is very different. As clinicians we must remember to consider thrombotic thrombocytopenic purpura in pediatric patients with anemia and thrombocytopenia.
extremity strength with no other neurological deficits or abnormal exam findings. Extensive workup ruled out an infectious or autoimmune etiology but MRI revealed linear tracts of increased T2 Flair signal in the left periventricular matter extending into the left thalamic region and scattered areas of calcification in the brain. She was subsequently diagnosed with chronic granulomatous HSV encephalitis based on history, exam findings and MRI results. She was treated with intravenous acyclovir followed by oral acyclovir which she continued for three months and then prophylaxis with clinical improvement. Chronic granulomatous HSV encephalitis is a rare complication of neonatal HSV encephalitis that causes significant neurological sequelae in children. There are no current guidelines on treatment for this condition. We present this case in order to create awareness of this complication and the need to further investigate potential treatment options.

310 HEMATURIA AFTER CORRECTION OF CONGENITAL HEART DISEASE

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Case report We describe a 3 year old F with a h/o complicated CHD, specifically L-Transposition of the Great Arteries, TAPVR and dextrocardia with heterotaxy. She had previously undergone multiple surgical corrective interventions including a BD Glenn procedure, right pulmonary artery-plasty, PDA ligation, and most recently a non-fenestrated Fontan procedure several weeks prior to this presentation for a new onset hematuria.

She was doing well clinically after her Fontan procedure when she was brought in for evaluation of a 1 day h/o a large amount of bright red blood in her diaper. Her medications include furosemide, chlorthiazide, baby aspirin, and sildenafil. In the ED her PE was normal for age except for a notable murmur and healed surgical scars. There was no evidence of bleeding on an external GU exam. Her labs showed normal Hg and normal renal function, but her urinalysis was significant for >100 RBC/hpf. Urology was consulted and recommended renal ultrasound which showed multiple dilated varices in the right lower quadrant. A follow up CTA of the A/P to rule out any inferior vena cava obstruction displayed a patent IVC but showed multiple extremely large varicosities of the abdomen and renal veins. Her hematuria was subsequently attributed to the significantly dilated venous network in her pelvis. Cardiology then decreased her aspirin dose by half and added tadalafl to her medications in an attempt to decrease her central venous pressures. She had no further hematuria and was discharged home to be followed outpatient by cardiology.

The Fontan operation is a palliative procedure performed in patients with a functional or anatomic single ventricle. Patients with renal dysfunction related to decreased glomerular filtration have been described as a post-operative complication of Fontan. Additionally, bleeding manifested as hemoptysis and intracranial bleeding have been reported and are more common if patients are anticoagulated. However, hematuria secondary to pelvic venous dilation is uncommon and not frequently reported in the literature. It is important for non-cardiology clinicians to be aware of this relatively rare complication after a Fontan procedure.

311 SUCCESSFUL PHYSOSTIGMINE REVERSAL OF SEvere ANTICHOLINERGIC TOXIDROME IN A CHILD WITH DIPHENHYDRAMINE INTOXICATION

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Case report Purpose: To describe a case of severe anticholinergic poisoning from diphenhydramine successfully treated with physostigmine.

Methods A three-year-old female ingested approximately 120–180 ml diphenhydramine elixir (2.5 mg/ml), resulting in a potential dose of 16–25 mg/kg. Approximately 30 minutes after ingestion, she developed tremors and visual hallucinations. On hospital arrival, she had tachycardia (heart rate 144), mydriasis (pupils 4–5 mm), cutaneous flushing, and normothermia. Central nervous system (CNS) manifestations included severe agitation and hallucinations. Lorazepam was given with no improvement. She was admitted to the PICU where her agitation and screaming were unresponsive to additional IV lorazepam and IV dexmedetomidine. Because of her marked CNS symptoms, 0.02 mg/kg physostigmine was administered after consultation with a toxicologist and poison control center. She calmed and nearly immediately fell asleep. Her tachycardia and cutaneous flushing improved.

Conclusions Diphenhydramine is a widely used pediatric antihistamine with a wide margin of safety, but may result in severe anticholinergic toxicity in overdose. Anticholinergic drugs competitively inhibit muscarinic acetylcholine receptors in the central nervous system, heart, peripheral postganglionic nerves in smooth muscle, salivary and sweat glands, and the ocular ciliary body. These effects cause the anticholinergic toxidrome with symptoms of cutaneous vasodilation, anhidrosis, anhidrotic hyperthermia, nonreactive mydriasis, and mental status changes including delirium and hallucinations. Physostigmine is an acetylcholinesterase inhibitor that binds reversibly in both the peripheral and central nervous systems, causing an increased concentration of acetylcholine at muscarinic receptors. Physostigmine crosses the blood brain barrier, making it effective for reversing both peripheral and central effects of anticholinergic toxicity. While most ingestions do not require such therapy, this case describes the successful use of physostigmine in a pediatric patient with the anticholinergic toxidrome after ingestion of 12–20 times the therapeutic dose of diphenhydramine.

312 A RARE CASE OF A TONGUE MASS IN A 17-MONTH-OLD MALE

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Case report We present the case of a 17-month-old patient who presented with a tongue lesion found to be ACTB-GLI1 fusion positive sarcoma.

Patient is a 17-month-old who presented with a lesion on his tongue noticed by his parents shortly after birth. He was referred to oral surgeon who initially suspected a vascular
A RARE CASE OF INFANTILE OSTEOPETROSIS

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Case report Here we describe a 10woF, ex-36wk twin, with brief NICU stay for jaundice, who presented to the ED for abnormal lab evaluation. The patient had been followed by her PCP for failure to thrive & reflux. At her GI visit, she had labs obtained that noted anemia, thrombocytopenia, & hypophosphatemia. She had imaging which demonstrated cupping, and fraying at the distal physis of the radius & ulna consistent with rickets.

Upon admission, the infant weighed 3.4 kg (1%, -2.35), length 48cm (<1%), & HC of 37 cm (38%) Exam revealed her to be small for stated age, chronically-ill appearing, pale, frontal bossing, & mild splenomegaly. The differential included congenital rubella, CMV, syphilis, & osteopetrosis. Upper GI revealed GER, abdominal US with mild ascites & splenomegaly, & a normal swallow study. Electrolyt disarray was noted with hyperchloremia, mildly low bicarbonate & albumin, normal calcium & magnesium, & hypophosphatemia. She had hypocellular marrow, negative for malignancy. Flow cytometry showed leukocytadalastic anemia consistent with infantile malignant osteopetrosis (MO). Genetic testing revealed a homozygous pathogenic change in TCIRG1 gene.

Discussions with family led to decision not to pursue third resection given favorable outcomes in patients with positive margins in limited available literature. Patient is currently undergoing surveillance imaging every 3 months to monitor for disease recurrence.

REFERENCES

Abstract 314 Figure 1 MRI brain showing hemorrhagic, multiloculated lesion in the left frontal lobe with other patchy areas of internal enhancement.
Discussion Familial CCMs have a prevalence of 0.35–0.53%. They have an autosomal dominant inheritance pattern with mutations in CCM1 (KRIT1), CCM2 (MGC4607) and CCM3 (PDCD10), affecting junction formation between vascular cells. Familial cases are typically small, asymptomatic, multiloculated lesions, scattered in different areas of the brain. Symptomatic episodes can be treated conservatively, unless the lesions are surgically accessible.

Conclusion In patients with focal neurological signs and imaging concerning for a cavernous malformation, a family history is vital. Genetic testing can confirm the clinical diagnosis of familial CCM, which can help in prenatal testing and counseling.

315 LOXOSCELISM: UNLOCKING THE BITE OF HEMOLYSIS
A Hassan*, KM Galipp, R Sebastian, O Khan, K Sagdeo. University of Oklahoma Health Sciences Center, Oklahoma City, OK
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Case report Systemic manifestations and hematological abnormalities following brown recluse spider bite, termed loxoscelism, is a rare entity. We present a case with systemic features including acute hemolytic anemia with discovery of a preceding spider bite.

A 12-year-old boy presented with left shoulder pain, left arm paresthesia, and diffuse myalgias. Exam revealed a tender left axillary lymph node and shoulder contusion. He progressed and developed severe sepsis with leukocytosis and fever, and was started on IV vancomycin and ceftriaxone. He developed a diffuse exanthem that evolved into a scarlatiniform rash with sandpaper texture and later desquamation. The shoulder lesion developed increasing ecchymosis and a central eschar, which denuded to reveal an ulcerative necrotic lesion. On day 5, he developed lethargy and acute anemia with hemoglobin of 5.7 mg/dL, hyperbilirubinemia at 5.5 mg/dL, and low haptoglobin. Coombs direct antiglobulin test (DAT) was positive, including positive IgG and C3 on red blood cell surfaces, consistent with autoimmune hemolytic anemia. Peripheral smear revealed schistocytes and microspherocytes. He was started on high dose IV steroids and received PRBC transfusions for symptomatic anemia with good clinical response. At discharge he was transitioned to an oral steroid wean, as well as oral amoxicillin.

L oxoscelism refers to systemic effects resulting from the bite of a spider of genus Loxosceles. The brown recluse spider, Loxosceles reclusa, is the common endemic species. Although rare, loxoscelism can cause significant morbidity from hemolytic anemia, disseminated intravascular coagulopathy, rhabdomyolysis, and acute kidney injury. In this case, features are consistent with autoimmune hemolytic anemia with positive DAT and RBC surface C3 and IgG. The pathophysiology remains poorly understood with proposed mechanisms of erythrocyte membrane lysis caused by sphingomyelinase toxin and complement mediated immune destruction due to membrane disruption. Given the direct toxin-mediated damage along with autoimmune hemolysis, features are consistent with both intravascular and extravascular hemolysis. The standard treatment is supportive. Given the proposed mechanisms of hemolysis, steroids are a reasonable adjunct to therapy.

316 PRIMARY CHYLOPERICARDIUM: BLOOD IS RED, GREEN IS BILE. IF ITS WHITE, IT MUST BE CHYLE!
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10.1136/jim-2020-SRM.316

Case report Primary chylopericardium is a rare entity, as the name suggests it is accumulation of chyle in the pericardium with no secondary cause.

A 14-year-old girl came to our emergency department with chest pain for the past 3 months. Pain was sharp, midline and worsened with deep breathing and lying flat but not on palpation. She denied dyspnea, fever, dizziness, rash, trauma or recent viral illness. At presentation, she was vitally stable. Initial labs and chest x-ray were unremarkable. EKG showed diffuse ST segment elevation with electric alternans pattern of QRS wave. Echocardiography showed large pericardial effusion with no tamponade physiology. She was taken to cardiac catheterization lab for immediate pericardiotenotomy, roughly 700cc of fluid was drained and she was transferred to floor with a 5-french pig-tail catheter. Fluid appeared turbid with analysis showing triglycerides (TAG) 1121 mg/dL, Lactate Dehydrogenase 152 mg/dL and negative gram stain and culture. Computed Tomography (CT) Chest and Magnetic Resonance Imaging (MRI) of Abdomen and Pelvis were negative for any mass. Lymphoscintigram did not reveal any lymphatics malformation.

By definition, chylous effusion should appear milky and opaque, with TAG more than 500 mg/dL, Cholesterol/TAG ratio of less than 1, negative cultures, lymphocyte predominance on cytologic examination and Fat globules seen on Sudan 111 staining. Primary Chylopericardium occurs due to malformations of thoracic duct which are usually picked up on lymphoscintigraphy but rarely, they are so minuscule and not seen at all. Pericardiocentesis with fat restriction in diet or by starting Total Parenteral Nutrition is first step. Somatostatin constricts lymphatics and has shown benefit by decreasing chyle formation. Surgical options include thoracic duct ligation with pericardial window or emobilization. Percardioperitoneal shunt placement can also done.

Our patient responded to low fat diet with complete resolution of effusion.

317 THERE’S A FUNGUS AMONG US! PULMONARY BLASTOMYCOSIS IN AN IMMUNOCOMPETENT CHILD
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Case report Pulmonary blastomycosis is a rare condition characterized by cough, fever, sputum production, and chest pain. It is usually seen in patients who are immunocompromised and live in the Ohio and Mississippi River valley basins. Disease presentation in immunocompetent children is rare. Blastomycosis is a slow growing organism and can manifest as broad respiratory symptoms but may present with systemic pyogranulomatous infection and may spread to skin, bones, joints, and the central nervous system. Cutaneous lesions are a more typical presentation in children.

We herein report a rare case of pulmonary blastomycosis in a well-appearing, immunocompetent 8-year-old African American female who presented with a dry cough and persistent...
fever for seven days. A previous admission for pneumonia and multiple rounds of antibiotics failed to resolve her symptoms. 

On presentation, she had leukocytosis (WBC of 17.4) with neutrophilia and an elevated CRP (5.8 mg/dL). Her chest x-ray was consistent with a consolidation in the left lower lobe with left sided pleural effusion/empyema of the posterior upper pleural space. A CT of the chest showed scattered ground glass and tree-in-bud opacities throughout the lungs. A bronchoscopy revealed inflammation with greenish fluid, and bronchoalveolar lavage was performed for further testing. Preliminary results were negative, with further cultures and studies pending, and the fungal culture resulted on day 51 of the illness positive for Blastomyces dermatitidis. The patient was given intravenous treatment for six months. Fever and cough resolved shortly after initiation of treatment.

Pulmonary blastomycosis is rare in children, and especially those who are immunocompetent. However, several studies have shown that pulmonary blastomycosis is more evident in childhood cases than originally expected. When the lung is involved in blastomycosis cases, the most common patterns of involvement are consolidations, medium sized lung nodules, and the interstitial ‘tree-in-bud’ pattern. A culture is the definitive diagnostic standard but is typically known to delay treatment due to its slow growing nature. Because of this slow growth, it is important to consider fungal etiologies in pediatric fever of unknown origin patients in the appropriate regions.

A 6-month old female, born at 23 weeks gestation (CGA) to a 32nd percentile in weight over the course of a year, initially attributed to being a picky eater. He then fell to the 5th percentile over the ensuing month despite attempts at dietary interventions, prompting referral to the emergency room for evaluation for a gastrointestinal cause. History obtained in the emergency room was notable for headaches for 6 months, which occurred randomly and did not wake him from sleep, intermittent emesis for the past 6 months, occurring primarily in the morning and shortly after waking, polyuria, polydipsia, and anorexia. He had developed diarrhea in the preceding week, although his family attributed this to consuming solely Gatorade during that time. Mother and patient denied gait or vision changes. Physical exam was notable for tanner stage 3 coarse pubic hair, a phallic and scrotum with a virilized appearance, and testicular volume of approximately 4 mL. Initial laboratory data was suggestive of panhypopituitarism with testosterone and estradiol levels above the upper limit of normal for a prepubertal male, and elevations in prolactin and serum human chorionic gonadotropin (hCG). CT and MRI imaging found a mass in the suprasellar cistern with obstructive hydrocephalus. Biopsy confirmed a germinoma.

This case shows the subtle evolution of panhypopituitarism symptoms secondary to a suprasellar mass. More importantly, it portrays the significance of considering a broad differential when atypical symptoms present, such as sexual precocity noted on a thorough and complete physical exam. Adding a neuroendocrine workup to this patient who had been thought to have weight loss from a behavioral or gastrointestinal cause allowed the team to arrive at the appropriate diagnosis soon after admission.

Case report Necrotizing enterocolitis (NEC) is a common diagnosis in the NICU but has rarely been described outside of the neonatal period. We present two infants with NEC following acute respiratory failure secondary to bronchiolitis.

A 6-week old female, born at 34 weeks gestation (corrected gestational age [CGA] of 40 weeks), presented with 1 day of tachypnea. She was hypoxic with wheezing and decreased breath sounds. Labs showed respiratory acidosis with pH 7.04/pCO2 85 and hemoglobin of 9.7; she was respiratory syncytial virus positive via RT-PCR. She was intubated and admitted to the Pediatric Intensive Care Unit (PICU). Furosemide was started due to pulmonary edema. On day 3 of hospitalization, she developed abdominal distention with bilious gastric residuals; abdominal ultrasound showed complex ascites. She was diagnosed with NEC stage IIIa and completed 21 days of antibiotics.

A 6-month old female, born at 23 weeks gestation (CGA 49 weeks), presented with 4 days of cough and tachypnea. She was hypoxic with diffuse rhonchi. Labs showed respiratory acidosis with pH 7.01/pCO2 91 and hemoglobin of 10.3. She was human metapneumovirus positive via RT-PCR. She was intubated and admitted to the PICU; enteral feeds were started on day 2 of hospitalization. She required a dopamine drip for 4 days due to hypotension and a bumetanide drip for pulmonary edema. Two days after extubation, she developed bloody diarrhea and bilious emesis. Abdominal x-ray showed pneumatosis intestinals and portal venous gas. She was diagnosed with NEC stage IIa and completed 10 days of antibiotics.

We hypothesize that the comination of hypoxemia, anemia, hypotension and volume depletion led to impaired mesenteric oxygenation, which is postulated to be a predisposing factor contributing to NEC. We hypothesize that prematurity continues to be a risk factor as an immature intestinal tract may mount an exaggerated inflammatory response to the pro-inflammatory immune mediators associated with bronchiolitis, leading to disruption of the intestinal mucosal integrity. Ultimately, these cases highlight the importance of identifying risk factors for NEC in older infants for early diagnosis and effective treatment.
Takayasu arteritis in an infant presenting with mitral valve dysfunction

Case report
Takayasu arteritis (TA) is a rare chronic vasculitis of unknown etiology. It rarely presents in the first year of life. Mitral valve regurgitation and congestive heart failure with subsequent sudden death has not been a reported presentation for TA.

Case description
An 11-month-old previously healthy male presented with five days of decreased oral intake and rapid shallow breathing. He was tachycardic, afebrile, normotensive, and had a 2/6 systolic murmur. Transthoracic echocardiogram demonstrated moderate mitral valve regurgitation with left atrial and left ventricular dilation and decreased systolic function. The aortic arch and coronary arteries appeared normal with prograde flow on color Doppler. He was diagnosed with mitral valve dysplasia with resultant mitral valve regurgitation, related to congestive heart failure, and discharged home on the fifth hospital day with resolution of his respiratory symptoms and normal feeding. Two days after discharge, he developed irritability with respiratory distress and pallor. He was transported to the emergency department but suffered an arrest on arrival and could not be resuscitated. On postmortem examination, the coronary arteries were normally located but stenotic with concentric mural thickening. The great vessels had proximal thickening. Microscopically, the coronaries, great vessels, and aorta demonstrated findings consistent with TA.

Discussion
Takayasu arteritis in infants is associated with significant mortality. Awareness of this diagnosis with appropriate index of suspicion is needed to make an early diagnosis and initiate treatment.

Language barrier in unusual case of newborn hyperbilirubinemia

Purpose
Residents are often the 1st line of communication between families and providers. In the face of uncertain diagnoses, families require support, and significant demands are made on residents’ time and effort. With a dynamic workload and language differences, communication becomes challenging, and time to discuss care with the family is limited. The purpose of this report is to share an interesting case in which diagnostic uncertainty was combined with significant communication barriers.

Case report
Newborn girl born via uncomplicated SVD to 31 year old G8P5025 mother who was admitted for indirect hyperbilirubinemia for 10 days. The mother denied complications with previous pregnancies, and the patient was otherwise well-appearing. The patient was started on phototherapy on the 2nd day of life. Testing for hemolytic disorders and deficiencies was negative. The bilirubin was elevated from 16–17.5 for 5–7 days and treated with 7 days of phototherapy. A 48 hour trial of formula feeding was conducted to rule out breast feeding jaundice, but there was no decrease in bilirubin. Hyperbilirubinemia was likely secondary to maternal anti-E antibodies. This diagnosis could not be confirmed due to lack of diagnostic criteria or testing. At discharge, the bilirubin was 11.7.

In addition, notable social factors presented challenges. When entering the patient room, she was surrounded by her parents and 4 siblings, who frequently stayed overnight. Her parents spoke Hakha Chin, a rare eastern Asian language, and only one phone translator was available. Dispatch of the translator took upward of 20 minutes. Daily discussions were via translator, which increased time with the family to ensure awareness of evaluation and care. This language barrier also often manifested with decreased provider interaction.

Lessons learned
As with any uncertain diagnosis, there are significant demands on time and effort due to the lack of diagnostic criteria and indefinite evaluation. This evaluation involved detailed conversations with family and specialty services. Language barriers made it difficult to adequately support the family. In the face of these barriers, as a resident physician, it is important to manage expectations by allocating adequate time and preparing a plan prior to speaking with the patient or family.

Role of theophylline in management of bradycardia secondary to cervical spinal cord injury in a 7 year-old kid

Background
Heart rhythm abnormalities are well-known sequelae of spinal cord injury (SCI). Severe sinus bradycardia and prolonged sinus pauses with lack of junctional or ventricular escape resulting in asystole can frequently be seen in the acute phase of a high level cervical SCI. The mechanism has been attributed to sympathetic impairment secondary to the injury, with unopposed parasympathetic output via the vagus nerve. Conventional medical therapy has relied on atropine, either administered as pre-treatment prior to an anticipated noxious stimulus or in response to a bradycardic event, and/or infusion of pressors such as epinephrine or dopamine for their chronotropic effect. Cardiac pacemaker implantation may be required for cases of severe symptomatic events that are refractory to medical management. Limited data has emerged in the adult literature to suggest the use of methylxanthines such as theophylline may be beneficial for the treatment of bradycardia or asystole in the setting of cervical SCI, but to our knowledge, this treatment approach has not been reported in children.

Case presentation
We present a case of successful management of bradycardia- asystole episodes in a 7-year-old boy who sustained cervical SCI after a motor vehicle accident (MVA). He underwent a spinal fusion surgery, but his prognosis remains guarded, with quadriplegia and life-long ventilator dependency. His clinical course was complicated by frequent episodes of symptomatic sinus bradycardia progressing to asystole, particularly on maneuvers resulting in vagal stimulation. Episodes were responsive to atropine, but his events were recurrent and feared to be life threatening if unobserved, and so pacemaker implantation was being considered. The patient was started on enteral theophylline, with blood level monitoring, and has since remained in normal sinus rhythm without recurrence of severe bradycardic or asystole events requiring atropine.
administration. No adverse side effects of the medication were observed.

Conclusions Theophylline appeared to be beneficial for preventing severe recurrent bradycardia and asystole events in this seven-year-old patient suffering an acute cervical SCI, allowing us to forego pacemaker implantation.

324 ACTH SECRETING THYMIC CARCINOID MASQUERADING AS DIABETES MELLITUS WITH HYPERTENSION: POSTERIOR REVERSIBLE ENCEPHALOPATHY SYNDROME AND PERFORATED VISCUS

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Case report A 17-year-old male presented with acute onset severe abdominal pain, emesis, 10 lbs. weight loss and fever.

Three weeks prior to presentation, he was diagnosed with new onset diabetes mellitus and was experiencing intermittent episodes of confusion. No prior medical history.

Pertinent on physical exam: VS normal except for BP of 154/108 mm Hg. Thin, anxious teenager with diffusely tender, rigid abdomen with peritoneal signs.

Lab remarkable for serum glucose 187, glucosuria 150, no ketones.

A CT abdomen/pelvis showed free air in the abdomen and suspected perforated viscus. On exploratory laparotomy, a perforated duodenal ulcer was found and repaired.

Post-op course was complicated by worsening hypertension (194/122 mmHg), hyperglycemia, hypokalemia, intermittent episodes of confusion. Posterior reversible encephalopathy syndrome (PRES) was confirmed by MRI brain showing bilateral frontoparietal, occipital and temporal areas of subcortical white matter increased T2 and FLAIR signal. The hypertensive emergency was treated with nicardipine drip.

Endocrine work-up surprisingly revealed abnormally high levels of ACTH, cortisolemia and cortisolduria. High-dose dexamethasone suppression test failed to suppress cortisol and ACTH levels, consistent with ectopic ACTH secretion. To identify the source, a CT chest was ordered and revealed a mediastinal mass, consistent with thymoma.

Patient underwent radical thymectomy. Pathology review of the mass showed a grade 2 thymic carcinoid tumor. Tumoral markers (chromogranin A) were high.

After discharge patient was followed with serial chromogranin A levels until normal. ACTH stimulation test performed 5 months after surgery showed adrenal insufficiency. Patient is on steroid replacement therapy. Hypertension and hyperglycemia have resolved.

Thymic carcinoid is a primary neuroendocrine tumor of the thymus. It is extremely rare in the pediatric population and is associated with high mortality. A high index of suspicion is required as these patients often present with a paraneoplastic syndrome (constellation of signs and symptoms caused by humors secreted by the tumor, that lead to autoimmune and endocrine phenomena).
KOUNIS SYNDROME FOLLOWING ALLERGY INJECTION

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Case report Acute coronary syndrome secondary to hypersensitivity or anaphylaxis was first noted in 1938. The pathophysiology was later described by Kounis and Zavras as the release of inflammatory cytokines through mast cell activation which leads to coronary artery vasospasm, now termed Kounis Syndrome. In this case report, we describe a pediatric patient who had the uncommon complication of Kounis Syndrome.

A 9-year-old female presented to urgent care with chest tightness, palpitations, flushing, dyspnea and pallor after receiving her weekly allergy injection. The patient had been receiving weekly immunotherapy without complication previously. She was taken from the allergist’s office to urgent care where she was found to be tachycardic to 240–260 beats per minute. At that time, she was transferred to our emergency department for concern of anaphylaxis and received epinephrine.

Further evaluation in the emergency department showed evidence of acute cardiac ischemia on electrocardiogram (EKG) as well as elevated troponin levels. An echocardiogram demonstrated dyskinesis of the basal mid/posterior septum in the region of the right coronary artery and posterior descending artery distribution. The patient was transferred to PICU for monitoring overnight where she remained stable with no further symptoms. She was discharged home the following day on aspirin with close cardiology follow up. Serial echocardiograms have since demonstrated improvement in regional wall abnormalities. She has now developed supraventricular tachycardia which is not thought to be secondary to prior coronary vasospasm.

On presentation this case appeared to be typical anaphylaxis from allergy immunotherapy with co-existent chest pain. However, her EKG, echocardiogram, and elevated troponin levels suggest acute ischemia consistent with Kounis Syndrome. Kounis Syndrome has been described secondary to exposures, immunizations, and drugs; however, this has predominantly been noted in the adult population with only 3 case reports described in patients 10 years of age or younger. Corticosteroids, one of the mainstay treatments of allergic reactions, have previously been identified to paradoxically induce Kounis Syndrome. Excluding Kounis Syndrome in patients presenting with anaphylaxis and chest pain is paramount, as common treatment for allergic reactions may worsen morbidity.
EVERY ROSE HAS ITS THORN: A UNIQUE CASE OF NOCARDIOSIS

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Case report I.S. is a previously healthy 13-month-old female who presented to the ED with a skin infection. Her mom reported 3 red macules on her left palm and one on her thigh that began five days prior. They progressed to pustules and were incised and drained (I&Fed) by her PCP the morning before presentation. However, her abscesses redeveloped within hours of drainage and were again I&Fed in our ED. I.S. was admitted on IV Clindamycin for close observation overnight.

Interestingly, cultures from drainage in the ED grew acid fast negative, gram-positive branching rods and she was started on a combination of PO Bactrim and IV Ceftriaxone. She improved with daily antibiotics and twice daily peroxide soaks. A new lesion of her left elbow was noted on hospital day three, of which an ultrasound showed reactive necrotic lymph nodes. Orthopedic surgery I&Ded the new abscess, along with 2 redeveloping abscesses on her left palm, and infectious disease recommended PO Bactrim for a minimum of six weeks. Final cultures from the ED grew Nocardia, but 16S rDNA sequencing was unable to differentiate between Nocardia brasiliensis and Nocardia vulgaris species. Susceptibilities confirmed Bactrim as appropriate therapy. I.S. is doing well on PO Bactrim without appearance of new lesions.

This case is a unique presentation of Nocardiosis, an uncommon aerobic gram-positive bacteria typically found in soil or water. It is an invasive opportunistic infection in immunocompromised hosts, usually presenting as an isolated pulmonary infection or systemic infection. Cutaneous infection accounts for only 10% of cases. Cutaneous and lymphocutaneous Nocardiosis typically occurs from direct inoculation of the skin from trauma, commonly via splinters/thorns during gardening and farming. I.S. denied any such exposures. Nocardia is difficult to distinguish clinically from more common gram-positive bacteria that cause skin infections, which can delay diagnosis and treatment, as was the case with our patient. Diagnosis of Nocardia is made by isolation of the organism from clinical specimen and initial treatment is Bactrim while awaiting susceptibilities. Duration of treatment varies but can be up to 12 months even for immunocompetent patients with lymphocutaneous disease.

We report a rare case of Salmonella meningitis of unknown source in a 5-week-old female presenting to a local Emergency Room with altered mental status, seizures, intermittent apnea, hydrocephalus and hyponatremia. In retrospect, this patient had 3 days of fever, irritability, back arching, and sporadic episodes of extremity shaking in the 2 weeks prior to her ER visit. Her serum sodium was 126, and a head CT scan showed profound acute obstructive hydrocephalus. Patient was transported to our PICU after receiving a fluid bolus and ceftriaxone. Her neurologic status deteriorated due to multiple apneas requiring emergent intubation and external ventricular drain (EVD) placement at bedside. Her initial CSF studies yielded strikingly abnormal findings including growth of Salmonella. With minimal literature regarding Salmonella meningitis treatment, determining an appropriate antibiotic regimen for this neonate proved to be quite challenging. After multiple antibiotic regimen adjustments, CSF clearance was obtained with a regimen of ceftriaxone and ciprofloxacin.

Initial brain MRI showed extensive venous sinus thromboses requiring anticoagulation therapy. Her seizure activity was controlled with levetiracetam. Once her CSF became sterile, a VP shunt was placed. Though the etiology of her Salmonella infection remains unknown, it is likely that her milk formula was prepared close to raw eggs or poultry. While this patient’s long term prognosis remains uncertain, so far she has demonstrated a great response to this treatment regimen. At present, our patient is completing her antibiotic course, is feeding by mouth, has a normal breathing pattern, has a mild increase in her tone requiring low dose baclofen, and is gaining weight appropriately. A multidisciplinary approach to management of a complicated and late presentation of Salmonella meningitis may help lead to a favorable prognosis.
dysplasia. Endocrine work-up included thyroid function and ACTH stimulation tests, which showed hypothyroidism and adrenal insufficiency. She was started on scheduled free water replacement by mouth, a low-solute formula, and twice daily chlorothiazide with gradual improvement in sodium levels. To our knowledge, this is the first reported cause of diluted formula due to improper mixing acting as inadvertent free water replacement and masking the expected laboratory abnormalities in the setting of diabetes insipidus. This case additionally serves as a reminder against premature closure as the medical team initially attributed her presentation and lab abnormalities to the dilute formula and aggressive fluid resuscitation at admission.

331 SPONTANEOUS PYO-HEMOTHORAX IN AN ADOLESCENT WITH VON WILLEBRAND’S DISEASE
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Case report Von Willebrand disease (VWD) type 3 is an uncommon subtype of VWD characterized by low levels of von Willebrand factor (VWF) and subsequent low factor VIII activity levels. Unlike type 1 and type 2 VWD which manifest with generally mucocutaneous bleeds, type 3 VWD manifests with both mucocutaneous and deep-seated bleeds like hematomas and hemarthroses, with hemothorax being an uncommon presentation.

Description An 18-year-old male with known history of VWD type 3 presented to the hospital with left sided chest pain and hemoptysis. CT chest showed completely fluid-filled left lung indicating parapneumonic effusion/hemothorax. He was started on Vancomycin and Levacicin and transferred to our PICU. He required intubation and mechanical ventilation followed by Video-assisted thoracoscopic surgery and chest tube insertion. Pleural drainage was indicative of pyo-hemothorax. Patient constantly required VWD control, requiring almost daily doses of plasma derived, VWF containing factor VIII concentrate (Humate P) with the goal of keeping the VWF activity above 50% while not increasing the factor VIII activity above 150–200%. Antibiotics were continued for about 2 weeks. Repeat chest Ultrasound 9 days later showed resolution of pyo-hemothorax. After 10 days on ventilation, patient was able to be weaned off to room air in the morning and oxygen support by nasal cannula only at night and was discharged home on night oxygen support after 3 weeks.

Discussion Spontaneous hemothorax has a variable clinical presentation which includes a rapid progression of symptoms of chest pain and dyspnea that can be life threatening due to risks of hemodynamic instability and hypovolemic shock. Type 3 VWD, because of the low factor VIII activity levels, may present with hemarthrosis, intracranial and visceral hemorrhages, but a spontaneous hemothorax/pyo-hemothorax is very rare. Only a few cases of spontaneous hemothorax have been previously described in pediatric VWD with no spontaneous pyo-hemothorax reported yet. Management was challenging due to risks associated with endotracheal intubation and mechanical ventilation, and risk of bleeding after surgical drainage. Constant replacement of Humate P and close monitoring of hemodynamic and respiratory status was the key to successfully manage this patient.

332 KAWASAKI DISEASE WITH GIANT CORONARY ANEURYSM ON PRESENTATION COMPLICATED BY THROMBUS AND ACUTE ARTHRITIS; A RARE CASE
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10.1136/jim-2020-SRM.332

Case report Kawasaki disease (KD) is an acute vasculitis of unknown origin that predominantly affects males <5 years of age. Coronary artery aneurysms (CAA); a significant complication of KD, usually develop 1 to 4 weeks after fever onset and increase the risk of coronary thrombosis or stenosis and myocardial infarction. The standard treatment of KD with intravenous immunoglobulin (IVIG) within 10 days of fever onset reduces the risk of CAA from 25% to less than 5%. Giant CAA (Z score ≥10) are extremely rare and seen only in 0.5–1% of adequately treated patients.

We present a rare case of KD in a 4 year old caucasian male who presented with 5 days of fever, cervical lymphadenopathy, oral changes, diffuse maculopapular rash and extremity swelling. Echocardiogram on day 5 of illness revealed good biventricular systolic function and giant CAA in the left main and left anterior descending arteries (Z score 11.8 and 11.1 respectively). Appropriate therapy with IVIG and high dose Aspirin was initiated resulting in prompt resolution of fever. Echocardiogram on day 9 showed persistence of giant CAA with a small non-occlusive thrombus in the left main coronary. Plavix and Enoxaparin were initiated and subsequent Echo on day 12 showed resolution of thrombus. He was discharged on dual antiplatelet therapy, warfarin and a beta blocker. Follow up showed persistence of giant CAA, without cardiac symptoms or signs of ischemia on stress echocardiogram.

Interestingly, on day 10 he developed arthritis of the small joints of bilateral hands while remaining afebrile, lab work showed a 44% increase in C-Reactive protein. Arthritis subsequently resolved after initiation of high dose steroids. Arthritis has been described in KD with reported prevalence of 31% in the pre-IVIG era and decreased to 2–7.5% with the introduction of IVIG. Developing arthritis after responding to IVIG makes this case a unique presentation and illustrates the role of glucocorticoids as adjunct therapy in the treatment of KD related arthriti.

Cardiovascular sequelae of KD including giant CAA and thrombosis can be life threatening. This case highlights the importance of early echocardiography in suspected KD and emphasizes the role of triple therapy in the treatment of coronary thrombus.

333 LITTLE GIRL, GIANT (CELL!) TUMOR
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10.1136/jim-2020-SRM.333

Case report Giant cell tumors (GCT) are uncommon bone tumors that most commonly present in the epiphysis of long bones. Of the <1% of GCTs located in the calvarium, most are found in the sphenoid or temporal bones. We report a rare case of a 10 year old female with GCT involving the right occipital bone causing compression on the posterior right cerebellum. Case Our patient presented with a common complaint of frontal headaches that had been ongoing for the last two months...
but had acutely worsened, now including blurry vision, and dizziness. The patient's PCP referred her to an ophthalmologist who discovered disc edema and referred her to the ER. A CT scan of the head revealed a lesion close to the pons. The patient underwent occipital craniotomy with gross total resection with resolution of posterior fossa mass effect. Frozen pathology revealed the presence of uniformly distributed osteoclast-type multinucleated giant cells with mononuclear stromal spindle cells, which confirmed the diagnosis of GCT.

Post-surgical recovery was uncomplicated and chemotherapy or radiation was not required due to total resection.

Discussion
This case is unique because this is the youngest patient reported to present with a GCT of the occipital bone in the current literature. It highlights the importance of consideration of GCTs in the differential diagnosis of patients with cranial masses with coexisting neurological sequel of headache and cerebellar symptoms. Here, we report a case of GCT in the occipital bone and review the differential diagnosis with resolution of posterior fossa mass effect. Frozen pathology revealed the presence of uniformly distributed osteoclast-type multinucleated giant cells with mononuclear stromal spindle cells, which confirmed the diagnosis of GCT. Post-surgical recovery was uncomplicated and chemotherapy or radiation was not required due to total resection.

Discussion
Most reported cases of salmonella myocarditis have been in adolescents or young adult males, possibly due to higher levels of testosterone. Troponin has been shown to have a high specificity and low sensitivity in diagnosis. We believe that in our patient, estrogen levels played a protective role leading to normal EKG and Echo. Cardiac MRI which is considered gold standard to reveal inflammation and edema. We did not obtain MRI in our patient as she continued to improve clinically. Salmonella Myocarditis should be strongly considered as differential diagnosis in patients presenting with chest pain after bloody diarrhea.

Troponin, CK, and CK-MB were 1.149, 228,11.20 respectively. CXR, EKG and ECHO were WNL. Patient was transferred to the ICU for further management. She subsequently had another episode of severe sub sternal chest pain with radiation to the left arm, requiring GI cocktail and morphine. Next day she had maculopapular rash which resolved spontaneously. EKG obtained at the time of symptoms remained normal as well.

On day 2, patient had diarrhea and stool study was obtained. Urine drug screen and Respiratory Pathogen Panel for viral infection were negative. GI panel was positive for Salmonella and EPEC and patient was started on Ciprofloxac in. Her troponin level peaked on day 3 to 8.2 (ng/dl) and was improving on Day 5 to 3.035.

Discussion
Most reported cases of salmonella myocarditis have been in adolescents or young adult males, possibly due to higher levels of testosterone. Troponin has been shown to have a high specificity and low sensitivity in diagnosis. We believe that in our patient, estrogen level played a protective role leading to normal EKG and Echo. Cardiac MRI which is considered gold standard to reveal inflammation and edema. We did not obtain MRI in our patient as she continued to improve clinically. Salmonella Myocarditis should be strongly considered as differential diagnosis in patients presenting with chest pain after bloody diarrhea.
from lower extremities. He had periorbital edema and weak femoral pulses on exam. Echocardiogram confirmed critical coarctation of the aorta and ejection fraction at 34–43%. He was transferred to the CVICU with surgical repair the following morning. Post-operative echocardiogram showed ejection fraction at 62%. He was discharged home at nine days post operatively.

Discussion This case illustrates the importance of including coarctation of the aorta in the differential diagnosis of a new-born presenting with acute respiratory distress. Newborns may initially be asymptomatic with worsening after closure of the arterial duct and may present in circulatory collapse, as was the case with our patient.

336 IRON DEFICIENCY ANEMIA PRESENTING AS EDEMA

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Case report Edema in children can be caused by many conditions including cardiac, lymphatic, renal, and gastrointestinal disorders but overall is a nonspecific symptom that makes for a challenging patient. This case aims to increase awareness of one common disease that may uncommonly present as edema in children. A 10-month-old previously healthy female presented to the emergency department with 2 weeks of bilateral periorbital swelling and 2 days of bilateral lower extremity swelling in the setting of hypertension to 140/72 mmHg, causing concern for nephrotic syndrome. Exam showed periorbital edema and bilateral lower extremity edema to the mid-calf. Initial workup was significant for hypoalbuminemia (1.6 g/dL) without proteinuria, which expanded the differential to include malnutrition, liver disease, and malabsorptive diseases such as protein losing enteropathy and celiac. Albumin and furosemide were given, and she was admitted to the hospital. During admission history and physical, the patient’s parents stated that her skin was ‘yellow’ recently and that she consumed 40 ounces of cow’s milk daily for the past 2 months. Exam demonstrated pallor without jaundice or icterus. A complete blood count and iron panel showed severe iron deficiency anemia (hemoglobin 6.6 g/dL, mean corpuscular volume 74.5 fl, ferritin 3 ng/L). Cow’s milk was restricted from her diet and she started ferox sulfate supplementation. Her edema visibly improved and albumin rose to 2.1 g/dL within 24 hours. Hemoglobin improved to 8.6 g/dL at her outpatient visit 1 week post admission. This case demonstrates severe iron deficiency anemia (IDA) secondary to excessive cow’s milk intake that manifested as edema. Overconsumption of cow’s milk can cause iron deficiency because it has low iron content, it inhibits non-heme iron absorption, and causes gastrointestinal blood loss in infants. The patient’s edema was likely secondary to protein losing enteropathy (PLE), which is characterized by gastrointestinal losses of serum proteins. The mechanism of PLE secondary to IDA is unknown but is hypothesized to be either a hypersensitivity to cow’s milk protein or a direct effect of iron deficiency. The association of PLE and IDA due to cow’s milk overconsumption is important to recognize and demonstrates that IDA should be on the differential for edema of unknown etiology in children.

337 SPLENIC MICROABSCESSES AS A COMPLICATION OF EPSTEIN-BARR VIRUS

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10.1136/jim-2020-SRM.337

Case report A 10-month-old male presented to our emergency department with one month of worsening bilateral cervical lymphadenopathy and intermittent fevers. In the week prior to admission he had daily fever to 101°F and decreased oral intake. Initial lab work included normal CBC and CMP, and a soft tissue neck ultrasound revealed bilaterally enlarged lymph nodes without abscess. On admission, titers for Bartonella henselae/quinata, Epstein-Barr Virus (EBV), Mycoplasma pneumonia, and quantitative PCRs for EBV and Cytomegalovirus were sent.

On exam he was overall well appearing but noted to have hepatomegaly and possible splenomegaly, and an abdominal ultrasound revealed splenomegaly with diffuse microabscesses. This radiological finding, combined with his presentation and history of recent exposure to a new puppy, led to a presumptive diagnosis of a Bartonella infection. Treatment with azithromycin was started due to the splenic involvement while infectious workup was pending.

Our patient had improved formula intake throughout the first 24 hours of admission and was discharged home. At a clinic follow-up two days later, his serologies had resulted with negative Bartonella titers but positive EBV viral capsid antigen (VCA) IgM, VCA IgG, and quantitative PCR.

Although EBV is a common infection in the pediatric population, this case is significant for its association with microabscesses in the spleen. Classically, EBV has been associated with splenomegaly (with a known risk of splenic rupture with abdominal trauma), while Bartonella or Francisella tularensis infections have been associated with splenic microabscesses. To our knowledge, this is the first time EBV has been associated with splenic microabscesses; physicians should be aware that this association is possible even in immunocompetent patients. This awareness could potentially avoid an unnecessary antibiotic course when empiric treatment would otherwise be reasonable.

338 MATURE POSTERIOR FOSSA TERATOMA AND DELAYED DETECTION OF AN ATRETIC ENCEPHALOCELE: A CASE REPORT

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10.1136/jim-2020-SRM.338

Purpose Highlight the unusual presentation of a young woman with delayed detection of an atretic encephalocele and intracranial mature teratoma in the posterior fossa that presented only with a headache.

Methods Analysis of the presentation, management, and operative findings of a pediatric female patient with an atretic encephalocele and large intracranial mature teratoma in the posterior fossa. A literature review provides additional information and compares our case to other rare posterior fossa teratomas.

Results A previously healthy 17-year-old female patient presented to the ED with occipital headache that started two
months ago and acutely worsened over 48 hours. She had no signs of nausea, vision changes, or focal neurologic deficits. CT scan revealed a posterior fossa tumor that was 4.9 cm × 4.6 cm × 6.5 cm that extended to the cervical medullary junction up to C1 with severe compression of the cervical medullary cord. Also noted was obstructive hydrocephalus with dilatation of the lateral, third and fourth ventricles, and an atretic encephalocoele at midline of the posterior neck with incomplete C1 ring. Due to the extensive hydrocephalus, a bilateral suboccipital craniectomy was done with gross-total resection (GTR) of the mass.

Histological examination of the tumor revealed a mature teratoma with keratin debris, bone with hair, fibroadipose tissue, and debris with cholesterol cleft. Thinning of the skull near the teratoma suggested chronicity. Beta-hCG tumor marker diagnosis was negative. Four months after GTR, the case was complicated by suboccipital pseudomeningocele with extension into the posterior paraspinal region down to the C3 level. The patient had blurry vision and difficulty with mobility. Beta-hCG and AFP were again negative.

**Conclusions** In this case, the patient’s symptoms consisted only of a severe headache that did not present until age 17. The lack of additional symptoms and late detection of atretic encephalocoele make this case an unusual presentation. Awareness of abnormal and classical intracranial teratoma presentation is crucial for better patient outcomes.

**339 GROUP B STREPTOCOCCAL PERINEPHRIC ABSCESS IN A PEDIATRIC PATIENT WITH DIABETES MELLITUS**

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**Introduction** Group B Streptococcal (GBS) infections are most common among neonates and are uncommon in the school-aged and adolescent populations. While GBS perinephric abscesses are seen in older adults with poorly controlled diabetes, they are very rare in the pediatric population. We present a case of GBS perinephric abscess in a child with newly diagnosed type 2 diabetes.

**Case A** 10-year-old previously healthy African American female presented to an outside hospital for complaints of intermittent stabbing abdominal pain and painful swelling of her right flank region for one-month duration. The outside facility obtained ultrasound imaging of the affected area and CT of the flank region for one-month duration. The outside facility was narrowed to ampicillin and then amoxicillin monotherapy. Both the patient and parents were comfortable with home drain care due to ongoing output and she was discharged with instructions to follow up. **Conclusions** This is the first reported case in the literature to our knowledge of GBS perinephric and soft tissue abscess in a pediatric diabetic patient. Rare causes of perinephric abscesses such as GBS should be considered when managing this subset of patients.

**340 MISLEADING VIRAL ILLNESS AND DEVELOPMENTAL REGRESSION LEADING TO A DEVASTATING DIAGNOSIS**

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**Introduction** A 10-month-old male had many ER visits with continued fevers over 1 month. He received two rounds of oral antibiotics for otitis media and presumed URI. The patient had multiple caregivers with mom having visitation rights. Only 2-month vaccines were given. At the 4th visit to our ED, he had truncal ataxia. A head CT was normal. Blood and CSF cultures were negative. RSV PCR was positive.

**Discussion** Meanwhile, regression of the developmental milestones was noted. Due to the inconsistent communication between family and medical team and no prior well-child checks, the regression was initially overlooked.

Hepatosplenomegaly was noted on exam. CBC demonstrated pancytopenia; interpreted as viral-induced bone marrow suppression. Ferritin was borderline elevated.

A few days later, he had hemiparesis with facial palsy. MRI Brain showed widespread microhemorrhages and areas of brain infarction.

**Discussion** The suspicion for HLH with CNS involvement was highly suspected. He met 5/8 criteria for HLH, e.g. fever, hepatosplenomegaly, pancytopenia, elevated ferritin, and elevated triglycerides.

Steroids, Etoposide, and Methotrexate were started immediately, but the patient continued to have neurologic regression and refractory status epilepticus.

He had spastic quadriplegia, bilateral cortical blindness, bilateral papilledema, retinal vasculitis, and breakthrough seizures. After 3 weeks of treatment, pupils improved from asymmetric and sluggish to become reactive. Mental status remains severely limited.

**Discussion** HLH is a life-threatening syndrome of excessive immune activation. Infection is a common trigger both in those with a genetic predisposition and in sporadic cases. Neurologic abnormalities have been observed in one-third of patients with HLH may include seizures, mental status changes, and ataxia.

For our patient, he had striking case of CNS involvement as described.

**Conclusions** HLH should not be overlooked in a child presenting with viral illness with symptoms that are inconsistent with the diagnosis, including unexplained anemia, thrombocytopenia, or regression of developmental milestones.

The difficult social history and diagnostic anchoring contributed to the morbidity and mortality of this patient.
Abstracts

341 CAPNOCYTOPHAGA ENDOCARDITIS
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10.1136/jim-2020-SRM.341

Case report A 13-year-old male who underwent mitral valvuloplasty and repair of anomalous left coronary artery as an infant presented with 2 weeks of fever and nonfocal complaints including abdominal pain, headaches and sore throat. Exam revealed a II/VI systolic murmur. Labs showed an elevated ESR, CRP, and WBC. Echocardiogram showed a mitral valve vegetation measuring 8 × 10 mm (figure 1). Blood cultures grew Capnocytophaga canimorsus (C. canimorsus), part of the oral flora of dogs and cats. Patient had a puppy who ‘licked the patient awake’ every morning. The vegetation shrank with IV antibiotics, and the ESR and CRP normalized. At discharge he was advised against letting his dog lick his face.

C. canimorsus is found in the mouth of dogs. In a study of 56 human C. canimorsus isolates, 78% of the cases involved a history of dog bite, scratch, or prolonged exposure to a dog (1). In that same study, the median time from a dog bite to onset of symptoms was 3 days (range 1–10 days). C. canimorsus can cause septicemia, meningitis, endocarditis and ocular lesions, is difficult to isolate, and requires an extended incubation period. Symptoms are nonspecific and blood cultures are often negative (2), so clinicians should maintain a high index of suspicion for this organism.

Abstract 341 Figure 1 Echocardiogram shows vegetation on the anterior mitral valve leaflet measuring 8×10 mm

SOURCES

342 TRANSIENT POST-OPERATIVE LEFT VENTRICULAR OUTFLOW TRACT OBSTRUCTION MIMICKING HYPERTROPHIC CARDIOMYOPATHY
K Singhapakdi*, I Batten. University of South Alabama, Mobile, AL
10.1136/jim-2020-SRM.342

Case report A 10-year-old female became tachycardic, hypertensive and developed a II/VI systolic murmur after knee surgery. Despite minimal blood loss her heart rate rose to 170 bpm and her blood pressure rose to 166/104 mmHg. She denied pain, shortness of breath, headache, or dizziness. Echocardiogram showed moderate concentric left ventricular hypertrophy with a thick interventricular septum of 11 mm as well as dynamic left ventricular outflow tract obstruction (LVOTO) concerning for hypertrophic cardiomyopathy (HCM). She was given fluids and IV metoprolol which resolved her hypertension and tachycardia. One month later the patient had no murmur and echo showed normal left ventricular thickness with no LVOTO. Two months later the patient again underwent surgery and again became transiently hypertensive and tachycardic. A cardiac MRI at that time was normal with no evidence of delayed enhancement. Her transient symptoms are thought to be related to general anesthesia.

Dynamic LVOTO has been documented in the setting of HCM, stress cardiomyopathy, acute coronary syndromes and with inotropic use, but has also been observed in the setting of general anesthesia. The most common cause of dynamic LVOTO, which was noted on our patient’s post-operative echo, is systolic anterior motion of the mitral valve leading to turbulent flow in the LVOT. This produces a murmur and a decrease in ejection volume, usually resulting in hypotension; however there is a documented case in which hypertension occurred in an adult patient (1).

It is important to recognize dynamic LVOTO early, as fluid resuscitation and intravenous beta-blockers can rapidly resolve symptoms (2). Our case is unique because the patient presented with hypertension rather than hypotension, and because, to our knowledge, this is the first pediatric case reported.

SOURCES

343 DIABETIC KETOACIDOSIS: TOO SWEET FOR THE HEART
P Snyder*, W Sauer, M Marks, BO Foxworthy. University of Alabama at Birmingham, Mountain Brook, AL
10.1136/jim-2020-SRM.343

Case report 17 year old critically ill male was transferred to the pediatric intensive care unit with newly diagnosed diabetes and diabetic ketoacidosis (DKA). On arrival, patient was altered with a Glasgow Coma Scale of 10. Initial labs were notable for severe metabolic acidosis, hypokalemia and hypophosphatemia (1.5 mEq/L and 0.8 mEq/L, respectively). An insulin infusion started prior to transfer was continued. Mental status declined despite receiving mannitol. While preparing for intubation for airway protection, he developed a wide-complex tachycardia with a pulse. Rhythm converted to sinus following intubation and concurrent repletion of potassium and administration of lidocaine and amiodarone. Emergent head CT revealed no evidence of cerebral edema.

Patient remained intubated for five days without recurrence of arrhythmia. His hypokalemia and hypophosphatemia were...
ABOVE AND BELOW: THE APPROACH TO KNEE PAIN

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10.1136/jim-2020-SRM.344

Case report Knee pain, while a common benign complaint in the pediatric population, can be an indicator of a far more serious problem. A complaint of knee pain can also distract providers from the actual area of pathology, as knee pain can often be referred from the hip or ankle. We present a 13 year-old male with chronic knee pain who, despite the queues on his history and exam, had a very delayed diagnosis of slipped capital femoral epiphysis (SCFE).

Nearly 3 years ago, our 13 year-old patient presented with knee pain which worsened with activity and radiated to his medial thigh. After developing an antalgic gait, he was diagnosed with Osgood Schlatter’s Disease and prescribed NSAIDs. At multiple follow up visits he was noted to have pain that worsened with activity and increased weight gain (BMI >99% for age). One year later, he was referred to Orthopedics and had an x-ray of his knee which was normal. Five months later, MRI of the knee was significant for minor subluxation of the patella. He was instructed to continue NSAIDs and to rest. In June of 2019, 2½ years after his initial presentation with knee pain, he was evaluated by Pediatric Orthopedics. Based on history and exam, x-rays of the hips were preformed and showed displacement of the right femoral epiphysis consistent with SCFE. He promptly underwent surgical fixation to stabilize the hip and prevent the displaced femoral head from slipping any further.

SCFE is the most common hip disorder in adolescents and usually develops during periods of rapid growth, shortly after the onset of puberty. The classic presentation is an obese adolescent male with the complaint of dull aching pain in the hip, thigh or knee without any preceding trauma. Early surgical treatment of SCFE provides the best chance of stabilizing the hip and avoiding serious complications, including avascular necrosis of the femoral head and chondrolysis. Physicians should always perform comprehensive musculoskeletal exams on patients with joint pain. The differential diagnosis should include pathology of the joint above and below the location of pain in order to properly diagnose significant conditions such as SCFE.

345 CHRONIC COUGH GONE BAD: A 2-YEAR-OLD WITH UNDIAGNOSED ANOMALOUS LEFT CORONARY ARTERY FROM THE PULMONARY ARTERY (ALCAPA) THAT PRESENTED WITH SEVERE CARDIAC DYSFUNCTION DURING OUTPATIENT WORK UP FOR COUGH

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10.1136/jim-2020-SRM.345

Introduction ALCAPA is a rare congenital condition that has a poor prognosis associated with myocardial infarction or cardiac failure, if untreated. Symptoms in infants and young children generally include increased work of breathing and irritability, which can be misdiagnosed as acid reflux, colic, or respiratory illnesses. We are reporting a case of a pediatric patient who was presumed to have pneumonia but was eventually diagnosed with ALCAPA and required surgical intervention.

Case report A previously healthy 21-month-old female presented with persistent cough and increased irritability for one month; no other symptoms reported. Patient was evaluated in the community and received a chest x-ray, which showed mild cardiomegaly with concerns for possible infarction. She was diagnosed with community-acquired pneumonia and was prescribed antibiotics. However, her symptoms persisted, and she was re-evaluated 4 weeks later. Repeat chest x-ray continued to reveal cardiomegaly, which merited a referral to Pediatric Cardiology. An echocardiogram (ECHO) revealed dilated cardiomyopathy, a dilated coronary artery, and a Shortening Fraction (SF) of 6%. There were no signs of end organ failure. She was admitted for further management; Milrinone, Furosemide, and Enalapril were initiated. SF improved to 13% on repeat ECHOs, but 2 days later her SF decreased to 9%. Also, there was an increased echogenicity of the LV free wall and a small echogenicity at the apex of the LV, suspicious for a thrombus. She remained clinically unchanged. She was transferred to a tertiary cardiac center where further imaging studies diagnosed her with ALCAPA. She underwent open-heart surgery with a good outcome and improvement of cardiac function; she was eventually discharged with oral medications for cardiac support.

Conclusion Albeit rare, ALCAPA is the most common coronary artery anomaly in children. Awareness of this condition is essential for appropriate diagnosis and early surgical intervention to prevent complications. A high index of suspicion is warranted for children with ongoing respiratory symptoms with associated cardiomegaly; echocardiograms and electrophysiograms are encouraged for initial evaluation.
Case report
Persistent hyperinsulinemic hypoglycemia of infancy (PHHI) is a cause of recurring hypoglycemia after the first 48 hours of life. Permanent and transient forms exist, regardless of etiology it is imperative to recognize and treat prior to the onset of permanent neurodevelopmental injury. Diagnosis is made when an inappropriately detectable insulin level and suppression of counterregulatory mechanisms are documented with low serum glucose. In most cases, there is an identifiable perinatal stressor or physical manifestation such as macrosomia present. We report a case of PHHI in a neonate without significant stressors or typical phenotype.

Case A 3-day old male was admitted to intensive care with lethargy, poor feeding, hypothermia, and hypoglycemia to 21 mg/dL. He was born by elective C-section with vacuum extraction at 39 weeks gestation. Mild untreated maternal hypertension was reported. Birth weight of 6lb 13oz, appropriate for gestational age. On exam no midline defects, excess subcutaneous fat, or hepatomegaly. Despite dextrose-containing IV fluids, hypoglycemia recurred and seizure activity was seen. Brain MRI had no pituitary hypoplasia or anatomical anomaly. Sepsis work-up was reassuring. Critical sample showed venous glucose of 34 mg/dL, insulin of 1.3 uIU/mL, and low serum ketones. Diagnosis of hyperinsulinism was made and diazoxide was initiated, resulting in euglycemia off all IV fluids and passing a 6-hour safety fast with minimum glucose of 75 mg/dL. Financial barriers precluded sending of a congenital hyperinsulinism genetic panel. At 2 months of life there was continued euglycemia with normal growth and development on the same starting dose of diazoxide.

Conclusion
Hypoglycemia persisting beyond 48 hours of life should be identified and treated to prevent permanent sequelae. PHHI should be considered as an etiology in the presence or absence of risk factors and phenotypic features. It is prudent to obtain serum insulin, free fatty acid, and beta-hydroxybutyrate level during a confirmed hypoglycemic event. Treatment of hyperinsulinism involves trial of diazoxide, which prevents insulin secretion by the beta-cell. This patient was diazoxide-responsive, indicating a transient acquired or medically treatable congenital form of the condition.

Case presentation
A 2-year-old female was born with a small pit on her right temple, approximately 1.5cm anterior to her right ear. The pit had sporadically drained clear fluid since birth. Two weeks prior to presentation, the pit stopped draining and she developed intermittent right eye swelling, fever, fatigue, anorexia, and weight loss. She completed an outpatient course of amoxicillin/clavulananate for presumed periportal cellultis, but her symptoms continued to worsen. Upon presentation to the Emergency Department, the child met sepsis criteria. CT of the brain and orbit demonstrated orbital cellultis along with a subperiosteal abscess with intracranial extension into the middle cranial fossa. Ceftriaxone and vancomycin were started. Neurosurgery and Oculo-plastics were consulted, and the child was taken for immediate craniotomy, orbitotomy, and surgical drainage of the abscess. A post-operative MRI showed resolution of the abscess, but confirmed a right temporal sinus tract extending from the skin surface to the right upper orbit. Intra-operative cultures grew Streptococcus intermedius. The patient was discharged with a 6 week course of ceftriaxone. A CT one-month post-discharge showed a small extra-axial fluid collection in the region of the previous epidural abscess. The sinus tract was subsequently surgically resected.

Conclusion
This case illustrates the potential for severe intracranial pathology with a congenital temporal cutaneous sinus tract. Most congenital cervicofacial pits will not be patent; however, it is important to recognize the possibility that the sinus tract may have a communication with the intracranial space. Early imaging and surgical resection prior to infection is recommended for all patients with cervicofacial pits that intermittently drain.
the decision was made to perform emergent tonsillectomy for suspected spontaneous tonsillar hemorrhage with complete resolution of symptoms after surgery. Surgical pathology and flow cytometry showed marked follicular hyperplasia with focal ulceration, Epstein-Barr virus (EBV) positivity, and no features of lymphoma.

**Conclusion** A spontaneous tonsillar hemorrhage presents as intermittent bleeding or blood clots identified in the mouth. Therefore, spontaneous tonsillar hemorrhage, though rare, should be included in the differential diagnosis of hematemesis, hemoptysis and posterior epistaxis, similar to our patient. In mild cases, conservative local control with cautery can be used to control bleeding. However, if local control is not successful, severe spontaneous tonsillar hemorrhage recurs or malignancy is suspected, tonsillectomy is recommended.

### Abstracts

**349 ORGANIZED CHAOS: A CASE OF SEVERE AUTISM SPECTRUM DISORDER IN THE ACUTE MEDICAL SETTING**

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**Case report** Our patient is a 17-year-old Asian American female with past medical history of Autism Spectrum Disorder (ASD), Morbid Obesity, and Intellectual Delay who presented with worsening aggression towards herself and her parents; she recently had sustained a fractured left humerus and facial laceration due to these behaviors, and her parents brought her when they were unsure about their ability to care for her safely at home. At admission her home medications included scheduled fluoxetine, hydroxyzine, ziprasidone, and as needed olanzapine and clonidine. Parents endorsed interest in residential psychiatric placement following medical stabilization at admission; however, this was not attainable due to severe limitations in residential mental health facilities in Oklahoma. A multidisciplinary team approach was required to effectively manage her care; though each team recognized their role in our patient’s care, it took some time for us to develop a well-coordinated approach to her care. Medication changes included discontinuing fluoxetine and olanzapine and oxcarbazepine, sertraline, and chlorpromazine. Behavior management included implementing 5 basic behavior rules, an incentive program, a set daily schedule, daily physical activity, and a consistent care team. Our patient’s admission was complicated by disruptive behaviors, lack of parent engagement and regular presence, and behavior management limitations of medical team as our hospital is not a mental health facility. In all, our patient was admitted for 60 days prior to discharge home.

**ASD** is a pervasive developmental disorder with significant deficits in social communication and interaction across multiple domains. Individuals with ASD benefit from strict routines, predictable patterns of behavior and expectations, and stable environment and care team. Patients with ASD frequently require hospital admission, and it is imperative to have an organized interdisciplinary plan for care and communication in place in order to maximize the care provided and minimize the disruption in patient routine. Prior to our patient’s admission, we did not have a blueprint for behavioral health admissions in place, and our care teams have since change our approach to similar patients.

**350 CURIOUS CASE OF A CLIVAL CHORDOMA**

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10.1136/jim-2020-SRM.350

**Case report** An 8 year old male with a past medical history of sensory processing disorder and asthma presented to the emergency room with complaints of fever for 7 days, headache and neck pain for 4 days and a new rash. He was seen by his pediatrician on day 2 of illness, where he had a positive rapid strep test and was started on amoxicillin. Due to persistence of fevers, neck pain and rash, he presented to the ER. Lab work obtained in the ER was notable for transaminitis. He was admitted for further workup, with EBV serology pending. Amoxicillin was continued. He had a recent history of tick bites, so tick titers were obtained and he was started on doxycycline. Infectious disease was consulted. It was felt his symptoms were most consistent with strep pharyngitis, with some features similar to EBV or a viral illness. He improved clinically and was discharged on hospital day 5. After discharge, EBV titers showed positive IgG but negative IgM. Tick titers were negative.

He followed up with his pediatrician for continued neck pain. A CT scan was obtained, which showed a soft tissue mass centered at the cranio cervical junction extending into the prevertebral soft tissues and epidural space with destruction of the clivus. Biopsy results were consistent with a clival chordoma, favored to be a dedifferentiated chordoma. He developed dysphagia and continued to have increased neck pain, eventually requiring admission to the PICU for frequent monitoring. MRI was obtained which showed compression of the brainstem, cerebellum, and 4th ventricle. Surgical resection and radiation was not thought to improve prognosis, and the family decided to place the patient on comfort care. Autopsy at end of life showed a poorly differentiated chordoma.

Clival chordomas typically present with vague symptoms and are usually slow growing. The estimated incidence of chordomas is 1 per 1,000,000 people with 300 new diagnoses per year in the United States. Less than 5% of these are diagnosed in pediatric patients; however, they tend to be more aggressive than chordomas in adults. Poorly differentiated chordomas have a poor prognosis even with surgical resection and radiation therapy. This case demonstrates the uncertainty of clinical medicine when faced with a very rare and aggressive skull base tumor as well as the need for continued follow up.

**351 DECOMPRESSIVE CRANIECTOMY FOR STROKE AND INTRACRANIAL HYPERTENSION WHILE ON VENOARTERIAL EXTRACORPOREAL MEMBRANE OXYGENATION**


10.1136/jim-2020-SRM.351

**Case report** A three-year-old with trichothiodystrophy-like syndrome presented with loss of consciousness after a fall. CT scan revealed right parieto-occipital subdural hematoma with overlying skull fracture. Patient had right sided hemiparesis prompting further imaging. MRI did not show evidence...
MECONIUM ILEUS: AN EPISODE OF A HOME BIRTH

TREATMENT OF TOXIC EPIDERMAL NECROLYSIS WITH ETANERCEPT

Abstracts

Fluoroscopic water-soluble enema was consistent with microcolon, meconium ileus, or bowel atresia. He underwent exploratory laparotomy, which revealed meconium plugging. 4cm ileal resection proximal to ileocecal-valve and ileostomy were performed. His newborn screen resulted shortly after his procedure and revealed a double delF508 mutation, confirming the diagnosis of CF. Fecal elastase resulted below limits of detection signifying severe pancreatic insufficiency from his CF. Pancreatic enzyme replacement therapy was introduced and his feedings were advanced as tolerated up to his discharge.

Discussion

This presentation of MI involves home delivery, which may attribute to a delay in his diagnosis of MI and CF. Differential diagnosis for hematemesis in neonates is wide; but, closer monitoring in hospital can allow for quicker diagnostic and therapeutic modalities that may resolve MI without surgery. Hematemesis in this case was bowel obstruction secondary to MI. It is critical to consider diagnostic contrast enema in neonates with no obvious risk factors of MI or CF who present with symptoms of bowel obstruction as it will assist in diagnosing MI and CF.

REFERENCES


INTRODUCTION

While meconium ileus (MI) is most commonly associated with Cystic Fibrosis (CF), it only occurs in a minority of neonates with CF. Complications from undiagnosed MI include volvulus, ischemic necrosis, intestinal atresia, and perforation. Early recognition of MI with more timely interventions reduce mortality rates.

Case

A 1-day old male born via vaginal home birth at 38 5/7 weeks gestational age presented to the emergency department with blood tinged spit up and one large frank hematemesis. He had poor feeding since birth and no bowel movement. He was afebrile with stable vital signs. CBC and KUB x-ray were normal. Despite receiving 1 mg of oral Vitamin K at birth, INR (1.38) and PTT (38.3) were slightly elevated. In the NICU, he had several episodes of dark and bright red blood secretions despite triple antibiotic therapy, famotidine, nasogastric lavage, and glycerin suppository. Additional Vitamin K IM injection was given. Repeat KUB x-rays showed increased gaseous distension in his colon despite having an OG tube placed to suction.

Of stroke, though edema of the cervical cord at the C2-C3 level was noted. On hospital day two, she developed respiratory failure requiring intubation. Following intubation, she deteriorated rapidly developing refractory shock. She was placed on VA ECMO via right neck cannulation. Infectious evaluation was notable for a viral respiratory panel positive for enterovirus. On ECMO day four, her left pupil became fixed and dilated. Heparin was stopped and mannitol and hypertonic saline were given for presumed intracranial hypertension. Emergent CT scan demonstrated a large, right middle cerebral artery distribution ischemic stroke. Following discussion of risks and benefits with family, neurosurgery performed a decompressive right craniectomy. Systemic anticoagulation continued to be held and she was successfully weaned from ECMO 32 hours later.

Risks associated with surgical interventions are compounded while on ECMO. Systemic anticoagulation is typically held in the perioperative period, decreasing the risk of surgical bleeding but increasing likelihood of ECMO circuit dysfunction. Neurosurgical intervention on ECMO is rare. Review of the ECMO experience at the University of Michigan ECMO between 1990 and 2009 found only three of 81 patients with intracranial hemorrhage underwent craniotomy. Two survived with minimal neurologic deficits.1 Our patient’s constellation of neurologic findings was perceived to be due to enterovirus mediated acute flaccid myelitis. Repeat imaging of her cervical spine demonstrated near resolution of swelling. She has undergone extensive rehabilitation and now attends pre-school with mild residual hemiparesis.

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Introduction

Toxic Epidermal Necrolysis (TEN) is a rare, life-threatening skin disease with no consensus on systemic treatment, particularly in pediatric patients. We present the case of a 13-year-old previously healthy patient with TEN who showed significantly shortened length of hospital stay and duration of symptoms when treated with etanercept.

Case report

A previously healthy 13-year-old male on day 3 of his second course of oral sulfamethoxazole-trimethoprim for epididymitis presented to the emergency department with a fever of 39.4°C and a warm, erythematous, macular rash that started on his neck and spread to his entire body over two days prior to presentation. On exam, the patient also had small bullous lesions forming on the left side of his forehead and neck and mucosal erosions of the hard palate. Skin biopsy on hospital day (HD) 1 confirmed the diagnosis of Stevens-Johnson Syndrome (SJS) and he was started on high-dose intravenous (IV) steroids. His condition rapidly progressed to bullous lesions covering over 50% of his body surface area, classifying his disease as TEN. As supportive care is the only recommended treatment of TEN, we searched the literature and found a recent randomized controlled trial and a few case reports in the adult population showing benefit with the use of tumor necrosis factor-alpha inhibitors such as etanercept. We started a trial of etanercept on HD 2. He received two 50 mg doses four days apart before transfer to a burn center, where he was started on a four-day course of IV immunoglobulin and a steroid taper. The desquamation peaked on HD 5 and he recovered for discharge by HD 13, which is nearly 7 days shorter than the average length of stay for patients with TEN.

Discussion

Aside from supportive care, there is no consensus for treatment of TEN. The choice to initiate etanercept in this patient was guided by reports of successful use in adult
patients with SJ/S/TEN. Previous data for use in children is limited to one case report. The shortened time to complete re-epithelialization and significantly shortened length of hospital stay can be attributed to the use of etanercept in this case of TEN as the rapidity of his response is unexpected with the adjunct therapies used.

Purpose of study We describe a case of a 16-year-old patient with a history of diabetes mellitus type 1 who presented with a one-month history of fatigue and diarrhea who was found to have severe pancytopenia secondary to pernicious anemia.

Methods used Chart review.

Summary of results A 16-year-old African American girl with a history of DM1 presents with one-month history of fatigue, dizziness, headaches, vomiting, non-bloody diarrhea, and intermittent abdominal pain. She has a regular diet comprised of vegetables, fruit, meats and grains. She had a previous diagnosis of microcytic anemia two years ago. At the time, her anemia and vitamin B12 levels had improved with iron supplementation and a multivitamin.

A complete blood cell count shows the following: WBC 2.27 K/ul, absolute neutrophil count of 320, hemoglobin level 5.6 g/dL, hematocrit 16.1%, platelet 48 K/ul, RBW 30.5%, MCV 101.3 fL, MCHC 34.8 g/dL, reticulocyte count 2.8%. LDH 11,693 U/L, AST 165 U/L, ALT 93 U/L, total bilirubin 4.5 mg/dL, direct bilirubin 0.8 mg/dL, uric acid 4.5 mg/dL. Basic metabolic panel is within normal limits. Bone marrow aspirate and biopsy were performed and was normocellular for age with left shifted trilineage maturation and dyserythropoiesis. Flow cytometry on bone marrow aspirate was negative for an abnormal blast population. Folate was normal (17.1) but Vitamin B12 was severely low (<146). Her homocysteine level was also elevated (>150). MethyImalonic acid was moderately elevated (7.94 umol/L). This is consistent with Vitamin B12 deficiency leading to megaloblastic anemia and hemolysis within the bone marrow due to ineffective erythropoiesis. Intrinsic Factor blocking antibody from serum was positive identifying pernicious anemia as the cause of her vitamin deficiency.

Patient received weekly cyanocobalamin 1000 mcg injections for Vitamin B12 deficiency. CBC after 2 weeks of treatment were WBC 10.68 K/ul, hemoglobin level 11.4 g/dL, hematocrit 33.6%, platelet 329 K/ul. Her energy level was markedly improved. Diarrhea and abdominal pain resolved. After one month of weekly parenteral B12 supplementation, she was transitioned to monthly doses.

Conclusion Vitamin B12 and folate deficiency should be suspected in a patient who presents with pancytopenia, macrocytic anemia, or a history of previous vitamin deficiency.
Abstracts

355 SCREENING ASYMPTOMATIC INFANTS BORN TO MOTHERS WITH HSV LESION: IS LESS MORE?
C Boyle*, JM Davidson, AI Talati. University of Tennessee Health Science Center, Memphis, TN
10.1136/jim-2020-SRM.355

Purpose of study Herpes neonatorum is uncommon, but infants born to women with active herpes simplex virus (HSV) lesions or history of is very common. As neonatal infections have high mortality and morbidity, AAP guidance on work-up and treatment for asymptomatic infants born to moms with active HSV lesions at delivery is extensive. Management includes surface cultures, blood HSV PCR, possibly CSF HSV PCR and treatment with IV acyclovir. These tests are invasive and prolong hospital stay. We aimed to review cases of infants born to moms with active HSV lesions at delivery to determine utility of these invasive tests.

Methods used We performed a retrospective chart review of infants exposed to maternal genital HSV at the time of birth. We identified infants born from October 2014 to August 2016 at our level 3 NICU.

Summary of results In this cohort, 37 infants had been exposed to a mom with genital HSV with a mean maternal age of 26±5 years, 84% were African American, 54% were male, mean gestational age of 37±3 weeks, mean birth weight was 2663±812 grams and 78% were born by cesarean section. Twelve had active lesion at delivery with no prior history, 8 had active lesion at delivery with prior maternal history, 16 had no active lesion at delivery but had a prior history and 1 mom had no history or active lesion but her infant developed CNS disease. All surface cultures were negative except 1 was positive for HSV-1, who remained asymptomatic. Table 1 below reflects results of various tests.

Conclusions Asymptomatic infants born to mothers with active HSV lesions at delivery undergo invasive testing that is rarely helpful. Except for 1 infant in our cohort, all surface cultures, HSV blood PCRs and HSV CSF PCRs were negative and all infants remain asymptomatic. Larger data sets need to be evaluated for utility of current strategy.

Abstract 355 Table 1

<table>
<thead>
<tr>
<th>n=37</th>
<th>Surface Cultures</th>
<th>Blood HSV PCR</th>
<th>CSF HSV PCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actve lesion at delivery</td>
<td>n=12</td>
<td>Positive: 1/12 (8%)</td>
<td>10 (100%)</td>
</tr>
<tr>
<td>No prior maternal history (n=12)</td>
<td>Negative: 11/12 (92%)</td>
<td>10 (100%)</td>
<td></td>
</tr>
<tr>
<td>Active lesion at delivery</td>
<td>n=7</td>
<td>Negative: 7/7 (100%)</td>
<td></td>
</tr>
<tr>
<td>Prior maternal history (n=8)</td>
<td>n=1</td>
<td>Negative: 1/1</td>
<td></td>
</tr>
<tr>
<td>No active lesion at delivery</td>
<td>n=10</td>
<td>Negative: 10/10 (100%)</td>
<td>11/11 (100%)</td>
</tr>
<tr>
<td>No prior maternal history (n=18)</td>
<td>Negative: 8/8 (100%)</td>
<td>4/4 (100%)</td>
<td></td>
</tr>
<tr>
<td>No active lesion at delivery</td>
<td>n/a</td>
<td>n/a</td>
<td>n=1</td>
</tr>
<tr>
<td>No prior maternl history (n=1)</td>
<td>Positive- presented with seizure</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

356 LARYNGEAL CLEFT, VENTRICULAR SEPTAL DEFECT, EPILEPSY, AND GLOBAL DEVELOPMENTAL DELAY OBSERVED IN A PATIENT WITH DENOVO 13Q11-Q12.11 DELETION
1KR Casano*, 2H Meddough, 3S Kanotra, 4M Marble. 1LSU New Orleans School of Medicine, New Orleans, LA; 2Children’s Hospital, New Orleans, LA; 3University of Iowa Hospitals and Clinics, Iowa City, IA; 4LSU Health Sciences Center, New Orleans, LA
10.1136/jim-2020-SRM.356

Case report Congenital laryngeal cleft is a rare anomaly and usually occurs without a known cause. The prevalence is approximately 1 in 10,000–20,000 live births with equal occurrence of sporadic cases in males and females (Roth et al., 1983). Laryngeal clefting has been reported in both syndromic and non-syndromic cases. It is associated with other congenital anomalies in over 50% of cases, but may also occur as an isolated defect (Griffith et al., 2015). There have been several reports of laryngeal cleft occurring in multiple family members, suggesting that genetic factors may play a role (Zachary et al., 1961; Finlay, 1949; Crooks, 1954; Phe- lan et al., 1973; Phelan et al., 1995). However, no causative genes have been delineated. Recently, Pillai et al. reported a novel chromosomal deletion involving 6p21.31p21.1 in a patient with laryngeal cleft, developmental delay, dysmorphism, and vascular anomaly of the anterior descending aorta, raising the possibility that a gene or genes in this region may be important for laryngeal development (Pillai et al., 2019).

We report a patient with laryngeal cleft, ventricular septal defect, epilepsy, global developmental delay, and a de novo deletion of chromosomal segment 13q11-q12.11. No clinically established disorders have been reported as a result of deletion in this region, which makes its clinical significance is unclear. However, we speculate that this deletion of 13q11q12.11 is a possible etiology for the proband’s laryngeal cleft and clinical presentation. Although future reports of deletions in this region are needed to clarify the correlation between genotype and phenotype, our report suggests that candidate genes for laryngeal cleft formation may be found in this deleted region.

357 GASTRIC RESIDUALS ARE NOT ASSOCIATED WITH NECROTIZING ENTEROCOLITIS WHEREAS ABDOMINAL SIGNS MAY LEAD TO THE DIAGNOSIS
G Castano*, A Pena Hernandez, A Shoola, DC McCurnin, CL Blanco. UT/HSSCSA, San Antonio, TX
10.1136/jim-2020-SRM.357

Purpose of study Necrotizing enterocolitis (NEC) is a disease with multifactorial etiology. Evaluation of gastric residuals (GR) is routine practice in many NICUs given possible association to feeding intolerance. The goal of this study was to determine the role of gastric residuals for identification of NEC. We investigated abdominal signs and relationship with NEC.

Methods used A retrospective case-control study was performed from January 2014–December 2018. Preterm infants with a diagnosis of NEC stage ≥2 were matched to 2 controls by gestational age (GA), gender and admission date. Student’s T-test, Chi-square and logistic regression were used as appropriate. Variables were obtained from the day of NEC
(D0) or equivalent day of life for controls, and 3 subsequent days prior.

**Summary of results** We report 42 cases and 84 controls with similar characteristics; mean GA 27.5±2.7 vs. 27.5±2.6 BW 1124 g±365 vs 1097 g±338, and male gender 57% vs 58% respectively. Comorbidities such as IUGR, PDA, BPD and ROP were nearly identical.

Volume of feeds on D0 was 132±57 mL/kg/d in cases vs 108±30 in controls (p<0.05). No differences in feed type (human milk 69% vs 71%) or feed delivery (bolus feeds 76% vs 63%) were found. On D0 49% of cases had at least 1 GR vs 70% of controls. No differences were found on the previous 3 days. The total volume of GR and the percent of GR from total feed volume were similar.

Bloody stools were present in 45.2% of cases vs 1.2% in of controls (p<0.05) on D0. Emesis and abdominal signs (abdomen firm, loopy, hypo/hyperactive bowel sounds, discoloration) were also different on D0 (26.2% vs 2.4%, and 69.0% vs 2.4% respectively). Abdominal girth change over 24 hrs was greater in cases vs controls (1.7±0.5 vs 1.0±1.2 cm increase). 2–3 days prior D0 only abdominal signs were still higher in the cases (p<0.05).

**Conclusions** We demonstrate GR frequency, volume or percentage of feeds have no association to the diagnosis of NEC whereas abdominal signs along bloody stools play a critical role for diagnosis. Abdominal girth change in 24 hrs >1 cm could be a predictor of NEC in VLBW infants.

**Pathogenic Copy Number Variants in Congenital Heart Defects: An Underlying Genetic Risk for Neurodevelopmental Impairment**

AK Crain*, S Mahajan, A Solis Zavala, J Davis, D Rodriguez-Buritica, TO Findley, MGovern Medical School, The University of Texas Health Science Center at Houston, Houston, TX

10.1136/jim-2020-SRM.359

**Purpose of study** Congenital heart defects (CHD) are the most common congenital anomalies worldwide. Known genetic causes include aneuploidies and copy number variants (CNV). Chromosomal microarray (CMA) testing is recommended as the first-line genetic screen for CHD patients without clear genetic association.

Our objective was to identify an association between head circumference (HC) at birth and pathogenic CNV or abnormal karyotype in CHD.

**Methods used** We conducted a retrospective review of CHD patients admitted to a single-center, academic NICU in Houston, Texas, from January 2013 to December 2018 (total n=490). Data collected included HC at birth, echocardiogram, extracardiac anomalies, karyotype results, and CMA results classified as normal, abnormal/ pathogenic, or variants of unknown significance (VOUS). CHD phenotypes were classified per the National Birth Defect Prevention Study. Two-sided Fisher’s exact test was used to compare average HC (Z-score) for patients with pathogenic CMA/karyotype results to those with VOUS/normal CMA results.

**Summary of results** We included all CHD patients with karyotype or CMA results in our analysis (n=302). Conotruncal and left ventricular outflow tract obstruction (LVOTO) patients had the highest rate of pathogenic CNV (0.29 and 0.22, respectively). Patients with abnormal CMA/karyotype results had a smaller HC than those with VOUS/normal CMA results (Z-scores -0.90 vs. -0.47, P=0.007). There was no difference in the central nervous system (CNS) or extracardiac anomalies, as determined by physical exam and/or imaging.

**Conclusions** We observed a higher rate of pathogenic CNV in conotruncal and LVOTO patients compared to previous studies. Patients with pathogenic CNV or abnormal karyotype have a smaller HC at birth without a difference in rate of

**CHONDRODYSPLASIA PUNCTATA WITH OPTIC NERVE HYPOPLASIA AND THORACIC DYSTROPHY**

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10.1136/jim-2020-SRM.358

**Case report** This case demonstrates a rare mutation and constellation of features in an otherwise well-described disease. Baby was a 35 week male delivered by emergent c-section for fetal bradycardia. Mother was transferred for preterm labor and fetal anomalies including absent nasal bone, mandible regression, obstruction of oropharynx, and abnormal spine curvature.

Baby was intubated at delivery for respiratory distress. Features included low set ears, midface hypoplasia, large tongue, small chest wall, contractures in fingers and toes.

X-rays revealed rib crowding with bell shaped chest and abnormal stippling of bony epiphyses and apophyses. Eye exam showed bilateral optic nerve hypoplasia. MRI spine revealed cervical cord edema and severe stenosis of the thoracic spinal canal. Genetic studies were sent with the suspicion of chondrodysplasia punctata and identified a hemizygous missense variant c.337C>T, p.(Leu113Phe) in the Aryl Sulfatase E region of small arm of X chromosome.

At 3 months old, mother withdrew support after progressively worsening respiratory status despite maximal ventilator support and 100% FiO2.

Chondrodysplasia punctata (CDP) is a disease characterized by the appearance of stippling on bones on radiological images. The X-linked recessive form has an estimated prevalence of 1 in 500,000, almost exclusively males. It is caused by a deficiency of the arylsulfatase E enzyme (ARSE). Bilateral optic nerve hypoplasia and asphyxiating thoracic dystrophy has not been described in literature prior. This particular missense mutation has been described once prior in 2007.

**Abstract 358 Figure 1** X-rays with bell shaped chest, rib crowding, stippling of bones of feet and vertebra
ASSOCIATION OF RETINOPATHY OF PREMATURENESS AND EARLY USE OF INHALED NITRIC OXIDE IN VERY PRETERM INFANTS: ANALYSIS OF MULTICENTER KID DATABASE

N Dankhara*, J Desai, JM Patel, University of Mississippi Medical Center, Jackson, MS

Purpose of study There is inconsistent evidence suggesting association of retinopathy of prematurity (ROP) and inhaled nitric oxide (iNO). We aimed to (i) To determine if there is an association between the use of iNO and ROP in very preterm infants (≤32 weeks of gestation or ≤1500 gram birth weight) (ii) To determine factors predicting ROP in infants who had early exposure (before 32 weeks of corrected gestation) of iNO.

Methods used We used the national multicenter Kids’ Inpatient Database (KID) database during years of 2003, 2006, 2009, 2012, and 2016. Infants who died before 32 weeks of corrected gestational age and transferred out were excluded. Infants who had a procedure code of iNO use (ICD-9: 0010, ICD-10: 3E0F7SD) before 32 weeks of corrected gestational age were identified as iNO use. Weight-based analysis was performed using SAS 7.1. The outcome of any ROP was examined using regression analysis.

Summary of results Among 334,153 very preterm infants, incidence of iNO use was 2.4 per 1,000 overall and 6.1 per 1,000 for extremely preterm infants. The iNO use in this cohort increased from year 2003 (0.7/1000) to 2012 (3.7/1000) and then dropped in 2016 (2.1/1000). Odds of any ROP was not significant after adjusting for confounders (aOR: 1.28, CI: 0.97–1.69, p = 0.07) in whole cohort. After stratified by gestational age, odds of having ROP was significantly higher for gestational age ≤28 weeks (aOR: 1.33, CI: 1.01–1.76, p = 0.04) (figure 1).

Conclusions In our cohort, ROP was significantly associated with iNO use if gestational age at birth was ≤28 weeks. The trend of iNO use in very preterm infants is increasing.

A CASE OF RARE AND INVASIVE SERRATIA MARCESCENS MENINGITIS IN A NEONATE

NN Dinh*, R Gupta, D Rivera. LSUHSC, New Orleans, LA

Case report Bacterial meningitis is a life-threatening infection of the central nervous system that requires swift diagnosis and treatment. Bacterial meningitis has a high morbidity and mortality of 5%–15% across all pediatric ages. Some of the risk factors for meningitis in neonates include prematurity, low birth weight, and prolonged rupture of membranes. Group B streptococcus and Escherichia coli are the cause for about 70% of neonatal bacterial meningitis cases and while other bacteria are rarer, their potential to cause neurologic destruction cannot be understated. Clinical manifestations of neonatal bacterial meningitis can be nonspecific, such as temperature instability and poor feeding.

We present a case of a 31 4/7 week gestational age female infant born via cesarean section due to prolonged decelerations. Infant required intubation and surfactant administration but was quickly extubated. Initial septic workup including blood culture was negative. On day of life six, routine head ultrasound showed significant intraventricular hemorrhage. Her clinical status deteriorated quickly with seizure activity, apnea requiring intubation and hemodynamic instability. Blood and cerebral spinal fluid cultures were positive for Serratia marcescens. Despite aggressive...
ADAMS-OLIVER SYNDROME: IS IT ON YOUR
MATERNAL EXPRESSED BREAST MILK VS. DONOR

J Investig Med 2020;...[55x173]

pathway. and 4 are play role in the in the NOTCH signaling
casually related to AOS; two function in the CDC42/RAC1
patients with familiar form of AOS. There are 6 genes are
likely to have anomalies in additional systems than those
of inheritance, however sporadic cases also occur and more
focal dermal hypoplasia.
uals. In differential diagnosis may consider trisomy 13 and
(CMTC, congenital heart defec t, vascular anomaly) should
ttLD, family history) or one major and one minor feature
making the diagnosis. The presence of two major (ACC,
other malformations. Clinical scoring system is helpful in
severity of the ACC lesion and limb defects and associated
organ systems. Prognosis is dependent on the size and
severity of the ACC lesion and limb defects and associated
other malformations. Clinical scoring system is helpful in
making the diagnosis. The presence of two major (ACC,
TTLD, family history) or one major and one minor feature
(CMTC, congenital heart defect, vascular anomaly) should
place AOS high in the differential diagnosis of such individu-
als. In differential diagnosis may consider trisomy 13 and
docal dermal hypoplasia.
Etiology heterogeneity is the basis of the various mode
of inheritance, however sporadic cases also occur and more
likely to have anomalies in additional systems than those
patients with familiar form of AOS. There are 6 genes are
casually related to AOS; two function in the CDC42/RAC1
and 4 are play role in the in the NOTCH signaling
pathway.

We present a case of a female born at 32-weeks-gestation
with a large scalp defect and limb anomalies as well as cutis
marmorata with normal underlying skull. The combination of
scalp and terminal limb defects and livedo reticularis suggests
the diagnosis of AOS. This patient has no family history
of scalp and limb defects. Although AOS is a multisystem disor-
der, no other major internal organ involvement was discovered
in this patient. Molecular testing is planned in order to pro-
vide accurate counseling for the family. This case demonstrates
the importance of determining an accurate diagnosis to imi-
	tage management as early as possible and surveillance for cardio-
vascular, neurologic and/or ocular manifestations.

Abstract 363 Table 1  \- Demographic characteristics

<table>
<thead>
<tr>
<th>First Feed</th>
<th>Number of Infants</th>
<th>Maternal Race</th>
<th>Mode of Delivery</th>
<th>ANS</th>
<th>GA (weeks)</th>
<th>Birth Weight (g)</th>
<th>5-Minute APGAR Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBM</td>
<td>184</td>
<td>88% African American</td>
<td>10.3% Caucasian</td>
<td>1.6% Other</td>
<td>79.4%</td>
<td>97.3%</td>
<td>26.3±2</td>
</tr>
<tr>
<td>DBM</td>
<td>133</td>
<td>81.2% African American</td>
<td>12.8% Caucasian</td>
<td>6% Other</td>
<td>69.2%</td>
<td>94.7%</td>
<td>26.6±2</td>
</tr>
</tbody>
</table>

P-values p<0.07 p<0.04* p=0.3 p=0.13 p=0.02* p=0.02*
groups. Days to full enteral feeds were 23±10 for DBM and 27±11 days for MBM (p<0.001). There was no significant difference in the incidence of HAI, ROP, BPD, NEC and mortality.

Conclusions DBM may be safely substituted for MBM as the first feed in instances where MBM is unavailable to avoid delay in timely initiation of enteral feeds.

Abstract 363 Table 2 Growth and nutrition outcomes

<table>
<thead>
<tr>
<th>First Feed</th>
<th>Length of Stay (days)</th>
<th>VON Growth Velocity (g/kg/d)</th>
<th>Day of Life Enteral Feeds Started (days)</th>
<th>Days to Target Feeds (110 kcal/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBM</td>
<td>79.3±40</td>
<td>13±4</td>
<td>3.86±2</td>
<td>27.5±11</td>
</tr>
<tr>
<td>DBM</td>
<td>72.6±39</td>
<td>13.1±4</td>
<td>3.14±1.5</td>
<td>23±10</td>
</tr>
<tr>
<td>P values</td>
<td>p=0.14</td>
<td>p=0.97</td>
<td>p=0.21</td>
<td>p&lt;0.001*</td>
</tr>
</tbody>
</table>

Abstract 364 TRANSLATION OF THE 2017 GUIDELINES ON EARLY DIAGNOSIS OF CEREBRAL PALSY INTO CLINICAL PRACTICE

M Hamilton*, A Duncan. UT Health Science Center at Houston, Houston, TX

Purpose of study Cerebral Palsy (CP) is the most common physical disability in childhood, and the average age of diagnosis is around 2 years. Recent guidelines note that CP diagnosis is possible prior to 12 months using standardized assessments – neurologic exam (Hammersmith Infant Neurologic Exam or HINE), motor test (General Movements Assessment or GMA, Alberta Infant Motor Skill or AIMs) and neuroimaging (MRI). GMA results of cramped synchronized or absent fidgety movements are predictive of CP with 98% sensitivity. We instituted recommended assessments and a standard 3–4 month follow-up clinic visit for earlier CP diagnosis.

Methods used Tiny Tot Clinic (TTC) is a multi-disciplinary follow-up clinic in an urban setting, associated with a large Level IV NICU, that provides neurodevelopmental and behavioral health services from NICU to school-age. Clinic staff included a physician and Licensed Psychological Associate. The average age of CP diagnosis was at least 2 years prior to interventions.

Following selection into the CP Foundation Early Detection Network in June 2017, a 6-month planning period ensued. After SWOT (Strengths, Weaknesses, Opportunities Threats) analyses, a flow process was created and TTC visit schedules and processes were refined. New practices included: 1) GMA performance in the NICU, 2) 3–4 month corrected gestational age (CGA) TTC visit including 2) GMA and 3) HINE. Previous TTC psychosocial and functional motor assessments remained, but 4) A Physical Therapist performed the AIMS assessment. Families of children diagnosed with High-risk for CP or CP were provided educational materials and psychological support.

Summary of results In the NICU, 154 GMAs have been performed; 8 infants with cramped-synchronized NICU GMAs were referred to TTC; 4 would not have been referred prior to implementation. At the 3–4 month visit, 15 children had absent fidgety GMAs. A total of 21 and 17 infants have been diagnosed with High-Risk for CP or CP respectively, at an average age of 4 and 9 months CGA.

Conclusions Earlier detection of CP can be achieved with a multidisciplinary NICU follow-up team, even in a lower-resource setting. It is crucial to implement an early detection process to utilize the period of highest neuroplasticity in the first year of life for intervention in these infants diagnosed with High-Risk for CP or CP.

Abstract 365 Figure 1 Flow, PaO2, and SVO2 Trends on ECMO

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10.1136/jim-2020-SRM.365

Case report Neonatal thyrotoxicosis is a rare phenomenon caused by passage of maternal thyroid-stimulating immunoglobulins across the placenta or by mutated thyrotropin receptors. While not clearly understood mechanistically, hyperthyroidism in the newborn has been associated with pulmonary hypertension (PHTN). We report second known case of neonatal thyrotoxicosis-induced PHTN requiring extracorporeal membrane oxygenation (ECMO). Infant’s mother had healthy pregnancy except for hyperthyroidism treated with methimazole. The infant was born at outside facility at 34 weeks gestation via C-section due to breech presentation. After delivery, the patient developed respiratory distress with poor oxygenation, requiring high-frequency ventilation and inhaled nitric oxide. Echo showed severe PHTN. She was transferred to our center for ECMO with OI of 143. The infant was placed on V-A ECMO. She was tachycardic and hypertensive, and noted to have goiter on exam. Thyroid testing showed peak free T4 of 11.4 and TSH of <0.01. Infant was started on methimazole. She was discharged home on methimazole for thyrotoxicosis. The infant received 5-day course of ECMO, complicated by left-sided periventricular hemorrhagic infarct on day 2 of ECMO. The infant received amikar for the bleed, which stabilized. She tolerated lung recruitment starting day 3 of ECMO, assisted by starting folan in addition to ongoing sildenafil and milrinone for PHTN. Serial Echo showed resolving PHTN that was mirrored by toleration of decreasing flows with increasing SvO2s and PaO2s. (figure 1) On day 5, infant tolerated clamping trial and was decannulated. Infant weaned to room air by 2 weeks of life and discharged home on methimazole with scheduled endo follow up.
LOSS OF BREAST MILK FAT, PROTEINS, AND GROWTH FACTORS DURING GAVAGE FEEDING

1A Jain*, 2J Coon, 3P Young, 4A Okorodudu, 5S Jain, 1UT Houston, Houston, TX; 2University of Texas Medical Branch, Galveston, TX; 3UTMB, Galveston, TX

10.1136/jim-2020-SRM.366

Purpose of study Depending on different methods of gavage feeding, substantial losses of nutrients occur of express breast milk (EBM) and donor breast milk (DEBM). Our objective was to compare the losses of calories, protein and growth factors in EBM, DEBM and DEBM fortified with prolacta based on gavage feeding method.

Methods used We used EBM, DEBM and fortified DEBM with Prolacta (26 cals/Oz) and clinically available gavage feeding system in our NICU was used in vitro to measured pre and post-feeding nutrient contents of total calories, proteins and trophic factors. Creamatocrit was used to measure fat and caloric contents in the milk. Bead assay was used to measure the growth factors and total protein was measured in the biochemistry lab. We compared continuous, bolus feeding with feeding syringe horizontal versus vertical.

Summary of results Continuous feeding with horizontal syringe method was associated with significant losses of calories in EBM 14–37% p <0.001, DEBM 11–31% P=0.01 - <0.001, DEBM+Prolacta 5–24%, p=0.1-p<0.001. Bolus feeding with vertical syringe method had the least amount of nutrient losses.

Conclusions We found significant loss of fat and calories associated with gavage feeding. Continuous with horizontal syringe method losses maximum nutrients and bolus with vertical syringe losses minimal nutrients. Fortification of DEBM also decreases nutrient losses in all, methods of gavage feeding.

ASSOCIATION OF US NEONATAL MORTALITY WITH CHANGES IN PRACTICE, 2000–2017

RG Jones*, I Loyd, M Anderson, T Garwe, V Ivanov. Oklahoma University, Oklahoma City, OK

10.1136/jim-2020-SRM.367

Purpose of study Evaluate associations of US neonatal mortality trends with changes in Neonatal Resuscitation Program (NRP) recommendations.

Methods used CDC period-linked infant mortality files for all singleton live births in US hospitals (2000–2017) except infants with serious birth defects were utilized. We plotted trends for each ICD-10 code listed for >1000 neonatal deaths. Joinpoint regression software was used to analyze trend changes.

Summary of results From 2000–2017, overall mortality (OM) declined from 3000 (95% CI: 2920–3080) to 2360 (2300–2420) deaths per million (dpm), with no statistically significant inflection points. Respiratory mortality (RM) consistently decreased, though the rate of reduction slowed by 1.37 (1.07–1.67) dpm/mo in Aug ’09 (95% CI: Aug ’08-Sep ’10). Respiratory distress, sepsis, dysrhythmia and atelectasis followed a similar pattern. In babies born ≥36 wk, respiratory mortality dropped by 45.4 (40.4–50.5) dpm from Sep ‘05 to Mar ‘06.

Abstract 366 Figure 1

Observed trends in relative neonatal mortality
Abstracts

Asphyxia and pulmonary hypoplasia followed a similar pattern. Since May 2005 (Dec '03-Feb '07), meconium aspiration mortality (MM) slope increased by 0.14 (0.07–0.21) dpm/mo. Conclusions NRP updates did not correspond to detectable trend changes in RM or OM. The surprising decrease in RM in babies born ≥36 wk may be associated with implementation of cooling therapy. The increase in MM started near the publication NRP 5th edition and continued through publication of later editions. These relationships should be further explored.

A NOVEL CHD7 MISSENSE VARIANT CAUSING CHARGE SYNDROME

The patient is a male infant born at term who developed respiratory distress shortly after birth. Pertinent physical exam findings included noisy breathing, cupped ear, micrognathia, prominent forehead, mouth with downturned corners, small penis, and decreased tone for age. An NG tube could not be passed through either nasal passage. The patient underwent fiberoptic nasopharyngoscopy which revealed bilateral choanal atresia. Stents were subsequently placed.

An MRI of the IAC revealed absence of CNs VII and VIII as well as IAC atresia, absence of the lateral and posterior semicircular canals, and incomplete separation of the cochlear apparatus. A comprehensive ABR showed profound SN hearing loss. Karyotype resulted 46, XY, and the patient's aneuploidy panel and state NBS were normal.

The patient fulfilled the diagnosis of CHARGE syndrome based on the clinical criteria. Findings consistent with the syndrome included: choanal atresia, CHD7, VII and VIII anomalies, genital hypoplasia, malformed internal and external ear, decreased tone, short stature, and prominent forehead.

Molecular analysis of the CHD7 gene was performed which revealed a heterozygous missense variant, c.5243 T>C (p. Leu1748Pro). The patient's mother and father were not carriers of this variant, confirming de novo origin. This variant has not previously been published and is currently classified as a VUS; however, in-silico analyses support a deleterious effect.

CHARGE syndrome is a multiorgan malformation syndrome, first described in 1979. The ‘CHARGE’ mnemonic was coined as a way to memorably summarize the original cluster of features, including C-coloboma, H-heart disease, A-atresia of the choanae, R-retarded growth and development, G-genital hypoplasia, and E-ear anomalies or deafness. CDH7 was established as the major causative gene in the syndrome in 2004. Most known pathogenic CDH7 variants are truncating nonsense and frameshift variants, and while there are reports of pathogenic missense variants, they represent only a small percentage of the known pathogenic variants. Our patient's CDH7 variant adds to the growing literature of likely pathogenic missense variants.

THE DANGER IN DIAZOXIDE

1L Key*, A Swindall, PK Gaston, AJ Talati, JD Desai. University of Tennessee Health Science Center, Memphis, TN

Purpose of study We sought to review the hospital course of infants admitted to our NICU that received Diazoxide in the previous six years.

Methods used We performed a retrospective chart review of all infants admitted to the NICU at Regional One Health from January 1, 2013 until August 15, 2019 that received Diazoxide as treatment for persistent hypoglycemia secondary to hypertension. Patients were stratified as either having a benign course on the medication or having an adverse outcome to the medication. An adverse outcome was defined as any known negative side effect of the medication, which lead to medication discontinuation, which a patient developed within 2 weeks of medication initiation. Statistical analysis was performed using the student t-test and chi-squared test to determine differences.

Summary of results 15 patient charts were reviewed. Of these patients, 8 (60%) were classified as having a complication requiring discontinuation of the medication. Six of eight patients required intubation with mechanical ventilation and two patients developed severe pulmonary hypertension and required nitric oxide within two weeks of initiating the medication.

Conclusions Diazoxide is commonly used to treat persistent hypoglycemia in the neonatal period and is known to cause fluid retention and, rarely, pulmonary hypertension. Sixty percent of our study population had an adverse outcome to the medication. Previous studies suggest 5% of patients may have respiratory decompensation and require ventilator support while on Diazoxide, however, 40% of our patients deteriorated and then required mechanical ventilation. Based on our data, respiratory deterioration may be more likely to occur when Diazoxide is used in preterm infants, those with lower birthweights, and especially those with a history of intrauterine growth restriction.

Abstract 369 Table 1: Diazoxide outcomes

<table>
<thead>
<tr>
<th>Patients who received Diazoxide (n=15)</th>
<th>Adverse Outcomes</th>
<th>Benign Course</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>11</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Birthweight (grams)</td>
<td>1738</td>
<td>1310</td>
<td>2229</td>
</tr>
<tr>
<td>Gestational Age (weeks)</td>
<td>33.3</td>
<td>32</td>
<td>35</td>
</tr>
<tr>
<td>Premature Birth</td>
<td>10</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Intrauterine Growth</td>
<td>10</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Restriction</td>
<td>103</td>
<td>150</td>
<td>56</td>
</tr>
<tr>
<td>Length of Hospitalization (Days)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight gain in 7 days after starting the medication (grams)</td>
<td>252.5</td>
<td>290</td>
<td>202.5</td>
</tr>
</tbody>
</table>

10.1136/jim-2020-SRM.369

Abstracts
**Abstract 370 Table 1 Breastmilk Comparison**

<table>
<thead>
<tr>
<th></th>
<th>Mother (N=4)</th>
<th>Donor (N=11)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Gestational Age (weeks)</td>
<td>28.5</td>
<td>27.5</td>
</tr>
<tr>
<td>Birthweight (grams)</td>
<td>978</td>
<td>865</td>
</tr>
<tr>
<td>Birth Z-score</td>
<td>-0.73</td>
<td>-0.53</td>
</tr>
<tr>
<td>Average kcal/kg/d on full enteral feeds</td>
<td>114.5</td>
<td>123.9</td>
</tr>
<tr>
<td>Z-score after 4 weeks on full enteral feeds</td>
<td>-1.39</td>
<td>-1.52</td>
</tr>
<tr>
<td>Change in Z-score from birth to 4 weeks full enteral feeds</td>
<td>-0.66</td>
<td>-1.15</td>
</tr>
<tr>
<td>BPD</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>NEC</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Late Onset Sepsis</td>
<td>0</td>
<td>5</td>
</tr>
</tbody>
</table>

Conclusions Due to our small sample size to date, we are unable to detect a statistically significant difference between the two groups. It is interesting to note that despite starting at a lower Z-score and a supposed lower calorie content in the mother’s milk group compared with the donor milk group, at the end of four weeks of full enteral feeds, the mother’s milk group had a higher Z-score than the donor milk group. We also see a trend of a lower incidence of NEC, BPD, and late-onset sepsis in the mother’s milk group.

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**Abstract 371 CEREBRAL REGIONAL OXYGEN SATURATION DETECTED BY NEAR-INFRARED SPECTROSCOPY AND THE DEVELOPMENT OF INTRAVENTRICULAR HEMORRHAGE IN EXTREMELY PRETERM INFANTS**

A Klinger*, VV Shukla, R Klinger, A Barganier, M Ramani. University of Alabama at Birmingham, Vestavia Hills, AL

**Purpose of study** Extremely preterm infants are at high risk for developing intraventricular hemorrhage (IVH) in the first week of life due to the immaturity of cerebral blood vessels and lack cerebral autoregulation. Changes in cerebral blood flow can be assessed by monitoring cerebral oxygenation. Cerebral near-infrared spectroscopy, a non-invasive method that measures cerebral regional oxygen saturation (rSO2), may be beneficial for detecting IVH. Our objective was to determine whether changes in cerebral rSO2 in the first 7 days after birth predict the development of IVH in extremely preterm infants.

**Methods used** This is a pilot retrospective cohort study performed on infants born at the University of Alabama at Birmingham with gestational ages between 25 to 29 6/7 weeks from April 2018 to April 2019. rSO2 was obtained on all infants who required supplemental oxygen greater than 40% FiO2 regardless of the mode of respiratory support. In addition to rSO2 data, the levels of transcutaneous CO2 measurements, mean blood pressure, and pulse oximetry were also obtained. IVH presence and grading were determined by day seven head ultrasound reports read by pediatric radiologists.

**Summary of results** 93 infants were included in the analysis. 16 infants developed IVH, of whom 4 had severe IVH (classified as grade 3 or 4); the remainder served as controls. Mean rSO2 among infants who developed IVH did not significantly differ from that of controls (73.2%; 95% CI 69.4–77.1% vs. 75.7%; 95% CI 74.2–77.2%, P=0.13). There were no significant differences in mean maximum rSO2 saturations between infants who developed IVH and controls (85.2%; 95% CI 80.9–89.5% vs. 86.5%; 95% CI 84.9–88.8%, P=0.29). No differences in mean minimum rSO2 saturations in infants with IVH and controls (57.0%; 95% CI 51.7–62.3 vs. 61.5%; 95% CI 59.4–63.7%, P=0.07).

**Conclusions** In this pilot retrospective cohort study, cerebral oxygen saturation monitoring did not show significant associations of mean, maximum, or minimum rSO2 with the development of IVH in extremely preterm infants. Multivariable regression analysis of antecedent risk factors (blood pressure, PCO2, and birth related variables) may help define risk of IVH and severe IVH in this population.

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**Abstract 372 THE CHARACTERISTICS OF COOMBS POSITIVE INFANTS WITH HYPERBILIRUBINEMIA**

M Konjeti*, K Shah, K Upadhyay, AJ Talati. University of Tennessee Health Science Center, Memphis, TN

**Purpose of study** Hyperbilirubinemia after ABO hemolytic disease remain a significant problem in neonates. However the clinical course after a positive Coombs test is not usually predictable. The objective of this study was to evaluate the
Abstracts

EVALUATION OF SERUM ELECTROLYTE LOSS IN PRETERM NEONATES TREATED WITH HYDROCHLOROTHIAZIDE-SPIRONOLACTONE

5 Levin*, 5 Meunier, 6 P Nicoski, 6 M Weiss, 1 J Muraskas. 1The University of Oklahoma, Oklahoma City, OK; 2Loyola University Stritch School of Medicine, Maywood, IL; 3Loyola University Medical Center, Maywood, IL.

Purpose of study Evaluate electrolyte loss in neonates treated with hydrochlorothiazide-spiromolactone for Bronchopulmonary Dysplasia (BPD) stratified by weight (WT) and corrected gestational age (GA).

Methods used Preterm neonates treated with hydrochlorothiazide-spiromolactone for BPD at a Level III NICU from 2013–2016 were retrospectively reviewed. Data collected included corrected GA, weight (WT), serum sodium (Na) and chloride (Cl) prior to and after initiation of therapy. GA was categorized into 27–29, 30–34, and 35+ weeks. WT was categorized into <1500, 1500–2499, and 2500+ grams. Electrolyte change was analyzed by t-test. Lowest Na values reached were categorized to <129, 129–134, and >134 mMol/L. Lowest Cl values reached were categorized to <90, 90–95, and >95 mMol/L. These values were compared among GA and WT categories using Fisher exact test with p<0.05 as significant.

Summary of results 87 patients were reviewed. Significantly larger decreases in Na were seen in lower GA when compared to higher GA neonates (mean Na decrease=7.67 vs. 4.54 and 4.21 mMol/L, p=0.01). Cl also had a larger decline in lower GA (mean Cl decrease=7.08 vs. 4.54 and 2.91 mMol/L, p=0.02). Similarly, lower WT neonates showed greater drops in Na when compared to higher WT neonates (mean Na decrease=6.72 vs. 4.21 and 3.79 mMol/L, p=0.03).

In review of lowest Na or Cl category reached by GA, 27–29 weeks vs. 30–34 weeks and vs. 35+ weeks showed lower nadirs by GA stratification (p<0.05). In analysis for WT stratification, significance was seen in comparison of <1500 grams vs. 1500–2499 grams for both Na and Cl (p<0.05).

Conclusions Despite no FDA indication and minimal efficacy and safety data, up to 40% of preterm neonates are exposed to diuretics. Hydrochlorothiazide-spiromolactone causes significantly higher losses of serum sodium and chloride in patients of lower GA and WT. Often considered a less potent diuretic, hydrochlorothiazide-spiromolactone should be used judiciously with close monitoring of serum electrolytes in preterm neonates.

ALtered fetal microglia phenotypes are associated with abnormal neurogenesis following maternal immune activation

M Loayza*, K Carter, Y Pang, AJ Bhatt. University of Mississippi Medical Center, Jackson, MS

Purpose of study Maternal infection is a risk factor for Autism Spectrum Disorder (ASD). Although the underlying neuropathology remains largely unknown, neuroimaging studies consistently showed that there is a period of brain overgrowth in ASD infants, which may be caused by dysregulated neuronal growth. Given that microglia are critically involved in both neurogenesis and programmed neuronal death in homeostatic conditions, whereas activated microglia are known to exhibit different phenotypes linked to either pro-inflammatory or anti-inflammatory functions, this study tested a hypothesis that lipopolysaccharide (LPS)-activated fetal microglia altered neural development by promoting neurogenesis.

Methods used Time-pregnant C57BL/6J mice at E12.5 were injected intraperitoneally with endotoxin LPS (50 ug/kg body wt) and controls received saline. On a postnatal day 1 (P1), brain sections were prepared for immunohistochemical analysis of microglia and neurons. Flow cytometry was conducted to analyze microglia phenotypes on E15 and P4, and parvalbumin + neurons were counted in the medial prefrontal cortex (mPFC).

Summary of results We found that maternal LPS challenge significantly increased Iba1+ microglia in the neurogenic regions, including the subventricular zone (SVZ) of lateral ventricles and the dentate gyrus of the hippocampus. Interestingly, the majority of microglia exhibited a unique phenotype characterized with double positive immunostaining for CD86 and CD206 in the control P1 brain, which was significantly increased by LPS treatment. LPS exposure also resulted in a marked increase of Ki67+ cells in the SVZ and DG, suggesting potential over-production of neurons. We also found that TGFβ+ neurons, which were only observed in the deep layer (layer III-IV) but not the superficial layers (I-II) of P1 control mice, were distributed throughout cortical layers LPS-treated pups. On P21, the total number of PV + neurons in the mPFC was significantly lower than control.
Conclusions Overall, our data showed that a mild maternal LPS exposure leads to enduring activation of fetal microglia, which is associated with increased neural progenitor cell proliferation and reduced PV+ neurons, and this may alter cytoarchitecture and local circuits in highly laminated structures such as cerebral cortex and hippocampus.

Purpose of study Despite extensive research as well as progress in neonatal care, there are no specific prevention or treatment strategies available for white matter damage (WMD), a major component of brain injury in very low birth weight (VLBW) infants which results in significant morbidity and mortality. The majority of the existing animal models focus on the severe WMD typically induced by a single insult, which is not fully reflective of clinical scenarios. Although WMD has multifactorial etiologies, low-grade inflammation and hyperoxia exposure are the two most common noxious factors in the perinatal period. Therefore, we hypothesized that the combination of low-grade inflammation and hyperoxia is an innovative mechanism of WMD in the developing brain. 

Methods used C57BL/6J wild-type mice were randomized to four different groups at birth. Pups in LPS+RA and LPS+HyO2 groups were given LPS by intraperitoneal injections at P2 (1 μg/kg) and P3 (0.5 μg/kg); pups in Sal+RA and Sal+HyO2 were given the equivalent volume of saline. After the second dose of LPS/Sal, pups were exposed to room air (LPS+RA & Sal+RA) or 85% O2 in an Oxygen chamber (LPS+HyO2 & Sal+HyO2) with their dams for 48 hrs. Animals were sacrificed at P5; brains were collected after perfusion-fixation. Serial brain sections were examined by immunohistochemistry with markers of progenitor or preoligodendrocytes (PDGFR) and oligodendrocyte lineage (Olig2). Statistical analysis was performed via two-way ANOVA followed by the Holm-Sidak method.

Summary of results PDGFR marker showed a statistically significant interaction between LPS and RA (F1, 32=7.748, P=0.009). Pups in LPS+RA (P=0.008) did, but LPS+HyO2 did not have a reduction in PDGFR positive cells compared to Sal+RA and Sal+HyO2, respectively. There was a statistically significant difference between LPS+RA and LPS+HyO2 (P=0.010). There was no significant difference between Sal+RA and Sal+HyO2. There were two significant differences in Olig2 positive cells between all four groups.

Conclusions LPS caused a reduction in progenitor or preoligodendrocytes without a reduction in total oligodendrocyte in the developing brain at P5. Hyperoxia alone did not affect but reduced the effect of LPS. Further experiments at different time points and neurobehavioral tests are essential.
readmissions in this population. The purpose of this study is two-fold:

1. Determine the proportion of infants with NOWS colonized with MRSA during the newborn hospitalization and the effect of parental presence on colonization rates.
2. Evaluate the effect of MRSA colonization on the length of hospital stay and infection rates during the newborn hospitalization and healthcare utilization during the first year of life.

Methods used The medical records of 681 infants diagnosed with NOWS at Norton Children’s Hospital from January 2014 to December 2017 were reviewed. Forty-eight infants were MRSA colonized. Case controls were matched 2:1. The study population consisted of 117 infants (39 MRSA positive and 78 controls). Data on infections during the initial NICU stay and ER visits and rehospitalizations during the first year of life was collected. A generalized estimating equation was used to assess the predictive value of total parental presence on MRSA colonization, and the predictive value of MRSA colonization on the frequency of ER visits and readmissions.

Summary of results No differences were noted in demographic characteristics. Of the infants diagnosed with NOWS, 48 (%) were MRSA positive. Total duration of parental presence was not correlated with increased risk of MRSA colonization when compared to controls (OR=0.99, 95% CI=(0.95, 1.02)). Infants diagnosed with NOWS and with MRSA did not have an increase in length of hospital stay (OR=1.00, 95% CI=(0.95, 1.02)).

Conclusions This study showed a baseline prevalence of MRSA colonization for infants diagnosed with NOWS of 7%, which should be monitored as non-pharmacologic interventions for NOWS treatment are increased.

### Abstract 378 Table 1

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>N</th>
<th>% total</th>
<th>%CHD</th>
</tr>
</thead>
<tbody>
<tr>
<td>No CD</td>
<td>23</td>
<td>34.3</td>
<td>n/a</td>
</tr>
<tr>
<td>VSD or ASD</td>
<td>4</td>
<td>9</td>
<td>9.3</td>
</tr>
<tr>
<td>PDA only</td>
<td>3</td>
<td>4.5</td>
<td>7</td>
</tr>
<tr>
<td>IAA type B w/VSD</td>
<td>8</td>
<td>11.9</td>
<td>18.6</td>
</tr>
<tr>
<td>Truncus Arteriosus</td>
<td>7</td>
<td>10.4</td>
<td>16.3</td>
</tr>
<tr>
<td>Tetralogy of Fallot</td>
<td>10</td>
<td>14.9</td>
<td>23.3</td>
</tr>
<tr>
<td>Total CHD</td>
<td>43</td>
<td>64.2</td>
<td>100%</td>
</tr>
</tbody>
</table>

### Abstract 378 Figure 1

Proportion of CHD in Louisiana and Atlanta samples

Studies in other regions are needed. Parish distribution raises questions of whether the Cajun founder’s effect is at play with 22q11 deletion. Patients from north LA may seek treatment in TX, possibly explaining the lack of pts in those parishes. Further studies are needed to determine if Cajuns experience inherited 22q11 deletion syndromes at a higher rate.

### Abstract 379

#### CAN BIRTHWEIGHT INFLUENCE THE DEVELOPMENT OF NEONATAL ABSTINENCE SYNDROME?

Nicole Noordin*, M Jameson, D Shah, B Bailey. ETSU Quillen College of Medicine, Johnson City, TN

Purpose of study One baffling question in regard to NAS is that why do only 35–40% of opioid exposed pregnancies result in NAS while sparing the rest. Is there a discriminatory factor other than in utero opioid exposure involved? Thus, we wanted to investigate whether birth weight can influence the development of NAS; that is, are neonates of a low birth weight or high birth weight (with respect to gestational age thresholds) more likely to develop NAS.

Methods used We conducted a retrospective chart analysis of 18,728 deliveries within the Mountain States Health Alliance System between July 1, 2011–June 30, 2016 at 5 delivery sites in Northeast TN and Southwest VA. From this sample, we identified 2,392 newborns as positive for prenatal opioid exposure, and then we stratified them into 2 categories: birth weight ≤3.5 kg (proxy for low or average birth weight with respect to gestational age thresholds) and birth weight ≥3.5 kg (proxy for high birth weight with respect to gestational age thresholds). SPSS statistical analysis followed.

Summary of results Even after controlling for significant confounders such as pregnancy smoking and marijuana use (see
table 1 above), infants who were in the low to average birth weight group were almost twice as likely to develop NAS compared to infants who were in the high birth weight group.

Conclusions While the mechanism of opioid transfer in the placenta is complicated, we speculate differences in free opioid bioavailability to be a key factor. Being equipped with this knowledge that opioid exposed neonates of low to average birth weight (with respect to gestational age thresholds) have a higher risk of developing NAS will allow physicians to identify such at-risk infants early and this will subsequently lead to better outcomes in cases of NAS.

### Abstract 379 Table 1 Logistic regression results predicting NAS development

<table>
<thead>
<tr>
<th>Marital status</th>
<th>Unstandardized Regression Coefficient</th>
<th>Adjusted Odds Ratio</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>0.562</td>
<td>1.75</td>
<td>1.36-2.27</td>
</tr>
<tr>
<td>Race</td>
<td>-0.449</td>
<td>0.64</td>
<td>0.33-1.22</td>
</tr>
<tr>
<td>Infant gender</td>
<td>0.30</td>
<td>1.35</td>
<td>1.07-1.71</td>
</tr>
<tr>
<td>Pregnancy smoking</td>
<td>0.49</td>
<td>2.45</td>
<td>3.36-5.91</td>
</tr>
<tr>
<td>Pregnancy benzoalazine use</td>
<td>0.84</td>
<td>2.34</td>
<td>1.49-3.68</td>
</tr>
<tr>
<td>Pregnancy marijuana use</td>
<td>0.34</td>
<td>1.41</td>
<td>0.87-2.30</td>
</tr>
<tr>
<td>Birth weight</td>
<td>0.666</td>
<td>1.95</td>
<td>1.41-2.69</td>
</tr>
</tbody>
</table>

Reference groups: Marital status = married; Race = white; Gender = female; Smoking = none; Benzoalazine use = none; Marijuana use = none; Birth weight ≥ 3.5 kg

### Abstract 380 PEROXISOMAL BIOGENESIS DISORDER 6A (ZELLWEGE) IN A NEONATE WITH VENTRICULOMEGALY AND SEVERE HYPTONIA

A Nuttli*, J Gallois, S Olister, R Zambrano. LSUHSC-New Orleans, Metairie, LA

10.1136/jim-2020-SRM.380

Case report Zellweger spectrum disorder is a rare genetically heterogenous autosomal recessive disorder of peroxisome biogenesis. Within this spectrum, Zellweger syndrome is the most severe manifestation with presentation in early neonatal life. We report a case of a term male infant prenatally diagnosed with ventriculomegaly. He was born via cesarean section with a birth weight of 2740 grams (<10th percentile). Following delivery, he was admitted to the Neonatal Intensive Care Unit (NICU) for respiratory distress and further evaluation of dysmorphic features including sloping forehead, wide nasal bridge, bilateral epicanthal folds, low set and posteriorly angulated ears, corneal clouding, and a high arched palate. Extremities displayed elongated digits, bilateral palmar flexion creases and feet with overlapping toes and hypoplastic nails. There was also significant generalized hypotonia and an absent suck. Initial genetic work up revealed abnormal very long chain fatty acids most consistent with a disorder of peroxisomal biogenesis/function. This was later confirmed on whole exome sequencing, after he was found to be compound heterozygous for pathogenic variants in PEX10. Additional laboratory results supporting this diagnosis included abnormal urine and plasma bile acids and plasmalogen. Ophthalmology exam confirmed bilateral congenital glaucoma. Head ultrasound showed bilateral ventriculomegaly as suspected but also revealed bilateral grade 3 intraventricular hemorrhages. Around 2 weeks of life, the infant developed persistent clinical and subclinical seizures requiring multiple antiepileptics and a short period of mechanical ventilation.

Unfortunately, there is no curative treatment for Zellweger syndrome. Care focuses around supportive therapies. Our patient’s severe manifestations from such a young age portend a poor prognosis. He was given bile acid and vitamin supplements, antiepileptics, and dorzolamide drops for increased intraocular pressures. Surgical interventions were deferred. The patient was discharged home from the NICU on day of life 51. He went home on hospice care with continuous nasogastric feeds and no supplemental oxygen requirements.
neutropenia on the presentation day and 24 hours after NEC, while surgical non-fulminant NEC had significantly low WBC and absolute lymphocyte count on the day of NEC presentation.

### 382 BEVACIZUMAB FOR RETINOPATHY IN PRETERM INFANTS: TWO-YEAR DEVELOPMENTAL FOLLOW-UP

K Parker*, M Zayek, F Eyal, R Bhat, A Rifai. University of South Alabama, Mobile, AL, UMMC, Madison, MS

10.1136/jim-2020-SRM.382

**Purpose of study** To investigate rates of death or neurodevelopmental (ND) impairment among extremely low birth weight (ELBW) infants treated with intravitreal bevacizumab (IVB) for type 1 retinopathy of prematurity (ROP) in comparison with laser ablation.

**Methods used** In this retrospective study we included ELBW infants [gestational age (GA) ≤26 wks, birth weight (BW) <1000 g] who were born from Jan 2009–Dec 2016 and treated for ROP. Infants were divided into 2 groups: the IVB group (n1=61) received IVB injection alone (n 1a=31) or followed with subsequent laser ablation (n1b=30); the Laser group received laser ablation without IVB (n 2=85). The primary outcome was death or severe ND impairment (NDI) at 24 months corrected age (CA), defined as any Bayley III composite score <70; moderate to severe cerebral palsy; or bilateral deafness or blindness. Logistic regression was used to test for final predictors of outcomes.

**Summary of results** By 24 months CA 10 (16%) infants in the IVB group and 3 (3%) in the Laser group had died, p<0.01. Infants in the IVB group were smaller in size for GA (SGA) and received a larger number of red blood cell (PRBC) transfusions by 42 days of age than the Laser group. There was no difference in any other characteristic or major morbidity between the groups (table 1). Mortality rate was higher in the IVB group by bivariate analysis but not statistically different by logistic regression. Neither the primary composite outcome, death or severe NDI, nor any other ND outcome were different between the groups.

**Conclusions** The use of IVB appears to be a safe option for the treatment of type 1 ROP among the smallest ELBW infants. This study is limited by its small sample size.

### Abstract 382 Table 1 Infant characteristics and outcomes

<table>
<thead>
<tr>
<th></th>
<th>Laser group (n=85)</th>
<th>IVB group (n=61)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BW (g)</td>
<td>545 (473–640)</td>
<td>481 (420–583)*</td>
</tr>
<tr>
<td>GA (weeks)</td>
<td>24 (23–25)</td>
<td>23 (22–24)</td>
</tr>
<tr>
<td>SGA</td>
<td>17 (20%)</td>
<td>24 (39%)*</td>
</tr>
<tr>
<td>Number of PRBC transfusions by 42 days of age</td>
<td>6 (4–9)</td>
<td>13 (4–25)*</td>
</tr>
<tr>
<td>Expired prior to discharge home</td>
<td>2 (2%)</td>
<td>9 (15%)*</td>
</tr>
<tr>
<td>Followed/expired after discharge</td>
<td>64</td>
<td>50</td>
</tr>
<tr>
<td>Death/cognitive score &lt;70</td>
<td>15 (23%)</td>
<td>16 (32%)</td>
</tr>
<tr>
<td>Death/language score &lt;70</td>
<td>21 (33%)</td>
<td>25 (50%)</td>
</tr>
<tr>
<td>Death/motor score &lt;70</td>
<td>26 (41%)</td>
<td>16 (32%)</td>
</tr>
<tr>
<td>Death/severe NDI</td>
<td>34 (51%)</td>
<td>31 (52%)</td>
</tr>
</tbody>
</table>

*p

### Abstract 383 OUTCOMES OF MULTIPLE GESTATION COMPARED TO SINGLETONS: ANALYSIS OF MULTICENTER KID DATABASE

JM Patel*, N Dankhara, JL Fish, J Desai. UMMC, Madison, MS

10.1136/jim-2020-SRM.383

**Purpose of study** To compare mortality and length of stay (LOS) outcomes of multiple gestation births as compared to singleton births: Analysis of Multicenter KID database.

**Methods used** Data from national multicenter Kids’ Inpatient Database of the Healthcare Cost and Utilization Project from the years 2000, 2003, 2006, 2009, 2012, and 2016 were analyzed using complex survey design using SAS. Neonates with ICD9 and ICD10 codes indicating singleton, twin or triplet, and higher-order multiples were included. Mortality was compared between these groups after excluding transfer outs to avoid duplicate inclusion. To analyze LOS, we included neonates who were inborn, and excluded transfers and deaths and unusual discharges less than 33 weeks corrected gestational age.

**Summary of results** A total of 23,045,139 neonates were analyzed for mortality; 2.99% were twins, and 0.13% were triplets or more. A total of 22,865,117 neonates were analyzed for LOS after inclusion-exclusions. Mortality was noted significantly higher in multiple births. (Singleton: 0.27%±0.0047 vs Twins: 1.69%±0.0354 vs Triplets or higher: 5.29%±0.2449, p<0.0001). After adjusting for baseline characteristics, the odds of mortality remained significantly higher for Twin...
(aOR: 1.415, CI: 1.330–1.506, p<0.0001) and Triplet or higher-order multiples (aOR: 1.386, CI: 1.163–1.651, p=0.0003). Mean birth gestation age was lower multiples (Singleton: 35.30 (3.86) vs Twins: 34.31 (3.46) vs Triples or higher: 32.25 (3.81), p<0.0001). Median LOS was significantly longer in multiples (Singleton: 1.60 [1.13, 2.20] vs Twin 3.33 [2.21, 10.05] vs Triplet or higher 20.70 [10.47, 38.57], p<0.0001) and this difference remained significant within each gestational age category. (Figure 1).

Conclusions Multiple births have higher mortality and longer LOS compared to singletons. This population data from multi-centers across the country could be useful in counseling parents when dealing with multiple gestation pregnancies.

TRACHEA-ESOPHAGEAL FISTULA AND KLINEFELTER SYNDROME

M Pietek*, M Hanna, A Do. University of Kentucky, Lexington, KY

Background The incidence of esophageal atresia (EA)/tracheo-esophageal fistula (TEF) in neonates is 1 in 3500 births. It has been previously described in trisomy 21, trisomy 13 and trisomy X. We are reporting a case of Klinefelter syndrome with EA/TEF and pulmonary hypoplasia.

Case presentation A preterm, 1600 grams male neonate was born by spontaneous vaginal delivery to 24 years old, gravid 2 mother. Prenatal screening laboratory studies were unremarkable. Prenatal ultrasound findings included polyhydramnios and absent stomach bubble. Infant was intubated and given surfactant in the delivery room. Appar scores were 1, 2 and 5 at 1, 3, and 10 minutes respectively. A Replogle catheter was inserted to 11 cm. Chest x-ray showed: right hemithorax with no lung aeration, mediastinal shift to the right and right aortic mainstem bronchus. Echocardiogram was significant for cardiac position severely displaced rightward and mildly hypoplastic right pulmonary artery, consistent with possible right lung hypoplasia. G tube was surgically placed on the sixth day of life. On day of life 37, right sided thoracotomy with bronchoscopy was performed. Bronchoscopy revealed tracheomalacia but no vascular compression. Right mainstem bronchus was present but without any evidence of right upper lobe bronchus. Fistula at carina along with second fistula connecting blind pouch to trachea was visualized. Esophageal atresia was repaired and both fistulas ligated. Chromosomal microarray was significant for 47 XXY karyotype, indicative for Klinefelter syndrome.

Discussion There are five different types of EA/TEF, with the most common one being EA with a distal TEF. EA/TEF has been previously described in trisomy 21, trisomy 18 and trisomy X. Several reports described X-chromosome duplication with gastrointestinal anomalies. It has been reported that gene on X chromosome that escape X inactivation can have significant effect on foregut development. Five cases of EA/TEF with association with X chromosome anomaly were described. In this case, we were presented with pulmonary hypoplasia, and EA/TEF type DI: esophageal pouch with proximal and distal tracheo-esophageal fistula. In addition, our patient presented with mildly hypoplastic right PA and with the absence of right upper lobe bronchus.

MOTHERS WITH PRENATAL DIAGNOSIS OF TRISOMY 13 OR TRISOMY 18 CHOICE OF POSTNATAL CARE AND SURVIVAL OUTCOMES IN HOUSTON

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Purpose of study We aim to review the data on parental choice for post-delivery care and intervention over the past 3 years, and examine whether there has been an increase in the number of parents who choose full intervention. We also aim to examine the survival outcomes and trends over time regarding survival and the relationship between counseling and intervention choices including number of consultations regarding postnatal delivery plans.

Methods used We conducted a retrospective chart review of parental patients referred to high-risk prenatal clinics around the Houston area between 2016 and 2018 with a prenatal diagnosis of Trisomy 13 or 18 identified via a positive screening or abnormal ultrasound. Maternal and neonatal demographics, postnatal care choice and neonatal outcomes were obtained using the Fetal Center data base, Care4, and Viewpoint. Kaplan-Meier survival analysis was utilized for neonatal survival. Maternal demographics were compared to known outcomes of Texas on previously reported survival information in this population.

Summary of results 97 maternal patients were identified with a positive screening for Trisomy 13 or 18 and/or an abnormal ultrasound. Regarding postnatal care choice, 40% were undecided or had unknown management, 37% chose to terminate, 17% chose comfort care, 5% chose full intervention, and 1% chose expectant management. As the number of genetic counseling sessions increased, more parents chose comfort care. Regarding neonatal outcomes in the 97 patients, 37% were terminated, 23% died in-utero, 11% were liveborn, and 29% had unknown outcomes due to loss of follow-up. Out of 33 pregnancies with Trisomy 18 diagnosis, only 9 were liveborn, with a median age of death of 6 days. Out of 16 pregnancies with Trisomy 13 diagnosis, 2 infants were liveborn, with a median age of death of 1 day.

Conclusions Survival for Trisomy 13 and 18 has not increased over time compared to previous Texas studies. A majority of parents choose termination, with the second largest choosing comfort care, and a very small number chose full intervention. As genetic counseling was associated with increasing number of parents choosing comfort care, early counseling may be important for these maternal patients.

DIET-INDUCED CHANGES IN BODY COMPOSITION OF VERY PRETERM INFANTS RECEIVING HIGHER THAN USUAL FEEDING VOLUMES: A RANDOMIZED TRIAL

AA Salas*, C Travers, ML Jerome, P Chandler-Laney, WA Carlo. University of Alabama at Birmingham, Birmingham, AL

Purpose of study Most infants born preterm have higher percent body fat (%BF) at term equivalent age than infants born at term. This difference in %BF is often attributed to early exposure to enriched postnatal diets prescribed to promote weight gain among preterm infants. If higher than usual feeding volumes do not result in clinically meaningful%BF gains, this dietary intervention could decrease postnatal growth

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Abstracts

387  ANTITHROMBIN III ADMINISTRATION ALTERS TIME TO THERAPEUTIC ANTICOAGULATION IN NEONATAL AND PEDIATRIC PATIENTS RECEIVING RESPIRATORY EXTRACORPOREAL LIFE SUPPORT

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10.1136/jim-2020-SRM.387

Purpose of study Shorter time to therapeutic anticoagulation (TTAC) is associated with improved survival in patients receiving extracorporeal life support (ECLS). Antithrombin (AT3) supplementation may impact TTAC by mitigating acquired AT3 deficiency during ECLS. We hypothesize patients receiving AT3 supplementation in the first 48 hours of ECLS will have shorter TTAC than patients who did not.

Methods used A single center retrospective study of neonatal and pediatric patients requiring ECLS from 01/01/16–12/31/18 was performed. Demographics, ECLS characteristics, coagulation profiles, fresh frozen plasma (FFP)/cryoprecipitate (cryo) receipt, and bleeding/thrombotic complications were compared between AT3 supplementation receivers and non-receivers using Kaplan-Meier curves and log rank tests. Patients were censored 48 hours after cannulation if anticoagulation was not achieved.

Summary of results 26 patients were included (17 neonates). AT3 receivers did not have shorter TTAC, nor were there significant differences in the Anti-Xa levels, AT3 levels, or hematocrit rates at time of therapeutic anticoagulation/censoring. FFP/cryo receipt and bleeding/thrombotic complications did not differ between groups. Subgroup analysis of neonates revealed significantly delayed TTAC with AT3 supplementation (AT3 receivers vs. AT3 nonreceivers: 23 hrs, 95% CI 11–26; AT3 nonreceivers 11 hrs, 95% CI 8–14; p=0.03) (figure 1).

Conclusions Contrary to our hypothesis, we did not demonstrate shortened TTAC with AT3 supplementation. AT3 use varies substantially among centers, warranting further investigation.

388  MATERNAL BODY MASS INDEX (BMI) AND NECROTIZING ENTEROCOLITIS (NEC): A CASE-CONTROL STUDY

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10.1136/jim-2020-SRM.388

Purpose of study Background: NEC is a devastating disease with high morbidity and mortality. The aim of this study was to determine if maternal BMI is associated with NEC.

Methods used Methods: This is a single-center, retrospective case-control study of infants admitted to Parkland Hospital NICU during a 10 year period (2009–2018). Cases of NEC stage 2 and above were identified and matched by gender, gestational age, weight and year of birth at a ratio of 2 controls to 1 case. Electronic medical records were reviewed for maternal factors. Maternal BMI was categorized into normal BMI, overweight and obese. Chi-square and logistic regression were used to determine statistical significance and P<0.05 was defined as significant.

Summary of results Results: 113 infants were identified as having NEC and compared to 226 controls. In univariate analysis, maternal hypertension, pre-eclampsia, premature rupture of membranes, maternal exposure to antibiotics, placental abruption and gestational diabetes were not associated with an increased odds of NEC. In this population, 91.7% of cases and 86.3% of controls had maternal BMI at delivery in the overweight or obese category. The average pre-pregnancy BMI prior to pregnancy was overweight (28.92 vs 28.63 kg/m², cases vs. controls). Univariate analysis showed an association between an overweight maternal BMI and NEC (p<0.01). On forward stepwise logistic regression, maternal BMI was no longer associated with NEC.

Conclusions Conclusion: Maternal factors were not associated with the development of NEC in this case-control study. We speculate that the high percent of overweight and obese mothers prior to pregnancy and at delivery in this population may have limited the ability to assess any association between maternal BMI and NEC.
Children’s Hospital during RSV season (November-March) in the year prior to (2013–2014) and in the two years after (2014–2015, 2015–2016) the change in recommendations were analyzed. We compared hospital re-admission rates for bronchiolitis (RSV PCR positive or untested) between these two groups.

**Summary of results** Prior to the change of recommendations, 53 neonatal charts were reviewed and 95% of preterm infants (29w0d-31w6d) received Palivizumab. Re-admission rate for RSV was 9% (N=9) with 1 ICU admission. In the two RSV seasons post change, 86 neonatal charts were reviewed and 10% (N=9) received Palivizumab due to chronic lung disease. Of the 86 patients, re-admission rate for RSV was 19.7% (N=17) with 5 ICU admissions. The length of stay prior to the change in 2014 averaged 3.7 days (range 3 hrs-9 days) compared to post change, averaging 5.7 days (range 1–15 days).

**Conclusions** In the cohort of infants 29w0d-31w6d who did not receive Palivizumab due to the change in AAP recommendations, there were more re-admissions for RSV with more requiring ICU care. Administration of Palivizumab might benefit this population. On average, the length of stay of those who did not receive Palivizumab was longer than those that did receive it. Our next step is to analyze the cost of re-admission to determine cost-benefit of Palivizumab in this neonatal population.

**Methods used**

This is a retrospective observational case control study from January 2016 to December 2018 of VLBW infants with negative blood culture. The purpose of this study was to find out if prolonged antibiotic use at birth in VLBW infants with negative blood culture increases the total number of antibiotic courses and the total cost of hospital stay.

**Methods used** This is a retrospective observational case control study from January 2016 to December 2018 of VLBW (≤2500 grams and ≤30 weeks gestation) who received antibiotics after birth for variable durations of time despite negative blood culture. The purpose of this study was to find out if prolonged antibiotic use at birth in VLBW infants with negative blood culture increases the total number of antibiotic courses and the total cost of hospital stay.

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significantly higher in prolonged antibiotic group. However the total cost of antibiotics although greater in the prolonged antibiotic group ($416.27±2229.4 versus $25.01±58.65 p<0.08) was not found to be significantly different between both groups.

Conclusions Prolonged antibiotic use in VLBW infants at birth with negative blood culture significantly increases duration of hospital stay, number of courses of antibiotics use and the total cost of hospitalization. We must be cautious exposing VLBW infants to prolonged antibiotics with negative blood culture.

**Abstracts**

**ALTERED LINEAR GROWTH IN VERY LOW BIRTH WEIGHT INFANTS IS ASSOCIATED WITH PROLONGED ANTIBIOTIC EXPOSURE**

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10.1136/jim-2020-SRM.392

**Purpose of study** Emerging evidence has demonstrated that early exposure to antibiotics may increase the risk of childhood obesity. We previously reported that prolonged antibiotic exposure >11 days was associated with disproportionate growth in VLBW infants. The aim of this study was to identify factors associated with disproportionate growth in VLBWs exposed to prolonged antibiotics.

**Methods used** This is a retrospective chart review of all infants weighing <1200 grams admitted to the NICU at the University of Kentucky from January 2012 to December 2013. Exclusion criteria included death during hospitalization, birth with a malformation or transfer before 34 weeks corrected gestation. Serial anthropometric data (BMI, height, weight, length and z-scores), demographics, comorbidities, total number and types of antibiotics were recorded from admission to discharge. Disproportionate growth was defined as BMI >50% according to Olsen growth references. Caloric intake was calculated on the first day of full enteral feeds and in two weeks intervals until 36 PMA.

**Summary of results** Medical charts of 233 infants were reviewed, 36 died, 11 were transferred and 188 met inclusion criteria. The number of days of antibiotics ranged from 0–142 (median 7 days). After adjusting for confounders, 90 infants (47%) had BMI >50% at discharge. Of these, thirty-five (39%) received >11 days of antibiotics. Analysis of antibiotic classes demonstrated that all classes with the exception of macrolides were positively correlated with increased BMI at discharge (p<0.05). Decreased weight at discharge was significantly correlated to duration of antibiotic treatment (p<0.0017) but not at 1 year follow up. However, decreased length was noted to be significantly correlated at both discharge (p<0.0016) and at 1 year follow up (p<0.0027). Caloric intake was not found to have significant correlation in either groups.

**Conclusions** Our data demonstrate that prolonged antibiotic exposure in VLBW infants is associated with disproportionate growth. Impaired linear growth and not infant weight or caloric intake was significantly associated with disproportionate growth as seen by the persistence of stunted linear growth at 1 year. We speculate that prolonged antibiotic exposure causes dysbiosis and alterations in gut metabolism, which subsequently may lead to stunted linear growth.

**NEONATAL TRANSPORT: DOES NOISE AND VIBRATION EXPOSURE AFFECT HEARING LOSS?**

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10.1136/jim-2020-SRM.393

**Purpose of study** Current data demonstrate despite excessive exposure to noise and vibration during transport, preterm and critically-ill term neonates remain physiologically stable throughout transport. We hypothesize that neonates exposed to high noise and vibration levels during transport will have a high Auditory Brainstem Response (ABR) screen failure rate, particularly in rotary wing air transport (RWAT) versus ground ambulance transport (GAT).

**Methods used** A retrospective chart review was performed of neonates transported in first 7 days of life over an 8-month period. Subjects with known neurological conditions prior to transport and incomplete chart data were excluded. Sound, vibration and vital signs were continuously recorded throughout transport. ABR results and subsequent comorbidities emerging throughout hospitalization were recorded.

**Summary of results** Of 253 charts reviewed, 109 were analyzed: 66 were by RWAT and 43 by GAT (figure 1). Failure rate was 1.5% in RWAT and 2.3% GAT groups. Despite vibration and sound exposure exceeding published recommendations, only two (2) neonates failed the ABR screen; one from each transport group.

*Data not collected or missing, >7 days of age, HIE or known neurologic condition, 3rd party transport, unable to consent due to language barriers.

**Conclusions** Hearing screen pass rate was similar in infants transported both by GAT or RWAT and comparable to the general population. Larger multicenter studies are needed to systematically assess the impact of sound and vibration during transport on newborn health outcomes.

**Abstract 393 Figure 1** Population flowchart
Purpose of study Neonates with necrotizing enterocolitis (NEC) may require intestinal resection with enterostomy and mucous fistula. They often require prolonged total parenteral nutrition (TPN) and are at risk for poor growth, cholestasis, and infection. A proposed nutritional strategy of mucous fistula refeeding (MFR) is accomplished by collecting enterostomy output and instilling contents into the MF. We evaluated the hypothesis that patients with surgical NEC who received MFR had improved clinical outcomes (growth, complications, resource utilization) when compared to patients without refedes.

Methods used This retrospective case-control review identified subjects from a single quaternary NICU through Children’s Hospitals Neonatal Database (CHND). Study cohort included patients who underwent NEC surgery with resultant enterostomy and MF and survived to discharge. Demographics, clinical outcomes and resource utilization were obtained from CHND and electronic medical records. Statistical analysis was performed by univariate and bivariate analysis using Wilcoxon Rank-Sum/t-tests or Chi-squared. An adjusted multivariable analysis used logistic and linear regression.

Summary of results 48 patients were identified; 31 underwent MFR and 17 did not. Reasons for no MFR included distal bowel stricture, recession of MF, and difficulty maintaining cannulation. Demographics were similar between groups. The MFR group reached full feeds after intestinal reconnection 19 days earlier; required 22 fewer TPN days; and had less cholestasis defined as lower peak direct bilirubin and less ursodiol usage (all P<0.02). The MFR group also had higher weight gain between initial surgery and reconnection (P=0.04) and 22 less central line (CL) days (P=0.08) with similar length of stay (LOS) and CLABSI rates.

Conclusions Neonates who underwent bowel resection for NEC and received MFR had better interoperative growth and less cholestasis without an increased infectious risk when compared to patients that did not receive MFR. Although LOS was not different, the decrease in resource utilization for the MFR cohort is reflected by fewer TPN and CL days by approximately 3 weeks.

Methods used We abstracted GBD data for deaths and years lived with disability (YLD) from NTDs for 195 nations in 2000 and 2016. Bar graphs were constructed to visualize relationships.

Summary of results 20 of the 20 (100%) nations with the most deaths and 16 of the 20 (75%) with the highest YLD due to NTDs in 2007 were in the lowest 2 GDP quartiles. 13 of the 20 (65%) nations with the highest deaths and 11 of the 20 (55%) with the highest YLD due to NTDs have documented folic acid fortification programs. The regions with the highest total disease burden included parts of Africa, Asia, and Oceania.

Conclusions Low-income nations share a disproportionate burden of disease from NTDs. Large burdens continue to exist even in nations with documented folic acid fortification programs, a finding that highlights the need for definitive neurosurgical treatment worldwide. Unfortunately, this care is often deficient where it is needed most, as those in poorer nations are unable to access neurosurgical care. The global health community should be aware of and address these disparities to significantly reduce death and disability from NTDs worldwide.

Purpose of study Congenital hypothyroidism (CH) is a preventable cause of intellectual disability if detected and treated early and occurs in 1:1500–3000 children. There is limited information on the best method for screening CH in preterm infants. Thyroid dysmaturity is associated with hypothyroxinemia of prematurity and delayed thyroid stimulating hormone (TSH) elevation. While hypothyroidism detected in preterm infants was thought to be related to transient and/or mild CH, we previously demonstrated higher rates of true CH in the NICU. Our objective is to compare the detection rate of hypothyroidism in preterm infants in the NICU between state newborn screening (NBS) vs. a CH screening algorithm to follow thyroid function labs starting at approximately 30 DOL or prior to discharge in all infants born at under 34 weeks gestational age (GA).

Methods used We performed a prospective, observational study in a single-center, academic Level IV NICU in Houston, Texas, using a CH screening algorithm targeting preterm infants from June 2018 to May 2019. The algorithm recommended when to order thyroid labs and/or consult Pediatric Endocrinology based on thyroid function results and concurrent corrected GA. Data collected included NBS results, thyroid function labs, and medical treatment for hypothyroidism.

Exclusion criteria were infants born at 35 weeks GA or later, early death, or infants hospitalized at the time of data collection.
Abstracts

Population health & precision medicine
Joint plenary poster session and reception
4:30 PM
Thursday, February 13, 2020

397 RESPONSE ASSESSMENT IN RECURRENT GLOBLASTOMA BASED ON CONTRAST-ENHANCED T1-WEIGHTED SUBTRACTION COLOR MAPS AND RANO CRITERIA
E Florez*, R Hamidi, CM Howard. University of Mississippi Medical Center, Flowood, MS
10.1136/jim-2020-SRM.397

Purpose of study To evaluate the true enhancement burden of tumors following immediate post-operative changes as well as following sequential MR imaging.

Methods used HIPPA-compliant, IRB-approved retrospective post-hoc analysis of 17 patients with glioblastoma multiforme (GBM) treated with bevacizumab who reported to have a residual disease on MRI data acquired in 1 to 3-month interval. MRI series including T2-FLAIR, T1-W, and enhanced T1-W were assessed in initial post-op and follow-up series. MRI data were exported from PACs to DICOM viewer (MIM v6.9). Next, an experienced neuroradiologist segmented the GBM tumors in FLAIR, unenhanced and enhanced T1-W MRI series. Subsequently, the segmented volumes were exported to MatLab where the pixel-by-pixel hyperintensities subtraction was performed in each volume slice using an in-house algorithm obtaining a color map. GBM tumor axes measurement was performed using a single frame with the best FLAIR signal representation. Finally, tumor axes were exported to a decision environment where the response characterization was computed according to RANO criteria.

Summary of results It is important to separate intrinsically T1 hyperintense lesions such as blood and cortical necrosis from true enhancement, which is felt to relate to vascular permeability in tumors or possibly granulation tissue. If the subtraction value is low, i.e., most or all of the T1 signal relates to intrinsic T1 hyperintensity rather than tumor, and then there is likely no macroscopic enhancing tumor. If, on the other hand, the subtraction value is high, then there is true enhancement, which may relate to either macroscopic true tumor burden or enhancement related to granulation tissue. Reactive dural changes in some tumors can also manifest as a high subtraction result. FLAIR images represent T2 hyperintense signal that is not related to cerebrospinal fluid. For example, vasogenic edema, T2 bright tumor or gliosis from post radiation change versus small vessel ischemia can all be bright on FLAIR images.

Conclusions Treatment of enhancing tumor can be determined by analyzing the sequential subtraction results together with FLAIR images that help to determine whether nonenhancing tumor or gliosis is progressing over time, in combination with RANO Criteria response characterization.
Purpose of study Tobacco use is known to pose significant health risks to both smokers and those exposed to secondhand smoke. A variation of aversive therapy has recently been introduced to the public in the form of a wearable wristband with self-administered electric stimulus. If found feasible and acceptable, a large-scale study can be planned to test the efficacy of this device.

The objectives of this trial are to explore the acceptability and feasibility of this novel smoking cessation therapy in smokers. Specifically, we hypothesize that use of self-administered aversive therapy in motivated smokers can be an acceptable and feasible aid for smoking cessation for this population.

Methods used Smokers who are motivated to quit and interested in the study are actively being enrolled. Subjects are excluded if they have a phobia, have an arrhythmia, are <19 years old, do not have a smart phone, or are not highly motivated to quit. After recruitment and baseline surveys, there is a one-week run-in period during which subjects are instructed to wear the wristband and press the button when they smoke a cigarette. Participants who are enrolled are then randomized into the control or intervention group. The intervention group is instructed to set the wristband settings to an electric stimulus that is unpleasant but not intolerable. Participants wear the device for 3 weeks and are contacted at various intervals. The primary outcome being evaluated is how acceptable this study is to participants (as measured by: enrollment percentages, dropout rate, and the percentage of waking hours that subjects wear the device once enrolled). Secondary outcomes include percentage of subjects that make a quit attempt, average degree of smoking reduction, and percentage of participants that achieve cessation.

Summary of results Currently we have approached 98 people and ultimately enrolled 11 participants. We have made some recent changes in our recruitment strategies to broaden our recruitment and access our target group more effectively. This has showed some promising results, and we are working on continuing to recruit and enroll, with a goal of 20 total participants enrolled.

Conclusions Thus far, we do not have enough information to discuss the validity of our hypothesis.

Purpose of study To understand the epigenetic mechanisms underlying the link between childhood adversity and cardiovascular health, particularly in the perspective of social and health disparity.

Methods used Childhood adversity, characterized by abuse, neglect and household dysfunction, is a national problem that exerts an enormous impact on individuals, families and society, and is of great significance for public health issues, including substance abuse, mental disorders and cardiovascular disease (CVD). Recent research reveals that epigenetic mechanism, including DNA methylation, is an important interface through which the body interprets and biologically responds to stressful experiences in early life, and to be dynamically regulated throughout the life span. Mounting evidence from animal studies suggests that DNA methylation can shape the experience-dependent stress-related pathways, leading to long-lasting altered stress responsivity.

Summary of results In this presentation, I will firstly overview the epidemiological evidence on the influence of adverse childhood experiences (ACEs) on cardiovascular risks. Then I will review the most recent progress in the animal and human studies, including our own research, indicating the role of DNA methylation underlying the link between childhood adversity and CVD risks in adulthood. Finally, I will discuss...
the current knowledge gaps and potential challenges in the population research. In particular, it is crucial to understand the epigenetic mechanisms in the perspective of the social and health disparities between ethnic/racial groups.

Conclusions Future studies that focus on epigenetic changes across the life course, the role of resilience, and genetic confounding factors would further strengthen the evidence and aid in developing novel and effective prevention and intervention strategies to reduce the burden associated with stress-related health problems at early stage.

Pulmonary/critical care medicine

Joint plenary poster session and reception

4:30 PM

Thursday, February 13, 2020

402 FINDING THE ZEBRA: RECURRENT WHEEZING IN A 10-MONTH-OLD

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10.1136/jim-2020-SRM.402

Case report Wheezing is common in pediatrics and typically seen in bronchiolitis or asthma. However, unusual causes can present as recurrent wheezing.

Case Term 10-month-old male referred to pediatric pulmonology for evaluation of recurrent wheezing. Prenatal history was unremarkable. At 8-months, he was hospitalized due to respiratory distress, wheezing, hypoxemia and diagnosed with pneumonia. At 9-months, he required intensive care due to severe respiratory distress. At 10-months, he was referred to our clinic for evaluation. Review of systems negative for stridor, failure to thrive, coughing/choking while feeding, stool abnormalities, or parental asthma. Exam significant for hypoxemia, tachypnea, intercostal retractions, diffuse expiratory wheezing and crackles. Chest radiograph showed right upper lobe atelectasis and lower lobe collapse. Cardiac evaluation was unremarkable. CT chest angiography and bronchoscopy were normal. Broncho-alveolar lavage fluid culture was positive for *Haemophilus influenza*. Sweat chloride test and genetic testing were negative. Symptoms recurred after 1 month and were treated multiple times with antibiotics, short course systemic steroids and bronchodilators. CT chest at 16-months showed air trapping, bronchiectasis and mosaic pattern.

Conclusion Post Infectious Bronchiolitis Obliterans is a rare cause of chronic obstructive pulmonary disease. It develops after severe insult to lower airways and typically seen after adenovirus infection in children. Early identification and treatment is important to limit progression of damage.

403 DIAGNOSTIC PITFALLS OF PULMONARY HAMARTOMA IN SMALL BIOPSY SPECIMENS

A Shalaby*, I Akhtar, V Manucha. University of Mississippi Medical Center, Jackson, MS

10.1136/jim-2020-SRM.403

Case report Pulmonary hamartoma (PH) is the most common benign lung tumor and the third most common cause of solitary pulmonary nodules. Most patients are asymptomatic and it is usually an incidental finding on imaging. PH is typically a straightforward diagnosis in resections; however, diagnosis can be challenging in small biopsy specimens. We present a case of a 61-year-old woman who presented to the oncology service for a lung lesion incidentally found during work up for vascular surgery. Computed tomography (CT) scan showed a 2.4 cm well-circumscribed pleural-based mass in the left lower hemithorax that was favored to represent a pleural-based solitary fibrous tumor. A biopsy was performed showing well-differentiated cartilaginous tissue along with an adjacent morphologically uniform myxoid spindle cell component (figures 1A & 1B). The case was sent out for consultation and signed out as a cartilaginous and spindle cell proliferation suggestive of pleomorphic adenoma. CT scan of the neck showed normal salivary glands. Patient subsequently underwent wedge resection of the lesion with gross examination showing a tan-white slightly friable mass. Microscopic sections revealed mature cartilage with adipose tissue and entrapped benign respiratory epithelium (figures 1C & 1D) consistent with PH. The discrepancy between the biopsy and resection specimens is attributed to sampling error. PH should be differentiated from primary or metastatic myxoid/cartilaginous malignancies.

Abstract 402 Figure 1

Abstract 403 Figure 1
in the lungs, as well as primary or secondary biphasic sarcoma
toid carcinomas, especially when atypical features are
present. PH has an excellent prognosis and simple excision is
curative.

404 AN UNUSUAL PRESENTATION OF PULMONARY
ADENOCARCINOMA
M Arevalo*, A Ismail, D Setello, K Nugent. Texas Tech University Health Sciences Center;
Lubbock, TX 10.1136/jim-2020-SRM.404

Introduction Lung cancer is the second most common cancer
in the United States and the most common cancer worldwide.
It is divided into small cell and non-small cell lung cancer
(NSCLC). Half of the cases of NSCLC are adenocarcinoma.
We present a patient with pulmonary adenocarcinoma who
had infiltrates in a miliary pattern on imaging.

Case A 47-year-old patient presented to our hospital complaining
of progressive sharp lower back pain. The pain started 3
months ago and was getting worse over the last month. Chest
X-ray showed bilateral infiltrates in a miliary pattern. She
denied shortness of breath, weight loss, changes in appetite,
cough, or hemoptysis. She reported visiting Mexico once a
month but denied any alcohol, illicit drug use, or smoking.
CT of the chest showed miliary infiltrates bilaterally and a 2
cm nodule in the right middle lobe. She had a spinal MRI
showing bony lesions at T8-9-11, L4-5, and S1. The infectious
workup was negative, and the working diagnosis was meta-
static cancer.

The patient had a bronchoscopy with transbronchial biop-
sies guided by electromagnetic navigation, as well as endo-
bronchial ultrasound fine-needle aspiration (FNA) of
mediastinal lymphadenopathy. Transbronchial biopsies and sta-
tion 7 FNA were positive for adenocarcinoma of the lung. In
addition, the patient also had a biopsy of her bony lesions,
which was consistent with metastatic adenocarcinoma of the
lung. The patient had radiotherapy to her thoracic and lumbar
spine while inpatient. She will follow-up with oncology to dis-
ter treatment options once molecular tumor testing is
completed.

Discussion Although the absolute and relative frequency of
lung cancer is decreasing, it remains the most common cancer
worldwide. Clinically, patients present with respiratory symp-
toms (cough, hemoptysis, dyspnea, etc.), but as with our
patient, the presentation could be delayed until advanced
stages due to the absence of early symptoms. Imaging typically
shows solid, semisolid, or ground-glass mass or nodule on CT.
A miliary radiologic pattern is usually associated with myco-
fungal infection, fungal infection, pneumoconiosis, or sarcoi-
dosis, but it is a rare presentation of pulmonary
adenocarcinoma.

405 PATIENT WITH UNCONTROLLED ASTHMA
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10.1136/jim-2020-SRM.405

Case report When a patient has uncontrolled asthma, the
health care provider must consider factors such as an ongoing
trigger, comorbidities, asthma complications, and the patient’s
compliance with their medication regimen to determine the
cause of exacerbations. Here we report a female pediatric
patient with uncontrolled asthma despite having the previous
factors well-controlled.

A 12-year old female with a past medical history of asthma
and eczema presented for evaluation of respiratory status. The
patient had no identifiable asthma triggers at home and her
other comorbidities (allergies and rhinitis) were well addressed,
however the patient continued to be hospitalized frequently.
Spirometry showed evidence of lower airway obstruction with
FEV1 of 39% predicted.

Based on the clinical presentation and spirometry, an inves-
tigation into this patient’s uncontrolled asthma was warranted.
Labs were notable for an absolute eosinophil count of 357
and an IgE level of 2040 IU/ml, raising suspicion for Allergic
Bronchopulmonary Aspergillosis (ABPA). An ABPA panel
showed specific Aspergillosis antibodies, IgE 28.5 IU/ml and
IgG 23.7 IU/ml. The patient was diagnosed with ABPA and
was treated with oral prednisone. At follow-up, the patient
showed improvement of symptoms and her IgE levels dropped
to 1350 IU/ml and her pulmonary function improved to pre-
dicted FEV1 81%.

ABPA is a pulmonary disorder caused by a hypersensitivity
reaction to Aspergillus fumigatus, which is typically seen in
patients with asthma and cystic fibrosis. Patients may present
with poorly controlled asthma, hemoptysis, wheezing, or a
productive cough. Diagnosis of ABPA relies on a combination
of clinical, radiological and laboratory findings. A recent study
by Agarwal et al. proposed a new set of diagnostic criteria to
improve on the previous Patterson Criteria.

Early diagnosis and treatment is important to prevent long
term sequela, such as bronchiectasis. Current treatment guide-
lines of ABPA recommend the use of systemic glucocorticoids
to suppress inflammation and immune activity. ABPA should
be considered in a patient with poorly controlled asthma with
declining respiratory function despite appropriate medical ther-
apy and environmental control.

406 COUGH ASSIST, A RESPIRATORY THERAPY
PEDIATRICIANS SHOULD BE FAMILIAR WITH: A CASE
REPORT
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10.1136/jim-2020-SRM.406

Case report We report the case of a boy who had multiple
hospital admissions in the first year of life related to failure
to thrive, chronic respiratory infections and aspiration pneu-
monia that appeared refractory to conventional management.
He had a past medical history of chromosomal 8 deletion/
duplication, he was fed primarily via PEG tube and had a
NISSEN performed around 6 months of age. Between 5–9
months of age, he had 6 hospitalizations, averaging 8 days in
duration (range 3–14 days) with 3 stays requiring transfer to
the PICU. During his hospital stay when he was 9 months,
consultation with pulmonologist noted his recurrent aspiration
was likely secondary to poor tone and airway clearance with a
cough assist (or mechanical insufflation-exsufflation) was rec-
ommended. After being supplied with the machine, the
parents were educated and the frequency and duration of his
hospitalizations were dramatically reduced: he had 4
hospitalizations between ages 10–17 months, with average length of stay 4.5 days (range 2–7). Interestingly, the patients cough assist started to malfunction around 17 months of age and the appropriate pressures were not able to be achieved and they could not get the machine replaced. He subsequently developed influenza requiring Vapotherm. Before his cough assist could be replaced, he developed ARDS with superimposed bacterial pneumonia, was intubated and placed on Flo- lan. Initial extubation attempt was unsuccessful, but a subsequent extubation was successful, possibly in part due to replacement of his cough assist.

This case demonstrates the utility of mechanical airway clearance methods, namely a cough assist machine in decreasing frequency and duration of hospitalizations for upper respiratory infections in children with poor muscle tone or ineffective cough. A cough assist can be used inpatient, outpatient and in critical care settings to help manage secretions and even facilitate extubation. Pediatricians should consider a cough assist in patients with ineffective cough to prevent and manage acute respiratory illnesses in select populations.

407 ACUTE LUNG INJURY SECONDARY TO ELECTRONIC CIGARETTE USE
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10.1136/jim-2020-SRM.407

Case report A 37-year-old woman with a history of IV drug abuse, untreated hepatitis C, and tricuspid valve repair secondary to infective endocarditis in 2015, presented to the Emergency Department with three days of worsening shortness of breath, cough, pleuritic chest pain, fever and chills. The patient was a former half pack a day smoker who quit 3 months prior and began using electronic tobacco cigarettes. At the time of hospital admission, vital signs included a pulse of 115 beats/min, respiratory rate of 24 breaths/min, and oxygen saturation of 91% on room air which improved to 98% on 3 liters oxygen via nasal cannula. Her exam was notable for bibasilar inspiratory crackles. Chest radiograph demonstrated prominence of pulmonary vasculature bilaterally and CT angiogram the chest showed diffuse airspace opacification and ground-glass attenuation throughout the lungs. Her initial labs revealed leukocytosis with predominant neutrophilia. However on day 2, eosinophils and IgE levels were elevated. Other pertinent labs included normal BNP and procalcitonin levels, negative HIV, and negative blood cultures. Acute eosinophilic pneumonia caused by the use of electronic cigarettes was thought to be the cause of the patient’s acute hypoxic respiratory failure. The patient improved with removal of the trigger and supportive care.

Discussion As of September 17, 2019, the CDC has reported about 530 cases of electronic cigarette induced pulmonary disease across 39 states with 7 deaths due to the condition. Electronic cigarette or vape associated pulmonary injury can vary in severity and in mechanism of injury as there have been cases described of eosinophilic pneumonia, organizing pneumonia, and lipoid pneumonia. The CDC has identified the symptoms that have been reported to be a few days to a few weeks of cough, shortness of breath, pleuritic chest pain, fatigue, fever, weight loss, and gastrointestinal symptoms. The use of electronic cigarettes should be considered in the workup of patients who actively use electronic cigarettes and present with these symptoms.

408 A RARE CASE OF PULMONARY MUCORMYCOSIS MIMICKING MALIGNANCY IN A PATIENT WITH DIABETIC KETOACIDOSIS
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10.1136/jim-2020-SRM.408

Introduction Pulmonary mucormycosis is associated with high mortality. Survival depends on early diagnosis and treatment. We present a rare case of indolent mucormycosis mimicking malignancy.

Case presentation A 56-year-old smoker female admitted for DKA, fever, SOB, right subclavicular pain and hemoptysis for 6 weeks. Chest imaging with collapse of the RUL and mediastinal LNs (figures 1 and 2). Bronchoscopy showed a fungating mass obstructing the RUL entry (figure 3). EBUS with FNA of LNs was negative for malignancy. Biopsy of the mass showed broad hyphae consistent with mucormycosis (figure 4). CT head, sinuses & neck was unremarkable. The patient was...
started on Amphotericin B and then Isavuconazonium with good response.

Discussion Incidence of pulmonary mucormycosis is 1.7 cases/million/year in the US. Unlike the rhino-cerebral variant, pulmonary mucormycosis is more common with hematologic malignancies than with diabetes. Hemoptyis is common due to angio-invasion of bronchial vessels and necrosis. Upper lobe consolidation is typical on chest imaging. Biopsy or pleural/BAL fluid cultures showing aseptate hyphae with perpendicular branching is diagnostic. Amphotericin B or isavuconazole with or without surgical resection is associated with lower mortality, particularly with unilobar involvement.

Conclusion Our case emphasizes the importance of suspecting pulmonary mucormycosis in DKA patients with upper lobe lung consolidation.

Case report Case: An 80 year old man with a past medical history of rheumatoid arthritis on immunosuppressive therapy, COPD, coronary artery disease, and hyperlipidemia presented to hospital with four days of fever, shortness of breath, cough productive of brown sputum, and diarrhea. His temperature was 102°F on admission and his serum sodium was 130 mEq/L. A right lower lobe consolidation was seen on CT chest and he was started on vancomycin and zosyn. Two days into treatment, the patient developed diaphoresis, confusion and quickly decompensated, requiring intubation and norepinephrine for blood pressure support. His antibiotic regimen was broadened to meropenem and azithromycin. His renal function worsened to the point of needing dialysis for two days. His legionella urinary antigen returned positive and antibiotic treatment was switched to levofloxacin. After a 28 day hospital stay, his mental status that had returned to baseline.

Discussion Legionnaire’s Disease (LD) is a pneumonia caused by the freshwater gram-negative bacterium Legionella pneumophila. Legionella is an atypical cause of both nosocomial and community-acquired pneumonias that is oftentimes transmitted via aerosolized water sources or soil containing the bacteria. Patients typically present with high fevers, shortness of breath, and cough. Approximately half of patients with LD will present with abdominal pain, vomiting, and diarrhea, and half will have neurological symptoms including confusion, lethargy, and headaches. While hyponatremia (serum Na <130 mEq/L) is usually present, it is a nonspecific finding. Definitive diagnosis is made with respiratory sputum cultures on a charcoal yeast extract agar with iron and cysteine. Urine antigen tests are also helpful in diagnosis, however only detect serogroup-1 which accounts for approximately 70% of LD. Treatment, using, azithromycin, doxycycline, or a respiratory fluoroquinolone, is recommended for 14–21 total days. LD is a nationally notifiable disease that should be reported to the state health department who will then notify CDC.

Case report Nonspecific interstitial pneumonia (NSIP) is an interstitial lung disease (ILD) commonly seen with connective tissue diseases (CTDs) such as polymyositis, Sjögren and scleroderma. Occuring with alveolar epithelial injury and inflammation, it varies in symptoms and pattern of lung disease, and only makes up 14–36% of ILD diagnoses. Due to its variable presentation and extensive workup, NSIP is often overlooked as a diagnosis for shortness of breath.

A 64-year-old African American female came to the ED for shortness of breath. She had presented to an outside hospital one month prior with dyspnea on exertion and lower extremity edema, was diagnosed with CHF and discharged with an ACE inhibitor and diuretic. She improved until her dyspnea worsened days before admission. She also noted darkening of her lips, tightening skin around her fingers, and hypopigmentation on her upper back, all progressing over two months. Internal medicine was called for admission of...
A CASE OF CHYLOTHORAX
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10.1136/jim-2020-SRM.411

Introduction Chylothorax is an uncommon cause of pleural effusion characterized by extravasation of chyle into the pleural space. It is caused by injury or obstruction of the thoracic duct or subdiaphragmatic flow from the peritoneal cavity. The fluid is usually milky in appearance with elevated triglycerides (>110 mg/dL) or chylomicrons. It can be asymptomatic or present with non-specific respiratory symptoms.

Case A 79-year-old patient with history of hypertension presented to the emergency room complaining of diffuse abdominal pain and dyspnea. His dyspnea worsened over the last 2 months. A chest X-ray showed bilateral pleural effusions and a CT chest showed large right hydropneumothorax and moderate left pleural effusion. He had a right thoracentesis with chest tube placement as well as left thoracentesis. The fluid analysis was consistent with a chylothorax. His chest tube output remained high (1-2L daily). His nutrition was optimized and octreotide 50 mg every 8 hours was tried with modest reduction in the chest tube output. The etiology of the chylothorax was unknown. He reported a stab wound to his right chest 20 years ago.

Imaging of his head, chest, abdomen, and pelvis showed no masses. The fluid analysis of the effusions was negative for malignant cells and cultures were negative. A nuclear medicine lymphangiogram showed no extravasation of radiotracer into the thoracic cavity. The pneumothorax resolved and the chest tube was removed with rapid reaccumulation of his pleural effusion. After discussion with the patient about the benefits and harms of an indwelling pleural catheter, he decided against it. The patient was discharged home with hospice care.

Discussion Chylothorax is a rare cause of pleural effusions and present a challenge in management. Trauma causes about 50% of the cases. Esophagectomy and corrective surgeries for congenital heart diseases are the most common reported causes. Malignancy and lymphatic anomalies are the most common non-traumatic causes of chylothorax (39%–72%). Diagnosis needs an extensive history and physical exam. Fluid analysis and imaging can help identify the cause. Lymphangiogram is needed when lymphatic anomaly is suspected. Medical management usually involves a high-protein, low-fat diet and somatostatin analogues; definitive treatment is usually surgical, when no contraindications exist.
CHRONIC ALCOHOL INGESTION RENDERS MICE VULNERABLE TO HYDROSTATIC PULMONARY EDEMA

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Purpose of study Chronic alcohol abuse is a major risk factor to develop pathologic alveolar flooding, known as Acute Respiratory Distress Syndrome (ARDS). Alcohol impairs alveolar barrier function by increasing paracellular fluid leak and disrupting fluid homeostasis, priming the lung for flooding with a subsequent ‘second-hit’ injury. Healthy lungs tolerate a broad range of interstitial pressures without developing alveolar edema. However, chronic alcoholics at baseline and with ARDS have increased extravascular water levels which contribute to increased interstitial water pressure on the alveoli. Elevated interstitial pressures overwhelm alveolar tight junctions and allow fluid to enter the alveolar space. We propose that alcohol causes alveolar leak due to increases in interstitial fluid pressure. This is critical to determine as ICU patients are often given fluids that increase interstitial pressure and could be injurious in alcoholic patients.

Methods used 8-week-old male C57BL/6 mice were pair-fed 20% ethanol or water for 16 wks to establish a chronic alcohol model. Mice were given a 250 µl intraperitoneal (IP) injection of phosphate-buffered saline (PBS) to increase interstitial fluid pressure. To examine flooding in the alcoholic lung, 200 µl of Evans Blue (EB) dye was injected into tail veins 24 h after IP injection and bronchoalveolar lavage (BAL) fluid was collected 1h later. EB in BAL was analyzed and normalized to serum EB.

Summary of results Alcohol increased alveolar leak, measured by EB presence in BAL, by 72% following IP injection of PBS relative to sham-control alcohol-fed mice and by 93% relative to water-fed mice at the same IP injection volume. By contrast, IP injection did not cause alveolar leak into BAL of water-fed mice.

Conclusions Chronic alcohol exposure sensitizes the alveolar barrier to pulmonary edema with a ‘second-hit’ inflammatory injury such as sepsis or pneumonia. Here we demonstrate for the first time that sterile saline induces lung injury in alcohol-fed mice, providing a non-inflammatory model to study alveolar barrier dysfunction in vivo. Further studies will measure the impact of saline composition on the degree of alveolar leak and determine if this injury is volume-dependent.

Abstract 414 Figure 1

UNUSUAL CAUSE OF RESPIRATORY DISTRESS IN A NEWBORN

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Case report Term infant born via spontaneous vaginal delivery who was asymptomatic at birth admitted due to tachypnea at 3 weeks. Perinatal history was unremarkable except for meconium stained fluid. Review of systems was negative for stridor, fever, vomiting, sweatin with feeds or apnic episodes. Exam significant RR 88, with increase work of breathing. Chest x-ray showed subtle perihilar infiltrate. Cardiac evaluation showed a patent foramen ovale. Infectious work-up was negative. Infant was discharged home and re-admitted due to persistent tachypnea and hypoxemia. Cardiology, Pulmonology and ENT were consulted. Labs including septic screen, metabolic panel, TSH and sweat chloride test were negative. CT scan of chest showed ground glass opacities in lower lobes. Modified barium swallow study ruled out aspiration and contrast esophagogram was normal. Airway evaluation and bronchoscopy was normal with negative BAL. Genetic evaluation was positive for NKX2-1 mutation C.190C. He was discharged home on oxygen and weaned to room air and remained asymptomatic over next few months.

Discussion Common causes of tachypnea in this age can be due to infection, persistent chemical pneumonia from meconium aspiration, and cardiac causes. Our patient had a variant of unknown significance of Homebox protein NKX2-1 gene which is associated with lung, thyroid and brain tissue defects. In the lungs, defective homebox NKx-2.1 protein expression leads to decrease surfactant production causing respiratory distress leading to interstitial lung disease.

TOPIRAMATE-INDUCED METABOLIC ACIDOSIS, INTERSTITIAL PNEUMONITIS AND PULMONARY EMBOLISM: TOPIRAMATE SYNDROME

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Introduction Topiramate-induced normal anion gap metabolic acidosis (NAGMA) is a documented adverse effect. Topiramate also has rare effects on the respiratory system including pneumonia and pulmonary embolism (PE). We report a case of a patient with acute hypoxic respiratory failure due to NAGMA, interstitial pneumonitis, and PE while on topiramate.

Case A 44 year old female presented with shortness of breath, dry cough and wheezing for 5 days. No fever, hemoptysis, chest pain or sick contacts. Past history revealed smoking, asthma, paroxysmal supraventricular tachycardia and migraine. Medications included verapamil, topiramate and albuterol.

On exam, severe respiratory distress, temperature 100°F, O2 saturation 90% on venti mask FiO2 50%. Only a few scattered bilateral wheezes and rhonchi with good air flow. Despite regular tachycardia, volume status was normal based on lack of edema, S3, and jugular venous distension.
Propofol is commonly used for sedation, and in this case was used for non-convulsive status epilepticus. The pathophysiology of Propofol syndrome is thought to be related to mitochondrial dysfunction. Risk factors include severe illness, cerebral injury, corticosteroid use, and poor oxygen perfusion. Patients can present with metabolic acidosis, arrhythmias, rhabdomyolysis, renal and hepatic abnormalities. While administering Propofol, it is essential to closely monitor telemetry and lab values. A high degree of suspicion is needed as discontinuing the infusion can be lifesaving.

### Abstracts

#### 416 A DIAGNOSTIC DILEMMA: RECOGNIZING PROPOFOL INFUSION SYNDROME


10.1136/jim-2020-SRM.416

**Case report** Propofol infusion syndrome is a rare complication that may occur in critically ill patients. It is characterized by severe metabolic acidosis, rhabdomyolysis, renal failure, liver complications, cardiovascular failure and carries a high incidence of mortality. Prompt recognition of Propofol infusion syndrome is required as treatment entails stopping Propofol and supportive care. We will now discuss a rare case of Propofol infusion syndrome.

A 67-year-old male with history of subdural hematoma status post craniotomy and substance abuse presented to the emergency department with cardiac arrest following cocaine use. Patient’s rhythm was noted to be asystole. He underwent cardiopulmonary resuscitation and received a total of 3 rounds of epinephrine with return of spontaneous circulation. He was then intubated and admitted to the intensive care unit. Electroencephalogram was ordered due to patient’s myoclonic jerks and revealed seizure activity. He was then started on valproic acid and levetiracetam. Difficulty in controlling seizures led to initiation of Propofol infusion which was later increased as patient continued having seizure activity. Following the increase in infusion rate, his creatinine quickly rose to three times his baseline along with metabolic acidosis. As this was the only medication that underwent changes, the team promptly discontinued Propofol. Within two days, the creatinine level returned to baseline. Due to the rapid recovery of renal function following cessation of Propofol, it’s suspected that the patient developed Propofol infusion syndrome. Because of the patient’s critical illness and post-arrest encephalopathy, he was eventually weaned from the ventilator and expired shortly after.

#### 417 AN EXTREMELY LOW PH SURVIVOR: A CASE OF SEPTIC SHOCK COMPLICATED WITH METFORMIN-INDUCED SEVERE LACTIC ACIDOSIS

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**Introduction** Lactic acidosis is the most common cause of metabolic acidosis in hospitalized patients. It is associated with increased mortality and worse prognosis, particularly in sepsis. Metformin is fatal in patients with shock or any organ dysfunction. AKI is an important risk factor for metformin-induced lactic acidosis.

**Case presentation** A 51-year-old female with type 2 diabetes mellitus who presented with altered mental status and abdominal pain. She was hypotensive, tachycardic, febrile and hypoxic. She was intubated, started on IVF and vasopressors and then admitted to the ICU. CBC showed leukocytosis. CMP showed sCr 7.4 mg/dl. Urinalysis showed 4+Bacteria and >180 WBCs/HPF. Serum Lactate 22.7 mg/dl. ABG with pH 6.64 and bicarb of 3 mg/dl. Despite IVF, vasopressors, antibiotics and bicarb drip; repeat ABG and lactate were unchanged. By reviewing her home medications, it was revealed that she is taking metformin, so metformin-induced lactic acidosis was suspected and continuous renal replacement therapy (CRRT) was started. Her shock resolved and her pH, lactate and bicarb levels normalized. The patient was extubated and discharged home 48 hours later.

**Discussion** Type A lactic acidosis is due to impaired tissue oxygenation and Type B LA is due to metformin, DKA, alcoholism, Beta-agonists (e.g., albuterol). Hyperlactatemia is detrimental as it causes reduced cardiac contractility, arrhythmias, and impaired response to vasopressors. Treatment of lactic acidosis is the treatment of the cause with cautious use of sodium bicarb. Sodium bicarb is used if pH<7.1 and bicarbonate <6. Our patient had lactic acidosis secondary to both septic shock and metformin in the setting of AKI. Despite having a very low initial pH, the patient improved with correcting the underlying cause and the judicious use of bicarbonate.

**Conclusion** Our case emphasizes the role of stopping metformin in the hospital setting and switching to insulin because AKI and sepsis are very common in hospitalized patients and stopping metformin can prevent catastrophic complications.
418 Efficacy of non-opiates for pediatric continuous sedation in intensive care units: a systematic review and meta-analysis

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Purpose of study Despite the ubiquitous administration of non-opiates for sedation in critically ill children, evidence guiding their use is lacking. Thus, we conducted a systematic review to assess whether non-opiate agents used in pediatric intensive care units are: (i) effective, (ii) safe, and (iii) successful in reducing length of mechanical ventilation days and hospital stay. Non-opiate agents were chosen due to the growing body of evidence describing the short- and long-term adverse effects of prolonged opioid administration in children.

Methods used After protocol submission to PROSPERO, we conducted a thorough literature search in PubMed, Science Direct, Web of Science, SCOPUS, Cochrane and references of included articles. Two independent reviewers screened randomized trials, cohort and case-control studies that met inclusion criteria. Our primary outcome was efficacy measured by any objective, validated sedation scoring tool (COMFORT, Ramsay, SBS, etc.). Secondary outcomes included safety, days of mechanical ventilation and length of hospital stay. Cochrane risk of bias and MOOSE will be used to assess study quality.

Summary of results In this systematic review, 43 studies were included for a total of 2,831 patients from North and South America, Europe and Asia. Dexmedetomidine and midazolam were most commonly studied (n=31, 72%), followed by propofol and clonidine, (n=8, 19%), with a handful evaluating isoflurane, haloperidol, and ketamine. COMFORT and Ramsay were the sedation scores used most often (n=22, 51%). The studies were 44% (n=19) randomized trials and 63% (n=27) described at least one of our secondary outcomes. Preliminary findings suggest non-opiate sedatives have comparable efficacy and safety to opioids. Meta-analysis is ongoing and will be complete in the next month.

Conclusions This is the first systematic review and meta-analysis evaluating the efficacy of non-opiate sedatives in mechanically ventilated children. Findings from this study have the potential for large clinical implications in a topic that currently lacks evidence for decision-making.

419 Streptococcus pneumoniae-induced epithelial barrier function is mediated by mitochondrial reactive oxygen species generation and attenuated by a mitochondrially-targeted antioxidant

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Purpose of study S. pneumoniae is the most common cause of community acquired pneumonia and, despite pneumococcal vaccination, remains a significant cause of morbidity and mortality especially among the elderly and those with comorbidities. The epithelium serves as the first line of defense against infection and its function is dependent on the regulation of anti-oxidant defenses and mitochondrial quality control mechanisms. The purpose of this study was to determine how S. pneumoniae affects epithelial anti-oxidant defenses and whether augmentation of anti-oxidant activity could enhance the epithelial host response to infection.

Methods used BEAS-2B bronchial epithelial cells and human primary bronchial epithelial cells (NhBEs) were infected with S. pneumoniae serotype 19F (MOI 0.1, 1, 10) for 3, 6, 12, and 24 hours. Cells were pre-treated for 1 hour with mitoTEMPO (20, 100 µM) or vehicle control. Mitochondrial reactive oxygen species (mtROS) were measured using mitoSOX Red superoxide indicator. Mitochondrial DNA integrity was analyzed by determining the ratio of 79 bp and 230 bp mtDNA fragments. QPCR and western blotting was used to quantify mRNA and protein expression respectively of several genes important in the antioxidant response to oxidative injury including peroxisome proliferator activated receptor gamma coactivator 1 (PGC-1α), Nuclear factor erythroid 2-related factor 2 (Nrf2), and sirtuin 3 (Sirt3). Epithelial barrier function was assessed by measuring transepithelial resistance (TER) in primary bronchial epithelial cells grown on transwell supports.

Summary of results S. pneumoniae infection induces mtROS generation (MOI 10, 6 and 12 hours), promotes mtDNA damage (MOI 10, 12 hours), and enhances mRNA and protein expression of PGC-1α, Nrf2, and Sirt3 in a dose- and time-dependent manner. Epithelial barrier dysfunction induced by S. pneumoniae is abrogated by the mtROS scavenger, mitoTEMPO.

Conclusions S. pneumoniae infection induces mitochondrial-derived oxidative injury in lung epithelial cells resulting in barrier dysfunction. Blockage of mtROS restores barrier integrity and may represent a novel therapeutic strategy for S. pneumoniae infection.

420 Cystic fibrosis presenting as chronic cough in elderly

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Case report A 75-year-old Caucasian man with GERD, HTN, A-fib, CKD, and thoracic aortic aneurysm presented to the pulmonary clinic with chronic cough. He had previously been started on omeprazole and had been seen by multiple specialists without a diagnosis. The patient’s cough was associated with milky sputum production in the morning and yellow mucus in the evening. He endorsed dyspnea upon climbing stairs, awakening nightly due to productive cough, nasal congestion, and postnasal drip. He denied chest pain, environmental exposure, history of tobacco use, floating stools, weight loss, and nasal polyps. He built houses for several years and maintained multiple rent houses. He was initially thought to have upper airway cough syndrome and was started on intranasal corticosteroids with sinus rinses. His PFTs revealed a decreased DLCO at 65% of predicted, with an FEV1 of 96% predicted. CT of the sinuses showed chronic left sphenoid sinusitis with mucosal thickening and inspissated mucus with a small amount of fluid. He was started on a 3-week course of clindamycin with some improvement in symptoms. An HRCT chest showed bronchiectasis and bronchial
Abstracts

GUILLEIN-BARRE SYNDROME OR IS IT?

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Case report

West Nile Virus (WNV), is transmitted from infected birds to humans via mosquitoes. WNV has become the common cause of epidemic meningoencephalitis in humans. At present, there is no effective therapy for the treatment of WNV encephalitis.

55-year-old African American man with hypertension and drug abuse presented to an OSH for evaluation of multiple falls and was found to have rhabdomyolysis, dehydration, AKI, and a UTI and admitted to general medicine. The patient developed altered mental status, acute respiratory failure, atrial flutter with RVR and was intubated and transferred to the ICU. CT PE was negative for PE, but showed extensive pneumonia with mucous plugging, and bronchoalveolar lavage. The patient under- went BAL performed and cultures returned positive for streptococcus pneumoniae and pan-sensitive pseudomonas, respectively. Pulmonary consulted for evaluation for left lower lobe hydropneumothorax vs lung abscess and CT chest without contrast was recommended. Bedside ultrasound of the left lung showed heparization without fluid and CT chest without contrast recommended for further evaluation of lung parenchyma. CT chest showed an abrupt termination of the left lower lobe main bronchus with severe necrotizing left lower lobe pneumonia and ground glass changes in the right upper lobe with reactive lymphadenopathy.

After reviewing the CT chest, pulmonary recommended bronchoscopy with bronchoalveolar lavage. The patient under- went bronchoscopy which showed complete occlusion of the left mainstem bronchus, no BAL performed. Cardiothoracic surgery consulted and recommended obtaining a V/Q scan to evaluate perfusion to the left lung. V/Q scan showed 2.9% of total perfusion and 5.1% of total ventilation was provided by the left lung with the remainder provided by the right lung. The left lung had decreased perfusion and ventilation in all segments of the lung with no mismatch. The patient under- went the completion of left pneumonectomy by cardiothoracic surgery without complications. At the time of hospital discharge, the patient was stable on room air and discharged on a seven-day course of Bactrim.
ACUTE LUNG INJURY SECONDARY TO INHALATION OF TOXIC COMPOUNDS

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10.1136/jim-2020-SRM.423

Case report

Background: The use of electronic-cigarettes (e-cigarettes) has resulted in increased vulnerability to pneumonia. The most dreaded presentation of life-threatening e-cigarette associated lipoid pneumonia involves a rapid decline in clinical status with acute lung injury presenting as hypoxemia, leukocytosis, and bilateral lung infiltrates on chest x-ray. Epidemiologically, it is found in a young adult aged 18–35 clinically experiencing tachypnea, dyspnea, fever, and a history of extensive use of marijuana concentrates found in e-cigarettes, which can possibly lead to an even more rapid progression of lung damage when compared to other toxins.

Case presentation

A 31-year-old Caucasian female, with a significant 3-year history of e-cigarette use, presented to the emergency room with symptoms of worsening dyspnea, pleuritic chest pain, non-productive dry cough, subjective fever, and weight loss of 15 pounds over a two week period. She was afebrile throughout admission though her respiratory status fluctuated. She gave a three-year history of heavy vaping with products that she obtained in an informal route with a 11-year history of smoking nicotine. CT showed bilateral interstitial, alveolar infiltrates and normal WBC count on admission. She was initially treated for community-acquired pneumonia with intravenous ceftriazone and azithromycin. Despite the broad-spectrum antibiotics, her clinical condition worsened with intravenous ceftriazone and azithromycin, and steroids. For sedation, the patient was started on vancomycin, cefepime, azithromycin, and steroids. For sedation, the patient was started on fentanyl and propofol. As the patient’s respiratory status, ARDS, and infection improved, the patient was transitioned from propofol and fentanyl to dexmedetomidine. Approximately 18 hours after initiating dexmedetomidine, the patient developed a fever of 103.3°F (39.6°C). Chest radiograph showed mildly increased pulmonary edema from preceding days, but no evidence of new focal consolidations. After duplex ultrasound showed bilateral non-occlusive lower extremity DVT, workup for PE was unremarkable. Other than dexmedetomidine, the patient had not received any other new medications in the preceding 24 hours. The patient’s dexmedetomidine infusion was discontinued 5 hours after developing severe hyperthermia, and he was transitioned back to propofol and fentanyl for sedation. His fever curve continued to trend upwards for several hours afterwards, peaking at a maximum temperature of 105.7°F (40.9°C), 2.5 hours after discontinuing the dexmedetomidine. His fever curve thereafter trended down, and he was afebrile 8 hours after stopping his dexmedetomidine.

Discussion

Dexmedetomidine is a commonly used drug with a predictable side effect profile. When a typical work up does not reveal a likely source for a persistent fever in a critically ill patient who is on dexmedetomidine, it is reasonable to discontinue this medication and expect improvement in fever curve.

GLUCOSAMINE INCREASES MIR-129 AND TARTETS ICAM-1 IN HUMAN PULMONARY ARTERY SMOOTH MUSCLE CELLS

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10.1136/jim-2020-SRM.425

Purpose of study

MicroRNAs (miRs) have been shown to regulate gene expression thus modulating signaling pathways in disease development. TNFα is released during acute lung injury (ALI) and initiates a pro-inflammatory signaling cascade. Our previous preliminary studies showed that TNFα increased the expression of miR-181a in human lung alveolar cells. However, other studies showed a protective role of glucosamine (GlcN) in inflammation-induced lung injury. To fully understand how GlcN reduces inflammatory cytokines, we analyzed in silico miRs expression in smooth muscle cells treated with GlcN and TNFα to identify a miR with role in O-GlcNAcylation and TNFα-mediated inflammation.

Methods used

Using human pulmonary artery smooth muscle cells (PASMC), the expression levels of several miRs were analyzed including miR-129, miR-221, miR-1, and miR-181a using real-time qPCR. SnoU87 was used as an
ASSOCIATION BETWEEN WHITE BLOOD CELL COUNT AND PROCALCITONIN IN THE PEDIATRIC CARDIAC INTENSIVE CARE UNIT

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Purpose of study Procalcitonin (PCT) is an inflammatory marker that is being increasingly used in pediatric patients. PCT rises 2–4 hours after a bacterial stimulus and should not rise in response to viral or fungal pathogens. PCT is often used in critical care settings when bacterial infection is suspected; the more severe the bacterial infection, the higher the peak value of PCT. Bacterial infecions in general also produce a more robust leukocytosis when compared to viral infections. In this study we aim to investigate whether there is a correlation between white blood cell count (WBC) and PCT in patients with suspected bacterial infections.

Methods used Retrospective chart review was conducted on patients in the cardiac intensive care unit (CICU) at Children’s Hospital New Orleans that had a PCT drawn from March 2019 to August 2019. Additional data collected includes WBC, culture results, and antibiotic use. Patients were excluded from analysis if their WBC was not measured on the same day as PCT. Linear regression was performed to compare WBC and PCT values; PCT was classified as the dependent variable while WBC was classified as the independent variable.

Summary of results A total of 158 PCT samples were drawn during the study period. Preliminary data was collected on 78 out of 158 PCT samples; two of the 78 PCT samples collected were not included due to lack of available WBC value on the same day. Linear regression modeling demonstrated a correlation coefficient, R, of 0.21 (p=0.07) and a coefficient of determination, R², of 0.04.

Conclusions Our preliminary results suggest that there is no significant postitive correlation between PCT and WBC values. The data did not account for patients who may have been receiving medications that could elevate WBC or the time frame around extracorporeal membrane oxygenation which may elevate PCT. Further evaluation of PCT use in suspected bacterial infections in the pediatric CICU patient population will take place to be conducted.

427 OBESITY IS NOT ASSOCIATED WITH SEVERITY OF ACUTE ASTHMA EXACERBATIONS IN HOSPITALIZED PEDIATRIC PATIENTS

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Purpose of study There is growing evidence supporting a link between childhood obesity and asthma. It is unclear if there is increased severity of exacerbations for those that require hospitalization. We examine the association between obesity and severity outcomes such as hospital length of stay, intensive care admissions, and need for continuous albuterol or magnesium administration.

Methods used Patients 4 to 17 years old admitted between January 1st, 2012 through January 1st, 2016 with a discharge diagnosis of asthma identified by ICD 9/10 discharge codes were reviewed. Patients were classified as obese if their BMI >95%. Demographic and clinical data such as age, gender, family history of asthma, use of controller medication along with outcome data such as length of stay, intensive care admission, use of continuous albuterol, and use of magnesium were collected. Binary outcomes were analyzed with multivariate logistic regression while length of stay was treated as counts and analyzed with negative binomial regression.

Summary of results Overall, 995 patients met inclusion criteria. The median age was 7 years old with 170 (17%) patients categorized as obese. We find no difference in length of stay, PICU admission, or magnesium administration between obese and non-obese patients. There were significantly increased odds of continuous albuterol use (OR 1.47 [1.02, 2.11]) for obese patients (table 1). Factors associated with increased length of stay were magnesium usage (IRR 1.18 [1.08, 1.28]), continuous albuterol usage (IRR 1.72 [1.58, 1.87]), intensive care admission (IRR 1.55 [1.4, 1.7]) and age (IRR 1.02 [1.01, 1.03]).

Abstract 427 Table 1 Outcomes of obese versus non-obese

<table>
<thead>
<tr>
<th>Outcome</th>
<th>OR/IRR</th>
<th>p-value</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of Stay</td>
<td>0.99</td>
<td>0.90</td>
<td>0.91, 1.09</td>
</tr>
<tr>
<td>PICU Admission</td>
<td>0.72</td>
<td>0.22</td>
<td>0.45, 1.21</td>
</tr>
<tr>
<td>Continuous Albuterol Use</td>
<td>1.47</td>
<td>0.04</td>
<td>1.02, 2.11</td>
</tr>
<tr>
<td>Magnesium use</td>
<td>1.34</td>
<td>0.09</td>
<td>0.95, 1.88</td>
</tr>
</tbody>
</table>
### Case report

A one-year-old male presented to Children’s of Alabama ED with 2 days of cough and respiratory distress. He was febrile (102.3°F), tachycardic (176 beat/min), tachypneic (64 breaths/min), and hypoxic (SpO2 80% on room air). He had barking cough, moderate stridor at rest, and no adventitious breath sounds. He received dexamethasone and racemic epi without improvement in his respiratory effort. He was placed on 10 L/min high flow nasal cannula and admitted to the pediatric intensive care unit (PICU).

On arrival to the PICU, he was awake and alert with SpO2 97%. Within 1 hour he became listless and hypoxemic despite normal PaCO2. CBC revealed severe pancytopenia. Chest x-ray showed 'steeple sign' and diffuse airspace disease. Cefipime and vancomycin were started, and he was intubated. Despite ventilation with high mean airway pressure and FiO2 of 1.0, SpO2 remained 85%. He also developed profound hypotension, requiring initiation of multiple vasopressors. Due to his rapid decline, VA ECMO was initiated. A viral respiratory panel was positive for parainfluenza virus, and culture of tracheal secretions grew abundant S. aureus.

Lower respiratory tract bacterial co-infection is rarely associated with parainfluenza upper respiratory tract infection and is more often associated with influenza and RSV. Here, we present a case of S. aureus co-infection with parainfluenza virus leading to severe morbidity. A literature review of parainfluenza and S. aureus coinfection revealed one case of severe necrotizing pneumonia, resulting in death. The involved S. aureus strain had the Panton–Valentine leukocidin (PVL+) bacterial exotoxin gene known to result in necrotizing pneumonia with high mortality. Our case highlights the consideration of a broad differential for hypoxemia in the setting of croup and the need for vigilance for bacterial co-infection.

### Case report

We present a case of croup with secondary Staphylococcus aureus (S. aureus) pneumonia and ARDS complicated by sepsis with need for venoarterial extracorporeal membrane oxygenation (VA ECMO).

### Introduction

Swimming-induced pulmonary edema (SIPE) is an uncommon entity with a pathophysiology that is still not well understood. Defined as the development of acute shortness of breath (SOB), cough and/or sputum production with evidence of pulmonary edema during or after swimming without water aspiration. Increased pulmonary arterial and left atrial pressure in combination with cold water (73.4 degrees) immersion has been suggested as the mechanism of increased afterload that leads to hydrostatic edema.

### Case presentation

A 58-year-old woman who presented with sudden SOB associated with productive cough of pink frothy sputum while swimming during a half-triathlon competition. Found diaphoretic, tachypneic with SO2 of 83%, on lung auscultation there were scant bilateral basal crackles, chest X-rays showed bilateral interstitial infiltrations corresponding to pulmonary edema. Transthoracic echocardiogram showed and overall normal systolic and diastolic function with trace mitral and tricuspid regurgitation.

On admission she required support with BiPAP and 1 dose of 40 mg of furosemide was given. After 4 hours her SO2 levels started to improve, chest X-ray cleared up and patient showed complete resolution of symptoms.

### Discussion

The patient presented with history and findings highly suggestive of SIPE. The complete resolution of symptoms and the radiological improvement confirmed the diagnosis. The temperature of the water the day of the competition was 70 degrees this causes redistribution of blood from the extremities to the thorax increasing the blood volume in the central veins and further increasing the pulmonary arterial systolic pressure.

### Conclusion

The presence of symptoms including dyspnea, cough and pink frothy sputum during or after swimming are highly suggestive of SIPE. Systematic reviews have found an association between water temperature and incidence of SIPE.
hours after starting steroids, patient significantly improved. Patient was weaned off of oxygen support and discharged home within 48 hours.

**Abstract 430**

**Figure 1** Sequential x-rays.

**Figure 2** CT of chest.

**Case report** Methemoglobinemia is an infrequent encounter in pediatrics, known to be caused by enzyme deficiencies or various factors that can oxidize hemoglobin iron to its ferric state. Here we present an infant with severe methemoglobinema, hypovolemic shock, and diarrhea.

**Case presentation** A previously healthy full-term 6-week-old presents to the ED for two days of poor feeding, tachypnea, lethargy, and increasing diarrhea. He had a perinatal period complicated by 5 loose stools daily. He tried two basic formulas with no change in diarrhea. He had no sick contacts, meds, or chemical exposures.

In the ED, the child was listless and cachectic, irritable, and tachypneic. O2 sat 88% improved with 5L O2 via HFNC, other vitals stable. Physical exam consistent with severe dehydration. No cyanosis.

Initially, CBG revealed pH 6.76, pCO2 20.7, bicarb <5, chloride 122. Methemoglobin of 29. CBC with leukocyte predominance. Negative urine ketones. Blood and urine cultures collected, LP deferred due to respiratory distress. No Newborn Screen results available. CXR and Abd XR normal. He received ceftriaxone, a NS bolus, and was started on D10 + 75 mEq HCO3/L at 1.5 maintenance. He did not receive methylene blue due to sibling history of G6PD deficiency. He was transferred to Children’s Hospital PICU for concern for inborn error of metabolism given severe methemoglobinemia and hyperchloremic non-anion gap metabolic acidosis.

In the PICU, his exam was unchanged. Labs revealed new DIC, for which he received cryoprecipitate, FFP, and anticoagulation. He was made NPO and aggressively rehydrated with D10 + 20 mEq KAacetate + 20 mEq NaHCO3/L for several days with improvement in his metabolic derangements. Blood cultures and stool studies were negative. Negative urine/serum amino acids and negative urine ketones made inborn error of metabolism unlikely.

Clinical status greatly improved and patient was transitioned to elemental formula with complete symptomatic resolution. Etiology of diarrhea was presumed to be Food Protein Induced Enterocolitis Syndrome (FPIES) or severe milk protein insensitivity, both of which can cause severe methemoglobinemia in infants.

**Abstract 432**

**Case report** Mucormycosis is a life-threatening fungal infection caused by fungi of the Mucoraceae family. In the immunocompromised host, mucormycosis is the second most common mold infection. Mucor develops rapidly and with treatment delay, the mortality rate can be 50%. We present a case of a 28-year-old male with anti-GBM antibody disease treated with plasmapheresis, steroids, and chemotherapy and died of rhizomucor. A 28-year-old male with a history of
methamphetamine use presented with hemoptysis, and dyspnea. Initial workup showed anemia, uremia and acute kidney injury. Chest imaging showed patchy ground-glass opacities, suggestive of diffuse alveolar hemorrhage (DAH). Urine microscopy showed dysmorphic RBCs. With hemoptysis and hematuria, the pulmonary-renal syndrome was suspected. He was started on steroids and plasmapheresis due to the concern of antibody-mediated disease. He underwent bronchoscopy, which was consistent with DAH. Initial serology was positive for anti-GBM antibodies. He received plasma exchange, steroids, Cytoxan, and Rituxan. His culture remained negative but he was continued on antibiotics and antifungals were briefly used. He later went asymptotic and POCUS revealed worsening of right ventricular function. Tissue Plasminogen activator was infused during the code without success. The patient’s respiratory cultures later grew Rhizopus. Autopsy showed anti-GBM disease and zygomycosis with angioinvasion and occlusion of intra-parenchymal lung vessels. DAH is a life-threatening medical emergency that presents as hemoptysis, anemia, and diffuse alveolar infiltrates and requires bronchoscopy for diagnosis. Most cases of DAH are caused by vasculitis. The standard of treatment is immunosuppression. As clinicians, we must be cognizant of opportunistic infections in immunosuppressed patients. Pulmonary mucormycosis spreads rapidly and is often fatal and should remain as a top differential. In patients with high suspicion of mucormycosis, amphotericin B and surgical debridement should be considered if possible. A high index of suspicion, prompt and appropriate diagnosis and management is the key to reduce morbidity and mortality.

433 WHERE DID THE BLOOD GO? CAN SARCOIDOSIS DO THAT?

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10.1136/jim-2020-SRM.433

Case report Sarcoïdosis is a systemic granulomatous disease of unknown etiology. Sarcoïdosis can have a very diverse presentation ranging from asymptomatic mediastinal lymphadenopathy to pulmonary fibrosis and chronic respiratory failure. The lack of effective treatment and reliable predictors of disease progression, makes sarcoïdosis management challenging. Patients with chronic lung disease often have functional loss likely secondary to abnormal respiratory-system mechanics and/or excessive ventilatory demand. We present a patient with pulmonary sarcoïdosis who had an almost complete loss of perfusion of the left lung. A 57-year-old woman with pulmonary sarcoïdosis was referred by her pulmonary physician for the management of her gradually worsening left-sided bronchial stenosis and dyspnea. Computer tomography of the chest demonstrated mildly hypoluculent pulmonary parenchyma of the left hemithorax. There was no obvious stenosis on the imaging. Bronchoscopy demonstrated significant stenosis at the sub-segmental level; all airways were stenosed to ~2 mm in size. The mucosa around the stenosis was translucent. A JAG wire was passed through all stenoses. After distal airways were assured, balloon dilation and electrocautery was done to dilate the airways to ~6 mm. A repeat bronchoscopy demonstrated restenosis to ~2 mm. Given that she might need multiple procedures, we decided to get a perfusion scan 1 week after another dilation. The perfusion in the left lung was 20% and that in the right lung was 80%. This was attributed to decreased ventilation related impact on the perfusion. We decided to forgo further procedures that were not likely to improve the ventilation-perfusion of the left lung. We placed a Trans-tracheal oxygen catheter for control of the dyspnea. Sarcoïdosis is a multisystemic disorder, characterized by the formation of immune granulomas in involved organs. As described above, our patient with sarcoïdosis had an almost complete loss of perfusion of the left lung. Clinicians should keep the loss of lung perfusion in mind as a complication in patients with sarcoïdosis. To the best of our knowledge and review of literature, this is the first case report of such complications.

434 WHEN LEG PAIN LEADS TO INTUBATION

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10.1136/jim-2020-SRM.434

Case report Dermatomyositis (DM) is an idiopathic inflammatory myopathy with complications including interstitial lung disease (ILD). Anti-Jo-1 antibody positive dermatomyositis is associated with mechanic’s hands and ILD. When symptoms including mechanic’s hands, myositis, arthritis, and ILD align with the anti-Jo-1 antibody, the diagnosis becomes anti-synthetase syndrome. High resolution computed tomography (HRCT) and lung biopsy are used for diagnosis of ILD. Treatment is steroids and other immunosuppressive agents that increase the risk of infections. A 31-year-old African American female with dermatomyositis on chronic prednisone presented with leg pain and nausea. Physical examination was significant for tachycardia and muscle tenderness. She had a leukocytosis of 19.9 TH/cmm and creatine kinase of 1084 U/L. Chest radiograph was concerning for multifocal pneumonia. We started empiric antibiotics and high dose steroids. We added intravenous immunoglobulin and performed bronchoscopy with bronchoalveolar lavage and transbronchial cryobiopsy. High-resolution computed tomography (HRCT) of the chest showed scattered ground glass opacities and interlobular septal thickening. Patient developed respiratory distress and hypoxemia requiring intubation. Bronchoscopic biopsy was concerning for cellular nonspecific interstitial pneumonia (NSIP) pattern. (1,3)-Beta-D-Glucan and urine histoplasma antigen returned positive. We began itraconazole for acute pulmonary histoplasmosis. Patient’s respiratory status improved and she was extubated. The patient’s dermatomyositis with positive anti-Jo-1 antibody put her at risk of ILD and her immunosuppression put her at risk of fungal infections. Her HRCT was nondiagnostic, but lung biopsy yielded a diagnosis. HRCT has been reported in studies on DM with ILD to note changes in the lower lobes with linear and ground-glass opacities. Anti-synthetase syndrome carries a higher morbidity and mortality than DM and should be closely followed.
Abstracts

435 UTILITY OF CHEST RADIOGRAPHS IN PEDIATRIC SUBMERSION INJURIES IN THE EMERGENCY DEPARTMENT
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10.1136/jim-2020-SRM.435

Purpose of study To determine the utility of chest radiographs (CXR) among children who are otherwise low-risk for submersion-related injuries as determined by the Pediatric Submersion Score (PSS).

Methods used A retrospective study of children with submersion injury presenting to pediatric emergency department (ED) from 2010 to 2018. Submersion injury cases were identified using ICD-9 and ICD-10 codes and intentional submersions were excluded. Data collected included demographics, vital signs (respiratory rate, pulse rate, blood pressure, and oxygen saturation), physical examination such as mental status and dyspnea and airway intervention. Using age-specific norms, vital signs were categorized as abnormal or normal. Pediatric radiologist reported CXR findings were classified as normal or abnormal. PSS was deemed to be low-risk if child had normal mentation, normal respiratory rate and absence of: dyspnea, need for airway intervention and systolic hypotension. Descriptive statistics were performed for frequencies/proportions and categorical variables were analyzed using chi-square test.

Summary of results Of the 195 cases identified, 185 were included in the analysis. Median age was 3 years (interquartile range: 1 to 6); 113 (61%) were male and 126 (68%) were white. Of the 133 patients who had CXR performed in ED, 63 (47%) CXRs were abnormal. CXRs were more likely performed in those with abnormal vital signs (81% vs. 54%, p<0.01), and abnormal CXRs were more likely in those with abnormal vs. normal (52% vs. 26%, p=0.02). 105 (57%) patients were deemed to be low-risk for submersion injury of which 66 (63%) underwent CXR. Of those 66 cases, 25 (38%) had abnormal CXR. Of those who were low-risk and had abnormal CXR, 18/25 (72%) had abnormal vital signs or required airway intervention.

Conclusions CXRs are commonly ordered for submersion victims in the pediatric ED. CXRs play a role in the ED evaluation of pediatric submersion victims as a non-negligible proportion of ‘low-risk’ children had vital sign abnormalities or required airway interventions.

436 A RARE ANATOMICAL VARIANT CAUSING A COMMON RESPIRATORY COMPLAIN
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10.1136/jim-2020-SRM.436

Case report Cough is certainly one of the most common symptoms encountered by clinicians. Usually, it’s self-resolving, yet in some instances, it may become a bothersome chronic condition. Chronic cough is defined as a cough lasting for more than 8 weeks and about 80% can be attributed to gastroesophageal reflux disease, allergic rhinitis, and asthma. Uncommon causes should be suspected when diagnostic tests and treatment have excluded ordinary etiologies. Thracheobronchopathia osteochondroplastica (TO) is a rare benign disorder affecting the tracheobronchial tree in which 54% of the patients experience chronic cough. We present the case of a 70 year old female with prior history of hypothyroidism, gastroesophageal reflux disease, allergic rhinitis and mild intermittent asthma complaining of a nonproductive cough of more than three years of evolution. She also reported occasional hoarseness and throat clearing. Treatment including proton pump inhibitors, intranasal steroids, antihistamines, benzonatate, leukotriene inhibitors, inhaled and oral steroids failed to resolve her complaints. Pulmonary function test was unremarkable. Diagnostic imaging showed multiple subtle tracheal polyps for which flexible bronchoscopy was performed. Multiple nodular projections in the anterior and lateral aspects of the tracheal cartilaginous rings were identified. Given their appearance and distribution, the diagnosis of TO was made. These results bring the importance of proceeding with a diagnostic bronchoscopy when the common causes of chronic cough are not successfully resolved. TO is a rare disorder of unknown cause in which sessile, cartilaginous or bony nodules project into the airway from the anterolateral walls of the trachea. Often underdiagnosed and mislabeled, the incidence ranges about 0.4% at bronchosscopic evaluation and most frequently it is seen in men (3:1). This condition remains essentially untreated in the absence of airway obstruction and thus symptom management is most often the norm. This case should remind clinicians to always include TO in the differential diagnosis of chronic cough and raise awareness towards the importance of bronchoscopic evaluation in patients with an unexplained persistent cough.

437 A STRANGE GYNECOLOGIC TUMOR DIAGNOSED BY A PULMONARY NODULE
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10.1136/jim-2020-SRM.437

Case report Perivascular epithelioid cell tumors (PEComas) are part of an uncommon group of mesenchymal tumors with histological and immunohistochemical markers for myogenic and melanocytic tissue. Its prevalence is very low, accounting of approximately 100 reported cases in the literature with 20% of them exhibiting lung metastasis. Nonspecific gynecologic symptoms appear to be the most common manifestation. The majority of these cases are classified as non-malignant, thus making our case very atypical. Given the fact that these tumors are extremely rare, there are no specific therapeutic guidelines in the literature. Some experts recommend tumor resection and adjuvant chemotherapy or radiotherapy in malignant cases. We describe a 62-year-old nulligravid female with no known past medical history who came to the emergency room with a suprapubic discomfort of one day evolution. An abdominopelvic computed tomography (CT) revealed a large pelvic mass of 27 cm × 19 cm × 22 cm with heterogeneous density and calcifications, ascites, as well as bilobar pulmonary nodules. A subsequent chest CT scan demonstrated the presence of multiple bilateral nodular lesions, the largest one measuring 3.6 cm × 2.6 cm. Histological
CANNABIS VAPE INDUCED BRONCHITIS

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10.1136/jim-2020-SRM.439

Case report
Recreational cannabis use is becoming commonplace, especially with the ease, discreteness, and assumed harmlessness that vapes, a popular vehicle for inhalation, have. Vaping cannabis –inhaling a vaporized solution from an electronic device with a cannabis cartridge– is popular and socially accepted, even though its health effects are not yet well known. Vape users have been increasingly linked to cases of acute lung injury, with 805 cases documented within the last year. These cases vary in severity, with some requiring intensive care for lung injuries that can be described as inhalational chemical burns. One such case is detailed here.

Summary of results
A 38-year-old white woman with a 60-pack year smoking history and anxiety presents to the emergency room with productive cough and wheezing for the last 7 weeks. During the 3 weeks prior to presentation, she developed shortness of breath, fever, chills, and nausea. She went to an urgent care clinic and received a course of azithromycin, corticosteroids, and albuterol, without benefit. She began smoking cessation 7 weeks ago and for the last 3 weeks was only vaping cannabis oil daily. In the ER, she was hypoxemic (91% SpO2 on 4L NC) despite receiving IV solumedrol and ipratropium with albuterol. She was then admitted to the MICU for worsening hypoxic respiratory failure. For the next 5 days, she was weaned from BiPAP to HFNC to NC to room air while receiving levofloxacin, solumedrol, and ipratropium with albuterol. Chest CT showed significant bronchial inflammation. No infectious causes or other comorbidities were found during her workup. The patient has not had recurrence of symptoms since vaping cessation.

Conclusions
Frequently, vehicles used in cannabis vaping include polyethylene glycol and butane based solvents. When heated above 230° F, these solutions produce byproducts, such as formaldehyde, acetaldehyde, and methacrolein, which irritate the pulmonary epithelium leading to carcinogenesis, metaplasia, and inflammation. In adults with or at high risk for COPD, such as this one, vape use has been associated with worse pulmonary outcomes, including more frequent exacerbations and chronic bronchitis. Caution should be taken, and users should stop immediately if symptoms develop.

STEAK-INDUCED ESOPHAGEAL PERFORATION

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10.1136/jim-2020-SRM.440

Case report
Spontaneous rupture of the esophagus, or Boerhaave’s syndrome, results from intrinsic forces acting upon the esophagus. Severe reflux, candida, HSW, immunodeficiency, impaired esophageal motility seen in connective tissue disease, and malignancy can contribute to rupture. Food bolus induced perforation is less common than iatrogenic or emotive causes, but has the highest all-cause mortality. We present a case with multiple contributing factors to Boerhaave’s syndrome.

Case report
A 49-year-old obese black woman with SLE, CKD IV, antiphospholipid syndrome on warfarin, steroid-induced DM II, asthma, and GERD presents to the emergency room...
with dysphagia and subsequent hematemesis, chest pain radiating to her upper back, and dyspnea after a piece of steak got stuck in her throat. She induced vomiting several times. Physical exam in ER revealed crepitus in the neck and chest. Chest CT and x-ray showed pneumomediastinum and small pleural effusions. Esophagram showed no obvious perforation. She was admitted to MICU, and soon after, became septic, requiring pressors and intubation. GI was consulted and performed EGD, which showed a 5 cm perforation in the cervical esophagus, no signs of infection, and no food bolus. NG tube and fully covered stent were placed. Within 24 hours, she was transferred to a tertiary center with the intent to undergo endoscopic stitch.

Conclusions In about 50% of cases, Boerhaave’s presents with Mackler’s triad: vomiting, retrosternal pain, and cervical subcutaneous emphysema. Suspicion should be high in any patient that develops hematemesis after vomiting. Esophageal rupture can have mortality as high as 70% with delayed treatment. Negative esophagram does not always exclude perforation, especially if in the cervical esophagus. It can instead be seen as mediastinal air, extravasated luminal contrast, or pleural effusion. Non-operative management proven to be successful in the absence of sepsis or if the rupture is extra-abdominal includes IV fluids, NPO, antibiotics, analgesia, TPN, and NG tube to limit further contamination. Early, active involvement of a thoracic surgeon is a must when pursuing non-operative course; patients should be sent to a tertiary facility if one is unavailable locally.

**Case report** The most common endemic mycosis in AIDS patients is also one of the hardest to diagnose, mainly due to variable clinical presentation and its ability to mimic many other opportunistic infections. Histoplasmosis usually presents itself as a self-limiting pulmonary illness in immunocompetent individuals; however, in those with decreased T-cell mediated immunity it can increase the risk of dissemination which has a mortality rate higher than 90%.

We present a 50-year-old male with PMH of IVDU and HIV infection, who arrived to the urgency room c/o dysphagia as a result of multiple oral ulcerations of approximately 2–3 weeks of evolution. Review of systems revealed these ulcers were also associated with the appearance of a growth on his forehead and a 20-pound unintentional weight loss. Patient had also started antiretroviral therapy three weeks on his forehead and a 20-pound unintentional weight loss.

**Abstracts**
A Rare Case with Pernicious Anemia Presenting with Septic Shock Due to Shigellosis

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10.1136/jim-2020-SRM.443

Case report Shigellosis is a major health problem in developing countries. Shigella usually affects children, however it can affect adults with compromised immunity. We present an adult female with septic shock secondary to S. Flexneri dysentery.

Case presentation A 35-year-old female with intellectual disability who presented to our ED from another facility with gradual onset diffuse crampy abdominal pain, nausea, vomiting, watery, non-bloody diarrhea, fever and chills for 1 day. Patient had a history of UTI 2 weeks ago and was treated with antibiotics. On physical exam the patient was in mild distress, BP 90/50 with MAPs <60, T 102 F, HR 106, RR 18, O2 sat 100% on room air. Abdominal exam showed generalized tenderness with hyperactive bowel sounds. Rest of exam was normal. Labs were significant for pancypenopia (WBC 0.90 k/ul, ANC 257/xl, platelets 44 k/ul, RBC 2.11 M/ul, MCV of 129 nl). Stool culture was positive for shigella flexneri (pan sensitive). C. diff was negative. She had elevated BUN/Cr indicating prerenal AKI, lactic acid 3.7 MMOL/L, vitamin B12 <150 pg/ml, positive intrinsic factor antibody, CRP 34 units, procalcitonin 28 ng/ml. Free cortisol was normal. CT abdomen showed diffuse thickening of the entire colon. She received IV ceftriaxone in outside hospital and blood cultures were not drawn before giving antibiotics in the outside facility, so blood cultures at our facility were negative. Patient was treated with IVF, vitamin B12, vasopressors, and appropriate antibiotics and was discharged 5 days later.

Discussion Shigellosis or shigella dysentery is relatively rare in adults in the United States. The main presentation is usually GI distress, however, extra intestinal manifestation can also be seen especially in immunocompromised patients. Septic shock secondary to shigella is a rare extra intestinal presentation. In our case, patient’s risk factor was pancypenopia due to B12 deficiency.

Conclusion Septic shock is a rare presentation of shigellosis, physician should include this in the differential diagnosis of diarrhea with septic shock. Utilization of PCR for detection of pathogenic gram negative bacteria can help with early management and antibiotic choice and potentially reduces hospital stay.

Severe Refractory Cardiogenic Shock; Would You Think Aluminum Phosphate Intoxication?

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10.1136/jim-2020-SRM.444

Introduction Aluminum phosphate is a potent rodenticide. It reacts with gastric acid to form toxic phosphate gas which impairs oxidative phosphorylation in the mitochondria leading to cardiac dysfunction.

Case Description A 32-year-old male with depression who presented 3 hours after ingesting one Aluminum phosphate tablet in a suicide attempt. He had nausea, non-bloody emesis and abdominal pain. Hemodynamically stable with good O2 saturation on RA. Physical exam unremarkable.

He received activated charcoal and gastric wash with K Permanganate. UDS negative. Alcohol, Salicylate and acetaminophen levels were normal. ABG pH 7.30, HCO3 17, PCO2 28, PO2 91, Lactate 5. TTE with LVEF of 50%. The patient was transferred immediately to the ICU due to our knowledge of the lethal nature of Aluminum phosphate. NaHCO3 IV infusion was started. Two hours later, he was in severe respiratory distress. ABG with pH 7.0, HCO3 7, PCO2 45, PO2 58, Lactate 23. He was intubated and repeat TTE showed LVEF of 20%. He was started on norepinephrine and dobutamine for severe cardiogenic shock. ABG 15 min later showed pH 6.9 and HCO3 of 3. Twenty minutes later, he had a cardiac arrest and expired despite appropriate resuscitative efforts.

Discussion Aluminum phosphate is a highly effective rodenticide that is seldom used in the US and more common in developing countries. It is converted to phosphine gas with the stomach acid and rapidly absorbed. It inhibits oxidative respiration by 70% and causes an acute drop in mitochondrial membrane potential. In one series, 55% of deaths occurred within 12h of ingestion and 91% within 24 h. LVEF is acutely reduced by a mean of 36%. Severe mixed acidosis is very common. The reported mortality rate is 37–100%. Treatment include IVF, gastric lavage with K permanganate, and activated charcoal. No known antidotes available. Very few case reports survived after IABP placement in advanced centers in developing countries.

Conclusion Aluminum phosphate causes life-threatening complications.

There is neither an antidote, nor a specific treatment for it. Despite quick and aggressive supportive therapy, aluminum phosphate poisoning is associated with a high mortality risk.

Acute Respiratory Distress Syndrome; Would You Think Salted Fish-Induced Botulism?!

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10.1136/jim-2020-SRM.445

Introduction Botulism is a rare but life threatening neuro-paralytic syndrome caused by a neurotoxin produced by Clostridium Botulinum, a gram positive rod. This bacterium can be isolated from surfaces of fruit, vegetables, and seafood. We present a case of Botulism induced ARDS.

Case presentation A 44-year-old female with Hypertension who presented to the hospital with severe weakness for one day. Her weakness progressed to paralysis within few hours of admission. Patient then started to have severe respiratory distress requiring intubation and mechanical ventilation. Patient family mention that she consumed salted fish meal one day prior to admission. Other histories were unremarkable. Her vitals showed hypotension, tachycardia, tachypnea and normal temperature. Physical exam was remarkable for diffuse lung crackles bilaterally. Neurological exam showed decreased DTR, and muscle strength was 0/5 in all extremities. Lab work showed positive serum botulinum toxin, leukocytosis, metabolic acidosis, and Acute Kidney Injury. CXR showed bilateral infiltrates. Patient was started on IVF, vasopressors, and respiratory support. She was also given botulinum antitoxin which improved her neurological status but not her ARDS. Patient
was intubated for 3 weeks, she eventually got better and successfully extubated. She was discharged home with good improvement.

Discussion Botulism exists in several forms: infant, foodborne, and wound Botulism. Foodborne Botulism is very common in non-developed countries, for example Egypt, as in our case, where the local food preservation is not optimal. It usually presents with acute onset bilateral cranial neuropathies. ARDS has been reported if Botulinum toxin is inhaled in some laboratory accidents, however it was not reported as a part of foodborne Botulism. In our case we think her ARDS was due to high levels of Botulinum toxin in her blood.

Conclusion Botulism should be suspected in differential diagnosis of a patient with ARDS and diffuse flaccid paralysis.

Renal/electrolyte and hypertension

Joint plenary poster session and reception

4:30 PM

Thursday, February 13, 2020

446 LOW EXTREMITY EDEMA WITH ARTERIOVENOUS FISTULA: A DIFFERENTIAL BEYOND DVT

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10.1136/jim-2020-SRM.446

Case report A 64 year old woman with a history of end stage renal disease on hemodialysis with right thigh iliac arteriovenous fistula (AVF) and recurrent right leg deep vein thrombosis (DVT) presented to the hospital for right lower leg swelling that developed over the course of two weeks. She was recently admitted to an outside hospital for right lower leg DVT and cellulitis, treated with antibiotics and ongoing antibiotics. She had 3+ pitting edema from her thigh to her feet, while her left leg was completely non-tender, warm with normal pedal pulses, and non-erythematous. She had 3+ pitting edema from her thigh to her feet, while her left leg was completely non-edematous and appeared normal to patient. An ultrasound duplex venous DVT study did not reveal any evidence of thrombus. An AVF ultrasound study demonstrated that the graft was appears open, without stenosis, and has reasonable flow volume. However, a fistulogram showed severe outflow stenosis in the external iliac vein. Successful percutaneous transluminal angioplasty was performed. The patient’s leg swelling decreased and the limb had returned to baseline size within one day post-procedure.

Discussion Our patient, with a history of both DVT and overlying cellulitis, developed unilateral LE edema due to stenotic AVF. While unilateral leg swelling raises the concern of DVT, recurrent DVT without other past medical history that suggests possibility of hypercoagulopathy should warrant investigation of broader etiologies. Other vascular or non-vascular causes of LE edema should be considered, such as May-Thurner syndrome (a compression of common iliac vein by common iliac artery, resulting in LE pain and edema), phlegmasia cerulean dolen (a painful, edematic, cyanotic limb due to massive deep vein thrombosis), hematoma, or graft abscess.

447 RENAL ARTERY DISSECTION AND SPASM CAUSING RENAL INFARCTION

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10.1136/jim-2020-SRM.447

Introduction Renal arterial dissection is a rare clinical entity that can result in renal parenchymal infarction and malignant hypertension. There is often diagnostic delay due to its non-specific clinical presentation. It can happen spontaneously or associated with severe trauma, malignant hypertension or atherosclerosis. We report a patient with acute flank pain without infection or calculi, and was found to have right upper pole renal artery dissection and spasm leading to infarction.

Case summary A 37-year-old female with multiple sclerosis, Von Willebrand disease, and hypertension presented with acute onset of sharp right flank pain for one day. Patient was seen at urgent clinic, and urine analysis, blood counts and abdominal ultrasound were all negative. Pain did improve for 4 days, but the patient again presented to emergency center with severe sharp right flank pain. Of note, patient reported she had minor motor vehicle accident 6 weeks prior but she did not require hospital visit. On evaluation she was in pain; blood pressure was 180/102 mmHg. She had a soft abdomen and right cost vertebral angle tenderness. Lab work showed: WBC 8900/ul, Hgb 14.1 mg/dl, platelet 318,000/ul, creatinine 1.0 mg/dl, factor VIII level 102%, vWF activity 41% and, vWF antigen 54%. Urine analysis was negative. CT abdomen with IV contrast showed wedge-shaped parenchymal defect involving the cortex and medulla of the mid pole of the right kidney extending to the capsular surface. Renal angiogram revealed a right upper polar artery dissection and spasm. Vascular surgery and hematology were involved in management of the patient, and recommended avoiding anticoagulation due to risk of bleeding.

Conclusion Traumatic or spontaneous renal artery dissection with renal infarction is not commonly seen in clinical practice. Since clinical presentation is nonspecific, a high degree of suspicion and a detailed history are important. CT abdomen and angiogram are diagnostic.Treatment includes anticoagulation and surgical or endovascular intervention but it depends on the case and underlying comorbidities, like in our patient.

448 COCAINE INDUCED ANCA NEGATIVE VASCULITIS

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10.1136/jim-2020-SRM.448

Introduction Cocaine is an addictive stimulant drug. In 2014, 913,000 Americans met the criteria for dependence or abuse of cocaine. Almost 69% of Cocaine is contaminated with Levamisole which has been found to be immunogenic with neutrophil cytoplasmic antibody (ANCA) associated cutaneous vasculitis in 88–100% patients.

Case Description 24-year old male with a history of substance abuse presented with bilateral lower limb weakness associated with burning pain and numbness in the right leg for 10 hours. He used cocaine one week prior to admission. Vitals were normal. See Table 1 for BMP. Labs also showed elevated SGOT of 1351 U/L, SGPT 460 U/L, elevated WBC. Urine analysis - pH 6.0, Hb 3+, RBC 14 and Protein 100. Renal
ultrasound and urine toxicology were negative. CPK levels (17,000 U/L) trended downwards. Urine microscopy showed muddy brown cast. Hepatitis serologies, Immunology including ANCA, C3, C4 were normal. Renal biopsy showed vasculitis, patchy interstitial edema along with focal collections of interstitial eosinophils. He was treated with hemodialysis and steroids.

Discussion Cocaine can cause AKI by Rhabdomyolysis, Vasculitis, Platelet activation. The renal biopsy in our case showed some focal vasculitis. Vasculitis in Cocaine abusers can be due to Levamisole, an anti-helminthic agent withdrawn due to multiple side effects. Levamisole is added to cocaine to enhance its euphoric effects. Levamisole induced ANCA positive vasculitis is well known. Our case is one of the few ANCA negative renal vasculitis responding to steroids. Levamisole is detectable in urine for only 5–6 hours making diagnosis challenging. The role of steroids in the treatment of this condition has not been established. This patient responded well to steroids likely due to presence of interstitial inflammation. Research is required to understand effective ways to treat this condition. Until then, primary treatment continues to be cessation of drug use and renal replacement therapy if needed.

### 449 UNUSUAL PRESENTATION OF PHEOCHROMOCYTOMA IN A POLYPHARMACY ABUSING ADOLESCENT

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10.1136/jim-2020-SRM.449

Case report Hypertensive emergency is an episode of acute elevation in blood pressure (BP) associated with end-organ damage or dysfunction. These situations are uncommon in the pediatric community, and causes vary widely based on age and presentation. We discuss an adolescent who presented with hypertensive emergency due to pheochromocytoma.

A 16-year-old male with ADHD, Bipolar Disorder, Oppositional Defiant Disorder, and history of psychiatric hospitalizations for suicidal ideation had episodes of skin flushing with stocking and glove distribution, headaches, diaphoresis, and palpitations approximately once per week for 6 months. He endorsed frequent recreational drug use over that time. He presented with slurred and tangential speech, diaphoresis, and BP of 221/131. During the week prior to admission, he was admitted to taking multiple antihistamines and muscle relaxants. He smoked marijuana on the day of admission. Urine drug screen in the ED was negative. He was admitted to our PICU for hypertensive emergency, initially thought to be secondary to recreational drug use. His symptoms of tachycardia, hypertension, and flushed skin persisted beyond the half-lives of the reported illicit substances and despite attempts to lower his BP with amlopidine and isradipine. Further work up included 24-hour urine fractionated metanephrines, plasma fractionated metanephrines, and abdominal ultrasound. CT abdomen confirmed left adrenal pheochromocytoma.

Doxazosin (alpha blocker) and propranolol (beta blocker) were titrated to achieve systolic BP 110–120 to prepare for surgery. The patient underwent left adrenalectomy once target BP was achieved. He developed acute complications post-surgery, including hypotension and seizures, requiring a short course of norepinephrine and Keppra. He was ultimately discharged home with well controlled BPs.

This case illustrates that pheochromocytoma is an important cause to consider in adolescent hypertensive emergency. Although this patient’s presentation was suspicious for drug-induced hypertension, it is important to maintain a broad differential diagnosis. Genetic syndromes that include pheochromocytoma is also important to rule out.

### 450 SWEET HYDROTHORAX

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10.1136/jim-2020-SRM.450

Introduction Dyspnea is a common complaint in end stage renal patients requiring dialysis. Commonly, pleural effusions are seen on imaging. These effusions are frequently transudative and often associated with nephrotic syndrome. However, the mode of dialysis should always be considered when evaluating the etiology of such effusions. A rare complication of peritoneal dialysate fluid causing pleural effusions is referred to as sweet hydrothorax.

Case A 48 year old woman with history of hypertension, diabetes mellitus type II, and end stage renal disease on peritoneal dialysis for three years presented to the emergency room for dyspnea of two days. Vital signs were significant for a respiratory rate of 24 breaths/min and a room air oxygen saturation of 87%. Chest X-ray showed bilateral pleural effusions greater on right. A thoracentesis was performed with 2.5 L of pleural fluid removed. Analysis was significant for a protein of 16 g/L, and a LDH 8 U/L consistent with a transudate process. However, pleural glucose was significantly elevated at 235 mg/dL compared with the serum glucose of 118 mg/dL. Findings were consistent with pleural effusions caused by dialysate fluid migration from the abdomen to the thoracic cavity. After removal of fluid, she symptomatically improved and was transitioned to hemodialysis thereafter.

Discussion ‘Sweet hydrothorax’ is a rare but well-established complication of peritoneal dialysis occurring most commonly within thirty days after initiation of peritoneal dialysis. Etiology is suspected to be caused by small diaphragmatic defects that are likely congenital leading to pleuroperitoneal leakage of dialysate. Characteristic findings are pleural effusions occurring most frequently on the right side with abnormally elevated glucose content when compared to serum glucose. Treatment usually consists of temporary cessation of peritoneal dialysis. If there is recurrence after resuming peritoneal dialysis, chemical pleurodesis or surgical repair of diaphragmatic defects are options. However, most patients require transition to hemodialysis permanently.
Abstracts

#451 IMPROVEMENT IN KIDNEY FUNCTION AFTER DISCONTINUATION OF FENOFIBRATE IN OUTPATIENT NEPHROLOGY CONSULTATION FOR CHRONIC KIDNEY DISEASE


10.1136/jim-2020-SRM.451

Purpose of study It has been noted in observational and interventional trials that individuals exposed to fenofibrate can exhibit a rise in serum creatinine (sCr) concentration. However, it is not known to what extent this phenomenon impacts kidney function in patients who are referred to a nephrology clinic for consultation for chronic kidney disease (CKD).

Methods used We prospectively collected data of patients referred to our nephrology clinic for new evaluation of a rise in sCr or CKD who were on fenofibrate therapy. When no other cause for a recent rise in sCr or CKD was identified at time of consultation, fenofibrate was systematically discontinued to assess its effect on kidney function, i.e., sCr and estimated glomerular filtration (eGFR) trends.

Summary of results A total of 22 patients (50% women, 77% white, 50% type 2 diabetes, 18% peripheral arterial disease, 14% nonalcoholic steatohepatitis-NASH) were captured over 2.5 years, median baseline sCr 1.8 (1.1–3.3) mg/dL and eGFR 32 (17–57) ml/min; proteinuria was absent in 17 (77%) patients. Upon cessation of fenofibrate, median sCr decreased to 1.3 (0.9–2.4), 1.6 (1.0–2.3), and 1.3 (1.0–2.3) mg/dL at 3 (n=22), 6 (n=15), and 12 (n=11) months, p=0.02, 0.19, 0.006, respectively; whereas median eGFR increased to 45 (27–94), 39 (27–57), and 43 (21–66) ml/min, p=0.004, 0.25, 0.007, respectively. A ≥30% rise in eGFR was observed in 50% of patients at 3 months and it persisted in 43% and 45% of patients at 6 and 12 months. Median relative change in eGFR was +46% (0 to +83), +16% (-13 to +97) and +26% (-16 to +147) at months 3, 6 and 12, respectively. Tri-glyceride level increased by >2-fold in 5 patients during follow up, whereas it remained within the same range in the remaining 17 patients (only 3 required gemfibrozil).

Conclusions Discontinuation of fenofibrate in patients referred for CKD evaluation can result in sustained improvement in kidney function in about half of the patients and for up to 1 year. There is a need to raise awareness among primary practitioners about this phenomenon. Recognition of fenofibrate as a cause of rise in sCr could reduce nephrology consultations and resource utilization.

452 GOODPASTURE’S DISEASE: A MISLEADING PRESENTATION

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10.1136/jim-2020-SRM.452

Introduction Acute glomerulonephritis due to anti-GBM antibody disease incidence is less than one per million population. The younger persons, <30 years of age, are more likely to present with the full constellation of Goodpasture’s syndrome including pulmonary hemorrhage; whereas, those >50 years of age present more with isolated glomerulonephritis.

Case 46 years old female presented with flank pain, fever, chills, rigors and CVA tenderness. She had similar complaints 4 days earlier and received cefuroxime in an outside facility for presumed pyelonephritis but was later transferred to our facility after developing chest pain and dyspnea. She had a history of ibuprofen intake. Her blood pressure was 178/82 mmHg, WBC count 9700/mL, HCO319 mmol/L, BUN/Cr 39/2.8 mg/dL. Urinalysis showed protein +2, Blood +3, WBC 11–20/HPF, RBC >20/HPF, granular cast 3–5/LPF, & Sq. Epithelium 0–5/HPF. She was initiated on levofloxacin and hemodialysis in view of rapid increase in serum creatinine to 9 mg/dL (with BUN of 97 mg/dL), despite negative urine cultures. CT of chest and abdomen reported bilateral small pleural effusions with mild atelectasis. ANCA panel was negative but the anti-GBM antibody was positive. Ten days of plasmapheresis, cyclophosphamide, and methylprednisolone were administered. Kidney biopsy was deferred due to underlying coagulopathy. The patient did not recover kidney function and became dialysis-dependent.

Discussion The delay in diagnosis in our case took place while treating for pyelonephritis. While the presence of active urine sediment will likely suggest infection, the elevation of serum creatinine should raise the suspicion of primary glomerulonephritis.

Oliguria on presentation, advanced fibrosis, more than 50 percent crescents on renal biopsy, serum creatinine concentration more than 5.7 mg/dl, or a need for dialysis are all poor prognostic indicators for Goodpasture’s disease. Early initiation of therapy has a good outcome with the 5-year survival rate exceeding 80%.

Conclusion This case emphasizes early recognition of Goodpasture’s disease and inclusion in the differential diagnosis of acute pyelonephritis whenever serum creatinine is elevated. Early recognition can improve renal prognosis and mortality.

453 A CASE OF CHRONIC KIDNEY DISEASE, HTN OR NSAIDS?


10.1136/jim-2020-SRM.453

Case report A 26 yo female with a one-month diagnosis of HTN was referred to primary care to Nephrology for evaluation of CKD. Complaints included episodes of chest pain, palpitations, anxiety and headache. She has taken daily NSAIDS for 10 years. Physical exam within normal limits (WNL). Familial history of hypertension but no history of kidney disease.

Labs showed Scr of 1.7 mg/dL, BUN 21, urine positive for protein, UPCR 2.8 mg/g. ANA, ANCA, RF, HIV, Hepatitis panel, FTA-Abs all negative. C4 level mildly elevated, and C3 WNL. Urine and serum protein electrophoresis unremarkable. Kappa, lambda levels were elevated, but the ratio normal. Renal US showed normal-sized with increased echogenicity kidneys. Lisinopril 5 mg was started for HTN control and proteinuria and UPCR improved to 1.4 mg/g. Renal biopsy showed global (11/15) and segmental glomerulosclerosis, severe interstitial fibrosis and tubular atrophy involving >60% of the renal cortex and moderate foot process effacement; however less than would be expected in a primary FSGS. Arteries showed severe intimal fibrosis and moderate arteriolar hyalinosis.

Discussion Based on history and findings, differential diagnosis for CKD in this patient includes NSAID-induced kidney scle-rosis, hypertensive glomerulosclerosis and primary FSGS.
CKD associated with HTN is characterized by arteriosclerosis with medial thickening and intimal fibrosis, global glomerulosclerosis, segmental sclerosis, and tubulointerstitial fibrosis.

Primary FSGS can have both global and segmental glomerulosclerosis; however, background vascular changes are more extensive in hypertensive arteriosclerosis. In contrast, effacement of podocyte foot processes is more extensive in FSGS.

Prolonged use of NSAIDS has been associated with CKD commonly due to chronic interstitial nephritis or papillary necrosis in these cases biopsy findings include tubular atrophy, interstitial granuloma, and pronounced interstitial cell infiltration.

Etiology of CKD in this patient may be secondary to long standing masked HTN. Considering the age of the patient and presentation a secondary HTN work up, specific for pheochromocytoma has been requested yet not resulted at the time of this abstract.

**454 USE OF INDUCTION IMMUNOSUPPRESSION IN SIMULTANEOUS LIVER-KIDNEY TRANSPLANTATION: A SINGLE CENTER EXPERIENCE**

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Purpose of study Simultaneous liver-kidney transplantation (SLKT) frequently utilizes immunosuppressive induction therapy with interleukin-2 receptor antagonist (IL2RA, basiliximab) or a depletional induction with anti-thymocyte globulin (ATG, thymoglobulin) to improve graft function and long-term patient outcomes. We aim to better characterize these outcomes.

Methods used We performed a retrospective cohort study of 28 patients who underwent SLKT between 8/31/2015 and 3/29/2018 at UAB and reviewed their outcomes.

Summary of results The median age was 56 years (IQR 50.5–62.5). 67.9% of patients were male. Major liver diagnoses included: hepatitis C (39.3%), NASH (32.1%), alcoholic liver cirrhosis (39.3%), polycystic liver disease (10.7%), and other (21.4%). Contributors to renal failure included: hepatorenal syndrome (42.8%), diabetes mellitus (25%), hypertension (21.4%), membranoproliferative GN (14.3%), polycystic kidney disease (10.7%), and other (17.8%).

24 patients received IL2RA (85.7%), 2 received ATG induction therapy (7.1%), 1 patient switched from IL2RA to ATG out of concern for medication-induced seizure, 1 patient used a combination of ATG and IL2RA. All patients received maintenance immunosuppression therapy with tacrolimus, mycophenolate mofetil, and prednisone.

7 patients had delayed graft function (6 IL2RA, 1 ATG). Median Day 7 tacrolimus trough levels for IL2RA-only patients was 4.9 ng/ml (IQR 3.0–7.1). Mixed induction therapy patients had a mean day 7 tacrolimus trough level of 2.4 ng/ml. Median serum creatinine at 1-year post-SLKT was 1.4 mg/dl (IQR 1.0–1.9).

4 deaths occurred the study period, 3 within one year post-SLKT - all 4 received IL2RA induction therapy. 4 patients had acute rejection (14%) - all 4 rejections received IL2RA therapy. 1 patient had acute rejection of the liver allograft, and 3 patients had acute rejection of the kidney allograft.

7 patients had BK viremia (25%) and 6 patients had CMV viremia post-SLKT (21%). 1 patient with CMV used ATG therapy, while all other cases of viremia were after IL2RA therapy.

Conclusions The use of IL2RA induction therapy at our center resulted in good immunologic and patient outcomes albeit with significant rates of BK and CMV viremia post-transplant. Use of ATG in select patients appeared safe.

**Abstracts**

**455 IBUPROFEN INDUCED TYPE 1 RENAL TUBULAR ACIDOSIS**


Introduction Ibuprofen is a commonly sold OTC non-steroidal antiflammatory drug (NSAID) that is used as an analgesic and also has antiinflammatory properties. Ibuprofen induced renal tubular acidosis is an uncommon but important cause of hypokalemia. Our patient presented to the ED following a fall and was incidentally found to have hypokalemia.

Case A 54-year-old Caucasian female with a past medical history of GERD, depression, hyperlipidemia, migraine headache and obesity presented to the ED with bilateral LE weakness leading to fall. Headache was constant, progressive, localized to the back of the head, not radiating and no aggravating or relieving factors. It was similar to her migraine headache for which she took Sumatriptan, but provided no relief and was taking Ibuprofen with it. She denies abdominal pain, fever, nausea, vomiting, chest pain, shortness of breath or bowel and bladder abnormalities.

In the ED, vitals were stable and physical examination was within normal limits. Labs showed an initial serum potassium level of 2.7 mmol/L (Reference range 3.5–5.1 mmol/L). Serum chloride was 112 mmol/L (RR, 98–107) and serum bicarbonate was 18 mmol/L (RR, 21–32). She was given 60 mEq oral K replacement and repeat K was 2.6 mmol/L. Her K failed to improve even with aggressive replacement. Anion gap (AG) was 10 mEq/L (normal anion gap metabolic acidosis). Urine studies showed urine Crt of 28 mg/dl, urine K 7 mmol/L, urine Na of 19 mmol/L, urine Cl of 20 mmol/L and urine AG was positive suggesting Type 1 RTA. On further questioning, the patient admitted to using ibuprofen almost daily for around a year with daily doses totaling around 2.4 grams a day. In addition to the initial K replacement, the patient received an additional 300 mEq of K and a bicarbonate drip was started (3 amps in D5 water) following which bicarbonate increased to 23 mmol/L and K trended upwards to 4 mmol/L. Replacing her K led to an improvement in her LE weakness and she was back to her baseline at the time of discharge.

Discussion This case demonstrates ibuprofen induced potassium wasting and Type 1 RTA. Although poorly understood, it is thought be due to carbonic anhydrase inhibition. Greater education regarding the nephrotoxic effects of NSAIDs is required to prevent unmonitored use and irreversible kidney injury.
Introduction Lithium (Li) is commonly prescribed for the treatment of bipolar disorder. Lithium’s narrow therapeutic index and exclusive clearance by the kidneys often poses challenges in management, including its potential for toxicity. Case A 63 y/o woman with hypertension, anxiety and bipolar disorder on chronic Li therapy presented to the ED for evaluation of a one month history of lethargy and a five day history of nausea and vomiting, constipation, muscle weakness, confusion and forgetfulness. The patient self-discontinued Li treatment two weeks prior due to lethargy. Vitals were within normal limits at triage. Physical exam featured normal level of alertness, 2+ and symmetric deep tendon reflexes, normal gait, and orientation was intact. Remaining neurologic exam, chest x-ray, electrocardiogram, and non-contrast head CT were unremarkable. Labs included Na 135 mEq/L, Glucose 86 mg/dL, BUN 18 mg/dL, Creatinine 1.21 mg/dL (baseline Cr 0.75–1.01), Ammonia 40 µ/dL, Lactate 1.0 mmol/L, and urinalysis with only 20 mg/dL ketones. Urine toxicology was positive for known benzodiazepines (prescription alprazolam as needed for anxiety). Serum Li level was 2.2 mmol/L (range 0.5–1.5) on presentation. Patient was hospitalized. Serum Li levels down trended to normal range and were 1.4 mmol/L and 0.8 mmol/L at the 24 and 48-hour mark respectively. On hospital day two, the patient had a witnessed seizure episode lasting one minute and self-resolved. The patient developed generalized hyperreflexia following seizure event. EEG revealed non-convulsive status epilepticus. Nephropathy was consulted to start renal replacement therapy for continuous Li clearance, despite normalized serum levels. The patient improved after 24 hours of renal replacement therapy and returned to pre-presentation baseline per family.

Discussion Chronic Li toxicity, in contrast to acute toxicities, can vary in presentation: from asymptomatic supratherapeutic drug concentration to clinical toxicity featuring confusion, ataxia, and/or seizures. Patients can present with clinical toxicity despite normalized serum levels of Li. Li is readily dialyzable, thus prompt recognition and intervention can reduce the risk or duration of toxicity.

Case presentation We present a case of a 20-year-old Hispanic American female who was noted by her primary care physician to have elevated blood pressures and lab abnormalities in serum creatinine and blood urea nitrogen. She was sent to the local hospital for further evaluation, where she was admitted with hypertensive crisis, severe anemia, and renal failure in the setting of chronic NSAID use secondary to history of migraines. She had no medical history however, reported viral and bacterial upper respiratory infections in the past. Family history was notable for kidney abnormalities. Further laboratory studies showed triglycerides 216, low density lipoprotein 143 and significant 24-hour proteinuria 5,408 with micro hematuria. These findings were consistent with nephrotic syndrome. She had normal complement levels, negative HIV, hepatitis, and autoimmune serologies. Renal biopsy was obtained showing FSGS (not otherwise specified), acute tubular necrosis, moderate interstitial fibrosis, and tubular atrophy. Parvovirus B19 testing was positive for IgG and negative for IgM antibodies. She was treated with Prednisone 1 mg/kg for 2 months and as needed hemodialysis for symptomatic uremia. The patient was referred to a transplant program. Pathology tissue samples were sent to an outside hospital for further analysis and are currently pending.

Conclusion This case illustrates the presentation and workup of FSGS with nephrotic syndrome as well as aid in the development and management of targeted therapies.

Introduction Classic Bartter Syndrome (CBS) is a rare autosomal recessive genetic disorder that leads to hypotension and electrolyte abnormalities due to electrolyte wasting in the renal tubule. Here we present a case of Bartter Syndrome Type III.

Case description 24 years old Hispanic male with no past medical history presented to the hospital with generalized worsening weakness, nausea, vomiting, malaise and fatigue. On presentation, patient was hypokalemic with K of 1.4 mEq/L and had 2 brief self-resolving episodes of wide complex tachycardia in ED. Exam was positive for intermittent self-resolving tachycardia, 1/5 muscle strength in bilateral lower and upper extremities. He was given 10 mEq/L IV K, 2 g IV Mg, 50 mEq/L PO K and 150 mg of amiodarone followed by amiodarone infusion. During his admission, he was noted to have hypochloremic metabolic alkalosis, normal Mg levels, normal to low SCa levels, low urine concentration (sp gr <1.005) and low to normal BP. Patient was admitted to the ICU and received 1000 mEq of potassium and 7 g of Mg. K improved from 1.4 mEq/L to 4.8 mEq/L; Chloride from 88 mEq/L to 98 mEq/L; Bicarbonate 31 mEq/L to 25 mEq/L; Mg stayed between 1.5 mg/dL to 3.1 mg/dL. Aldosterone/renin was 0.55. Urinalysis normal. He was discharged home on oral KCl 40 mg twice a day, Indomethacin 75 mg daily and spironolactone 300 mg daily.

Clinic follow-up 2 weeks after discharge revealed complete resolution of weakness and fatigue with K 3.3 mEq/L and Mg...
1.3 mg/dL. He was sent home with KCl 40 mEq three times daily, Indomethacin 75 mg, spironolactone 300 mg and MGO 400 mg daily.

CBS, also called Bartter Syndrome type III, is an autosomal recessive disorder characterized by hypokalemia, metabolic alkalosis and normal to low blood pressure. Mutation in CLCNKB gene (1q36), encoding a basolateral chloride channel CICkb, has been identified as most common cause of Bartter syndrome. CLCNKB mutations define Bartter syndrome; however, genes other than CLCNKB (those are involved with other types of Bartter syndrome such as SLS12A1 and KCNJ1) may less commonly cause the classic, less severe phenotype.

**459 TOLVAPTAN THERAPY IN HYPERVOLEMIC HYponATREMIA SECONDARY TO HEART FAILURE**

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10.1136/jim-2020-SRM.459

**Case report** A 50 y/o female, with a history of pulmonary artery HTN, SLE, seizure disorder, hypothyroidism and peptic ulcer disease presented to the ER with nausea, vomiting. She was approximately 10 lbs over dry weight. Physical exam positive for obesity, lethargy, decreased breath sounds, and bilateral lower extremities 3+ pitting edema. Labs: serum Na 121 mmol/L, and K 2.4 mmol/L, serum osmolality 250 mOsm/L, urine osmolality 369 mOsm/L, and urine Na <10 mmol/L, Cortisol 3.0 µg/dL (on prednisone for SLE), and TSH 1.37 uIU/ml. Stable vitals.

Initially started on fluid restriction and salt tablets followed by aggressive diuresis. However, no improvement despite being approximately net negative 18L of urine output. Demeclocycline was started as tolvaptan was unavailable. Na showed no improvement. Nephrology was consulted and tolvaptan initiated. Na improved to 129 mmol/L by discharge with marked improvement in nausea and lethargy. She continued tolvaptan after discharge. One week later, serum Na had trended up to 135 mmol/L.

Hyponatremia (serum Na <135 mmol/L) has high mortality rates with inpatient mortality as high as 50% in pts with Na <120 mmol/L. Symptoms include nausea, vomiting, and severe neurological dysfunction leading to respiratory arrest. Mechanisms related to ADH, make the V2 receptor a good therapeutic target. Volume status should be assessed. Hyponatremia in children can be seen in heart failure (HF) and is an independent predictor of mortality, HF hospitalization, and death (ESCAPE trial). HF patients presenting with hyponatremia can be candidates for vaptan therapy if they do not respond to diuresis and fluid/salt restriction. It is important to note in this case improvement in serum Na was noted with tolvaptan. However, studies in hyponatremic phenotype cases did not show improved mortality or morbidity effects long term (EVEREST trial). Therapy is limited to 30 days per the FDA, liver function must be monitored. Attention must be given to avoid rapid overcorrection of serum Na. This case highlights the significance of using vaptan therapy in hyponatremic patients who are refractory to diuresis.

**460 SPONTANEOUS RENAL VEIN THROMBOSIS IN A PREVIOUSLY HEALTHY CHILD: A CASE REPORT**

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**Introduction** Renal vein thrombosis (RVT) typically occurs in neonates as a complication from neonatal sepsis, perinatal asphyxia, hypovolemia, or shock. In older children, it is associated with severe dehydration, malignancies, nephrotic syndrome, hereditary thrombophilia, or glomerulonephropathies. Below, we discuss a toddler with spontaneous renal vein thrombosis with no apparent underlying etiology.

**Case report** A previously healthy 3-year-old male presented with abdominal pain, emesis, and intermittent fevers over a period of seven weeks. Due to prolonged symptoms, he was admitted for evaluation. A blood culture obtained was positive for coagulase-negative staphylococcus. A urinalysis showed positive leukocyte esterase, negative nitrites, numerous white blood cells, but no hematuria. He was empirically treated for suspected sepsis and pyelonephritis, however repeat blood culture and urine culture were negative. His symptoms improved, but persistent hypertension was noted; this warranted further investigation. A renal ultrasound revealed mild right hydropnephrosis and debris in the collecting system. Further studies with renal doppler, computed tomography (CT) abdomen and pelvis, and CT angiography showed right renal infarction, occlusive right renal vein thrombosis, and nonocclusive inferior vena cava and left renal vein thrombosis; no blood flow was seen in the right kidney. Anticoagulation therapy was initiated. Continued hypertension and progressive thrombosis necessitated a right total nephrectomy with thrombectomy of inferior vena cava and left renal vein. The biopsy and microscopic examination were suggestive of coagulative necrosis related to renal venous thrombosis, but did not show any evidence of malignancy, congenital renal anomalies, glomerulonephropathies, or infection. The prothrombotic workup was negative and the renin level was normal. In summary, spontaneous renal vein thrombosis is uncommon in children beyond infancy without predisposing conditions. The prognosis of RVT is generally poor and these patients can present late as the early signs and symptoms can be nonspecific. Therefore, a high index of suspicion for early diagnosis is necessary for timely intervention. Persistent hypertension and abnormal urinalysis should raise suspicion for renal vein thrombosis.

**461 ACID BASE DISORDERS IN THE PRESENTATION OF DKA WITH CHOLEDOCHOLITHIASIS**

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10.1136/jim-2020-SRM.461

**Introduction** Accurate interpretation of acid-base disorders is critical in the diagnosis and effective management of a patient.

**Case** A 51-year-old woman with a history of type 2 diabetes mellitus presented to the Emergency Department with 3 days of right upper quadrant pain, nausea and vomiting. She reported sudden onset of episodic, aching and non-radiating...
abdominal pain with non-bilious vomiting. She had run out of her metformin three months prior Vital signs were unremarkable other than mild tachycardia. Physical exam was significant for pain to palpation in the right upper quadrant and tachycardia. Serum chemistries demonstrated hyperglycemia, hypochloremia and a bicarbonate of 24. Venous pH was 7.46. Ketones were present in the urine. She had an anion gap of 20 with a delta gap was 34, concerning for anion gap acidosis with concomitant metabolic alkalosis. Lipase was unremarkable. Bedside ultrasound demonstrated pericholecystic fluid and gallstones. Transaminases, total bilirubin and alkaline phosphatase levels were elevated. Computed tomographic scan of the abdomen showed a distended gallbladder with wall thickening and common bile ductal dilatation. The patient was admitted to the intensive care unit with diabetic ketoacidosis protocol and piperacillin/tazobactam coverage for cholecodolithiasis and possible cholangitis. Endoscopic retrograde cholangiopancreatography and sphincterotomy were performed with balloon sweep and biliary stent placement. She improved and further interventions were deferred.

Discussion This patient’s anion gap acidosis with concomitant metabolic alkalosis initially clouded her ketoacidosis presentation. With careful consideration of cholecodolithiasis and cholangitis and appropriate consultation with gastrointestinal, general surgery and interventional radiology, she was treated appropriately and had a positive outcome. Gallbladder pathologies should be considered in the workup for etiology of diabetic ketoacidosis.
Southern society for clinical investigation and southern american federation for clinical research

Plenary session

SSCI young investigator award finalists

SSCI poster award finalists

SAFMR/SSCI/young faculty award

SAFMR/SSCI/Trainee Research Award

8:00 AM

Friday, February 14, 2020

J Hong*, B Viniusiuas, SL Crabtree, DY Arita, C Rosales, M Feroz, TK Thethi, V Fonseca, F Mauvaix-Jarvis, MC Pireto. Tulane University School of Medicine, New Orleans, LA

10.1136/jim-2020-SRM.463A

Purpose of study Subjects with type 2 diabetes mellitus (T2DM) have inappropriate activation of the systemic renin-angiotensin system (RAS), with high levels of plasma prorenin associated with the onset of cardiovascular (CV) complications. The prorenin receptor (PRR) has two molecular forms: a membrane-bound form and a soluble (sPRR) form, that both fully activate prorenin and increase activity of renin. High plasma prorenin in subjects with T2DM raises the concern if increases in plasma sPRR contribute to CV complications.

Methods used We used ELISA to measure plasma sPRR concentrations and plasma renin activity (PRA) in 269 patients (mean age: 48±1 years; 42% men) with 173 controls (CT) and even greater in women (CT: 12±0.9 ng Ang I/mL/hr; P<0.0001, including in men (CT: 3.6±0.5 vs. T2DM: 9.8±1.7 ng Ang/mL/hr; P<0.0001) and even greater in women (CT: 3.1±0.3 vs. T2DM: 13.5±1.1 ng Ang/mL/hr; P<0.0001). The interaction between sex and group was significant (p=0.036) suggesting that increases in plasma sPRR levels in T2DM patients is greater in women than men. Multiple regression analysis indicate a significant association between plasma sPRR levels and plasma sPRR in women but not in men. Identification of novel CV biomarkers of systemic RAS activation will allow better understanding of the association between T2DM and CV complications, particularly in women.


Abstracts

463A SOLUBLE PROREIN RECEPTOR (SPRR) IS ASSOCIATED WITH TYPE 2 DIABETES IN WOMEN

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10.1136/jim-2020-SRM.463C

Purpose of study Cardiovascular disease (CVD) and cancer remain the leading causes of death globally. While these diseases have traditionally been regarded as separate entities, recent evidence points towards shared biological pathways, underlying a need to study CVD and cancer conjointly. We examined the association between CVD risk factors and incidence of cancer over the life course in a biracial community-based cohort.

Methods used The analysis included 1,368 participants of the Bogalusa Heart Study who had at least 3 measurements of CVD risk factors throughout life (57.6% women; 32.8% black, baseline age=10.5±3.6 years, follow-up=37.2±4.8 years). CVD risk factors assessed included systolic and diastolic blood pressure, LDL-C, HDL-C, plasma glucose, serum triglycerides, and body mass index. Cancer cases were ascertained via the Louisiana Tumor Registry. Cox proportional hazards regression assessed the association between CVD risk factors and cancer incidence, adjusting for race, sex, smoking, and blood pressure-, lipid-, and glucose-lowering medications.

Summary of results There were 88 incident cases of cancer, and breast (22.7%), cervical (11.4%), and prostate (9.1%) were the most highly represented malignant neoplasms. Notably, body mass index had the most robust association with incident cancer (HR=5.83, 95% CI: 2.24, 15.19; p=3.0 × 10^−3). We observed a strong association between annualized change in blood pressure per mmHg and hazard of all cancers (for systolic, HR=2.24, 95% CI: 1.50, 3.35; p<0.0001 and diastolic, HR=4.86, 95% CI: 2.86, 8.27; p<0.0001). Race modified the relationship between lipids and cancer, such that blacks (HR=0.46, 95% CI: 0.26, 0.80; p=6.0 × 10^−4) but not whites (HR=1.26, 95% CI: 0.81, 1.95; p=0.30) exhibited a protective association for cancer per annual mg/dL increase in HDL-C.

Conclusions Subclinical increases in adiposity and blood pressure broadly amplify the risk for incident cancer, while maintenance of HDL-C decreases cancer risk, specifically in blacks. Control of CVD risk factors in childhood and throughout the life course may lead to improved overall cancer prevention in the general population.

463C URINARY WAXY CASTS ARE ASSOCIATED WITH GREATER SEVERITY OF ACUTE TUBULAR INJURY

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Purpose of study Waxy casts (WxCs) can be identified during microscopic examination of the urinary sediment
(MicrExUrSed) and they are classically linked to chronic kidney disease (CKD). It is less clear whether WxCs are a relevant finding in acute kidney injury (AKI). We hypothesized that identification of WxCs in AKI due to acute tubular injury (ATI) provides prognostic information.

Methods used We conducted a prospective observational study in patients seen in inpatient nephrology consultation with AKI stage ≥2 (AKIN) over 1.5-yr. On the day of consult, MicrExUrSed was performed to determine the percentage of low power fields (lpf) with WxCs and to assess a validated score for ATI based on granular casts and tubular epithelial cells per lpf [Peraza score (PS): score ≥2 consistent with ATI]. The outcome measure was need for dialysis at 30 days (RRT).

Summary of results Urine specimens from 167 patients [median age 58 (25-88), 42% women] were assessed. The etiology of AKI (pure de novo AKI 56%, AKI on CKD 44%) was ischemic ATI (41%), toxic ATI (14%), ischemic/toxic ATI (17%) and other (28%). WxCs were found in 47 patients (28%), 29 (62%) of which had pure de novo AKI. Median serum creatinine for those with WxCs was 3.7 (2.8-4.9) mg/dL compared to 3.1 (2.4-4.6) mg/dL for those without WxCs (p=0.087). Having >10% WxCs w/ ≥1 WxCs was associated with greater risk for RRT [relative risk (RR): 2.3, CI 1.4-3.5, p=0.0003]. PS ≥2 was also associated with greater risk for RRT (RR: 2.6, CI 1.1-6.6, p=0.04). When WxCs were added to a PS ≥2, the RR for need for RRT became stronger (RR: 6.0, CI 2.9-12.5, p=0.0001). The greater the abundance of WxCs, the greater the need for RRT: need for RRT was 26% (31/120), 43% (20/47), 59% (13/22), and 60% (6/10) for those with none, >0%, >10% and >50% lpf w/ ≥1 WxCs, respectively (p=0.0003 for trend).

Conclusions WxCs can be found in about a third of patients with AKI, even among those without preexisting CKD. Among patients with ATI, the presence and abundance of WxCs are associated with a greater need for RRT, suggesting that WxCs carry similar and potentially additive prognostic value to that of granular casts.

Abstracts

463E INCREASED VIRAL MARKERS CORRELATE WITH DECREASED INSULIN SECRETION

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Purpose of study Type 1 diabetes (T1D) is an autoimmune condition, thought to be enhanced or triggered by certain viral infections. In this study we isolated human islets express- ing genes associated with viral infections. To gain insights into effects of viral infections we compared gene expression patterns in islets with or without these viral infection markers.

Methods used nPOD OCT slides were obtained from non-diabetic donors (AB+) and donors with T1D (T1D). Islets were categorized based on the presence of markers associated with viral infection (VIMs), HLA, Mx1, dsRNA, and PKR, identified via immunohistochemical staining. Laser capture was used to manually isolate islets. From each donor, islets were pooled based on the number of VIMs (0 VIMs, 1 VIMs or ≥2VIMs). After pooled islets were obtained, RNA was extracted, and microarray used to assess transcriptomes. We used GeneSpring software (version 13.0, Silicon Genetics, Redwood, CA) to generate a list of genes that showed differential expression between donors/VIMs. Using Webgestalt we identified pathways enriched in the lists of differentially expressed genes.

Summary of results A total of 85 genes with a fold change of ≥1.1 and p-value=0.001 were differentially expressed between islets with 0 VIMs and islets with ≥1 VIMs. Pathway analysis showed strongest enrichment for the insulin secretion pathway (enrichment ratio of 6.9 and a P-value of 5.7E-7). Closer analysis of this gene list indicated decreased expression of genes involved in insulin secretion in islets with 1 or more VIMs. Two genes of particular interest, KCNJ11 and ABCC8, had significantly lower expression in the islets with ≥1VIMs compared to islets with 0 VIMs (p=0.01). This general pattern was maintained within all clinical groups.

Conclusions Islets with high expression of genes associated with viral infection had decreased expression of genes important for insulin secretion, including KCNJ11 and ABCC8 (SUR1) - the genes responsible for the K-ATP channel necessary for insulin release in response to glucose. This may suggest a pattern of dedifferentiation and/or functional impairment of beta cells in the setting of viral infections.

463E MECHANISMS OF IMMUNE EVASION IN CHEMOTHERAPY INDUCED SENESCENT BREAST CANCER CELLS

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Purpose of study We previously showed that patients with TP53 wild-type (WT) breast cancers have dismal survival after chemotherapy. For example, median survival for chemotherapy treated TNBC patients with TP53 WT tumors is 45 months, which contrasts sharply with patients that have TP53 mutant tumors (263 months, p=0.0038). These patients fare the worst because in response to chemotherapy, breast cancer cells that are TP53 WT avoid cell death and persist in the residual disease in a state of arrested cellular senescence. Discovering how senescent cells in the residual disease evade immune clearance is imperative to prevent relapse and improve breast cancer response to chemotherapy.

Methods used We used RNA-seq to study the immune contexture after chemotherapy in p53 WT MMTV-Wnt1 tumors and human breast cancer cell lines. GSEA was performed to identify enriched pathways following treatment. Tumors from chemotherapy-treated/untreated MMTV-Wnt1 mice were harvested, fixed, sectioned, and stained to assess expression of various markers using confocal microscopy.

Summary of results Cells in residual disease following chemo- therapy were highly enriched for antigen presentation (p<0.025 FDR). To determine why these tumors were not cleared by the immune system despite evident antigenicity, we examined factors involved in immune suppression. We found a remarkable elevation of immune checkpoint PD-L1 following treatment and induction of senescence in residual disease of TP53 WT tumors. We observed that within chemotherapy-treated tumors, PD-L1 was expressed on the membrane of tumor cells that were negative for senescence markers yH2AX/p21
(p<0.0001). PD-L1 expression persisted in the relapsed tumor, suggesting that the cells that could proliferate and drive relapse were cells that had high PD-L1 expression. This suggests that senescent tumors may be vulnerable to anti-PD-L1 therapy, a rationale supported by an enrichment for genes that predict response to anti-PD-L1 (p<0.25 FDR).

Conclusions PD-L1 was upregulated in TP53 WT tumors following treatment with chemotherapy. PD-L1 expression specifically occurred in non-senescent cells after chemotherapy, and expression persisted in the relapsed tumor. Mammary tumors were enriched for genes predictive of response to immunotherapy.

**463F** RESPONSE ASSESSMENT IN RECURRENT GlioblASTOMA BASED ON CONTRAST-ENHANCED T1-WEIGHTED SUBTRACTION COLOR MAPS AND RANO CRITERIA

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10.1136/jim-2020-SRM.463F

Purpose of study To evaluate the true enhancement burden of tumors following immediate post-operative changes as well as following sequential MR imaging.

Methods used HIPPA-compliant, IRB-approved retrospective post-hoc analysis of 17 patients with glioblastoma multiforme (GBM) treated with bevacizumab who reported to have a residual disease on MRI data acquired in 1 to 3-month interval. MRI series including T2-FLAIR, T1-W, and enhanced T1-W were assessed in initial post-op and follow-up series. MRI data were exported from PACs to DICOM viewer (MIM v6.9). Next, an experienced neuroradiologist segmented the GBM tumors in FLAIR, unenhanced and enhanced T1-W MRI series. Subsequently, the segmented volumes were exported to MatLab where the pixel-by-pixel hyperintensities subtraction was performed in each volume slice using an in-house algorithm obtaining a color map. GBM tumor axes measurement was performed using a single frame with the best FLAIR signal representation. Finally, tumor axes were exported to a decision environment where the response characterization was computed according to RANO criteria.

Summary of results It is important to separate intrinsically T1 hyperintense lesions such as blood and cortical necrosis from true enhancement, which is felt to relate to vascular permeability in tumors or possibly granulation tissue. If the subtraction value is low, i.e., most or all of the T1 signal relates to intrinsic T1 hyperintensity rather than tumor, and then there is likely no macroscopic enhancing tumor. If, on the other hand, the subtraction value is high, then there is true enhancement, which may relate to either macroscopic true tumor burden or enhancement related to granulation tissue. Reactive dural changes in some tumors can also manifest as a high subtraction result. FLAIR images represent T2 hyperintense signal that is not related to cerebrospinal fluid. For example, vasogenic edema, T2 bright tumor or gliosis from post radiation change versus small vessel ischemia can all be bright on FLAIR images.

Conclusions Treatment of enhancing tumor can be determined by analyzing the sequential subtraction results together with FLAIR images that help to determine whether nonenhancing tumor or gliosis is progressing over time, in combination with RANO Criteria response characterization.

**463G** CHRONIC ALCOHOL INGESTION RENDERS MICE VULNERABLE TO HYDROSTATIC PULMONARY EDEMA

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Purpose of study Chronic alcohol abuse is a major risk factor to develop pathologic alveolar flooding, known as Acute Respiratory Distress Syndrome (ARDS). Alcohol impairs alveolar barrier function by increasing paracellular fluid leak and disrupting fluid homeostasis, priming the lung for flooding with a subsequent ‘second-hit’ injury. Healthy lungs tolerate a broad range of interstitial pressures without developing alveolar edema. However, chronic alcoholics at baseline and with ARDS have increased extravascular water levels which contribute to increased interstitial water pressure on the alveoli. Elevated interstitial pressures overwhelm alveolar tight junctions and allow fluid to enter the alveolar space. We propose that alcohol causes alveolar leak due to increases in interstitial fluid pressure. This is critical to determine as ICU patients are often given fluids that increase interstitial pressure and could be injurious in alcoholic patients.

Methods used 8-week-old male C57BL/6 mice were pair-fed 20% ethanol or water for 16 wks to establish a chronic alcohol model. Mice were given a 250 µl intraperitoneal (IP) injection of phosphate-buffered saline (PBS) to increase interstitial fluid pressure. To examine flooding in the alcoholic lung, 200 µl of Evans Blue (EB) dye was injected into tail veins 24h after IP injection and bronchoalveolar lavage (BAL) fluid was collected 1h later. EB in BAL was analyzed and normalized to serum EB.

Summary of results Alcohol increased alveolar leak, measured by EB presence in BAL, by 73% following IP injection of PBS relative to sham-control alcohol-fed mice and by 93% relative to water-fed mice at the same IP injection volume. By contrast, IP injection did not cause alveolar leak into BAL of water-fed mice.

Conclusions Chronic alcohol exposure sensitizes the alveolar barrier to pulmonary edema with a ‘second-hit’ inflammatory injury such as sepsis or pneumonia. Here we demonstrate for the first time that sterile saline induces lung injury in alcohol-fed mice, providing a non-inflammatory model to study alveolar barrier dysfunction in vivo. Further studies will measure the impact of saline composition on the degree of alveolar leak and determine if this injury is volume-dependent.

**463H** NONINVASIVE TESTS FOR STAGING CHRONIC LIVER DISEASE: ARE THEY ALL EQUAL?

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10.1136/jim-2020-SRM.463H

Purpose of study To prospectively compare the diagnostic performance of different noninvasive tests for staging hepatic fibrosis in patients with chronic liver disease.

Methods used This is a single-center, IRB-approved, HIPAA-compliant, prospective pilot study. Adults with chronic liver disease presenting to Interventional Radiology for random liver biopsy are enrolled prior to biopsy. Ultrasound shearwave elastography (USE) of the liver is performed using a Philips scanner with standard acquisition parameters to measure liver stiffness (USE). MR elastography of the liver is
performed using a 1.5 T Siemens scanner with standard acquisition parameters to measure liver stiffness (MRE). All patients undergo CT-guided liver biopsy and obtained CT images of the liver are used to measure liver surface nodularity (LSN score) using a previously described semi-automated method. Serum labs within 30 days of liver biopsy are used to calculate the FIB-4 score, a serum biomarker of hepatic fibrosis. The concordance of FIB-4 score, LSN score, USE, and MRE with histologic Metavir staging of hepatic fibrosis are assessed using Harrell’s C statistics. Odds Ratios (OR) from ordinal logistic models are reported.

Summary of results The preliminary data includes fifteen adults (11 female; age range 34–72, mean 55). Mean interval between biopsy and ultrasound/MR is 0 days. The histologic range of hepatic fibrosis includes livers with no fibrosis (F0): 7, mild-moderate (F1-2): 5. Mean LSN score is 2.7 (2.0–4.1), Mean FIB-4 score is 1.7 (0.5–4.4). Mean USE and MRE liver stiffness are 8.8 kPa (3.9–17.9) and 5.4 kPa (2.4–15.7) respectively.

The C-stat concordance for FIB-4, LSN, USE, and MRE are 0.84, 0.87, 0.77, and 0.85 respectively. Odds of moving up one fibrosis stage are 3.84 (p=0.013), 69.8 (p=0.005), 1.01 (p=0.267), and 1.53 (p=0.019), respectively, per one unit increase.

Conclusions Liver surface nodularity score has non-inferior diagnostic performance compared to FIB-4 score, USE, or MRE in staging hepatic fibrosis in patients with chronic liver disease.

Purpose of study Recent studies have suggested a relationship between intra-arterial therapy and the development of HAS following orthotopic liver transplant (OLT). This study evaluates the effects of pre-transplant locoregional therapies on post-OLT HAS.

Methods used IRB-approved, multi-center, retrospective analysis was performed on all patients who underwent liver transplant from 1/2/2016 to 12/30/2018 (n=608). Patients undergoing locoregional therapy were identified based on consensus review of a multidisciplinary liver conference for patients with hepatocellular carcinoma (HCC). Therapies included DEB-TACE (100-300μg LC Beads™ mixed with doxorubicin), Yttrium radioembolization segmentectomy (Therasphere™), and radiofrequency ablation. Additional treatments were performed as deemed necessary, based on incomplete response, with the majority of patients (n=96) receiving 1–2 treatments. Patients were surveyed with doppler ultrasound at 1 day, 1 week, 1 month, and 3 months following orthotopic liver transplant (OLT). HAS was suspected based on findings of elevated hepatic artery velocity with downstream intrahepatic artery tardus-parvus waveforms and low resistive indices. HAS was confirmed angiographically.

Summary of results Of the 608 patients who were transplanted during the 3-year cohort, 145 patients had HCC, and intra-arterial bridging therapy was performed on 126 of these patients (115 TACE, 5 Y90, and 6 TACE and y90). 24 patients were treated with RFA (4 with RFA alone). Following OLT, 78 patients (13%) developed HAS. Fewer rates of HAS were noted in patients with HCC (12/145 [8.3%] vs 66/463 [14.3%], p=0.05). Similarly, fewer rates of HAS were encountered in patients bridged in intra-arterial therapy (10/126 [8%] vs 68/482 [14.1%], p=0.06). Additionally, patients who were treated with RFA prior to liver transplant had lower rates of HAS (1/24 [4%] vs 77/584 [13%], p=0.03). MELD scores at the time of liver transplant were however associated with the development of HAS (p=0.001). The majority (57) of the patients who developed HAS (n=78) did so within 2 months post-transplant.

Conclusions Intra-arterial therapy is not associated with the development of HAS following OLT, however, underlying liver disease appears to be associated with the development of HAS.
EFFECT OF ROTATING PROVIDERS ON CHEST ORAL FEEDING ACQUISITION AS A PREDICTOR FOR PRETERM INFANTS AT 12 AND 24 MONTH FOLLOW UP

Purpose of study To investigate the relationship between time to attain full oral feeds (FULL-PO) during the NICU stay and growth, feeding and neurodevelopmental outcomes at 12 months postmenstrual age (PMA) and 24 months chronological age (CA) in preterm infants.

Methods used This retrospective study included infants born between 01/01/2014-07/31/2017 with gestational age (GA) <32 weeks and/or birth weight <1500 g. We examined time to FULL-PO, morbidities and growth. Anthropometrics in infants reaching FULL-PO ≤38.0 weeks (EARYL) vs. >38.0 weeks PMA (LATE). Growth, feeding difficulties, cerebral palsy, and Bayley Scales of Infant Development (BSID-III) scores were examined. SPSS and SAS were utilized for statistical analyses.

Summary of results Of 192 infants, 147 (77%) achieved FULL-PO EARLY and 45 (23%) LATE. Mean age at FULL-PO in each group was 36.1±1.1 vs. 40.9±2.6 weeks PMA, respectively (p<0.001). The infants obtaining FULL-PO EARLY were of older GA (29.0±2.4 vs. 27.2±2.3 weeks, p<0.001) and higher BW, length, and FOC (p<0.001). Comorbidities and length of stay were higher (p≤0.001) and unadjusted BSID scores (Table 1) were lower at 12 and 24 months (p<0.05) in the LATE group. Post-discharge therapy encounters were higher in the LATE group (p<0.05). After adjusting for GA, BPD, postnatal dexamethasone, NEC, and therapy encounters during NICU stay, FULL-PO EARLY decreased the risk of language delay at 12 months PMA (OR 0.37 [CI 0.13, 0.99], p<0.05). At 24 months CA this effect was no longer significant and BPD was the primary predictor of language delay (OR 3.586 [1.153, 11.146], p=0.02). Time to FULL-PO did not predict cognitive or motor development after adjusted logistic regression. At 24 months CA the LATE group had lower z-scores for weight, head circumference and length (p<0.05).

Conclusions Establishing full oral feeds by 38.0 weeks PMA may be used as a clinical predictor for neurodevelopmental delay at 12 months PMA and growth at 24 months CA. BPD appears to be a strong predictor of language delay and growth failure up to 24 months CA.

Abstract 467 Table 1

<table>
<thead>
<tr>
<th>BSID Scores</th>
<th>FULL PO ≤38.0 weeks (EARLY)</th>
<th>FULL PO &gt;38.0 weeks (LATE)</th>
<th>p-value</th>
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<tr>
<td>Language, 12 mo</td>
<td>88.1±11.8</td>
<td>81.9±9.5</td>
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<td>Cognitive, 12 mo</td>
<td>95.0±10.1</td>
<td>93.0±10.9</td>
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<td>Motor, 12 mo</td>
<td>90.4±10.0</td>
<td>82.1±11.4</td>
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<td>Language, 24 mo</td>
<td>81.1±12.8</td>
<td>79.3±12.7</td>
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<tr>
<td>Cognitive, 24 mo</td>
<td>86.3±9.7</td>
<td>81.8±11.0</td>
<td>0.02*</td>
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<tr>
<td>Motor, 24 mo</td>
<td>85.6±10.6</td>
<td>81.2±11.5</td>
<td>0.03*</td>
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Abstracts

468 THE IMPACT OF ISOLATION PRECAUTIONS ON INFANT INTERACTIONS IN THE NICU – A CASE-CONTROL STUDY

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Purpose of study Studies show a decrease in healthcare worker (HCW) interaction with adult patients placed on isolation precautions. This decreased interaction has been associated with adverse outcomes, including increased risk for falls, deep venous thrombosis, and depression. However, it is unknown whether this decrease in HCW interaction holds true for infants admitted to the NICU. This study aimed to determine the frequency of interactions between infants in isolation precautions and their HCWs and families.

Methods used A case-control study was conducted at the University Hospital NICU in San Antonio, TX via ‘secret shopper’ observation. Infants on isolation precautions (cases) were matched 1:3 with non-isolated infants (controls) by time of observation (8 am – noon, 2 pm – 6 pm, 8 pm – midnight, 2 am – 6 am) and need for respiratory support. Patient interactions were counted using a standardized data collection tool during 4-hour observation periods. Patient interactions were defined as beginning when a HCW or visitor arrived at an infant’s bed with intent to provide care, and ending when the task was complete and the HCW or visitor left the bedside.

Summary of results 644 hours of observation were completed (161 periods, 59 distinct infants). Demographic and clinical characteristics of observed infants. There were no significant demographic differences between cases and controls. Cases had fewer total interactions than controls (mean 5.4 [SD 3.3] vs. 8.8 [SD 4.2], p<0.0001), including decreased interaction with providers, nurses, and family members. Patient interactions were lower during night shift compared to day shift and lower in the second half of each shift compared with the first half, but after stratifying for observation time, infants in isolation precautions consistently had less interactions.

Conclusions Our single-center case-control study has associated isolation precautions with a reduction in infant interaction with HCWs and families. Additional studies are needed to confirm this finding and determine whether there are adverse outcomes associated with decreased HCW interaction among infants in the NICU.

469 GERM-FREE MICE ARE PROTECTED BUT HUMANIZED MICE WITH DISEASED LUNG MICROBIOME DEVELOP SEVERE LUNG INJURY IN HYPEROXIA

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Purpose of study A distinct airway microbial dysbiosis with proteobacterial abundance and decreased lactobacilli is seen in infants with severe BPD. We conducted the first human to animal respiratory microbiome transplant experiment and hypothesized that diseased airway microbiome transplanted in germ free (GF) mice will predispose them to hyperoxia induced lung injury.

Methods used 1. Tracheal aspirates were prospectively collected from human infants with severe BPD (n=50) and gestation matched controls (n=30). Samples were biochemically preserved to retain their microbiome composition and later transplanted to germ free (GF) mice.

2. Humanized GF (HGF) mice were created by colonizing GF mice with either severe BPD microbiome (BPD-GF) or non-diseased microbiome (Non-BPD-GF), by intranasal instillation at P1 and P3. Non-Germ-Free mice (NGF) were used for baseline comparisons with GF mice. All groups were exposed to normoxia (21% O2) versus hyperoxia (85% O2) from P3–P14.

3. Lungs harvested for histology, bronchoalveolar lavage fluid, protein, and RNA at P14, in addition to pulmonary function testing (PFT). Morphometry included radial alveolar count (RAC). Markers of neutrophilic inflammation (Ac-PGP, MPO, neutrophil counts) were analyzed. 16S microbiome analysis was conducted on lungs of both groups of HGF mice, to confirm appropriate colonization.

Summary of results GF and NGF mice in normoxia showed no difference whereas GF mice in hyperoxia showed protected lung structure and mechanics, and decreased markers of neutrophilic inflammation compared to NGF mice.

In normoxia, BPD-GF mice demonstrated similar lung structure and function compared to both GF mice and Non-BPD-GF mice. However, in hyperoxia, BPD-GF mice demonstrated severe BPD like phenotype marked by alveolar hypoplasia (RAC), worse pulmonary function (low compliance, high resistance), increased neutrophilic inflammation (high Ac-PGP, MPO, neutrophil counts), as compared to both GF mice and Non-BPD-GF mice. Significance=p<0.05.

Conclusions Diseased human microbiome transplantation predisposes GF mice to hyperoxia induced lung injury. As lung dysbiosis plays a critical role in BPD, manipulation of the lung microbiome may be a potential therapeutic intervention.

470 LOYPHILIZATION OF AMNIOTIC FLUID IS FEASIBLE WITHOUT AFFECTING BIOLOGICAL ACTIVITY

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Purpose of study The human fetus swallows ~150 ml/kg/day human amniotic fluid (hAF) containing trophic factors (TF). Premature birth interrupts hAF borne TF exposure which may increase risk of NEC. Due to volume, practically it is impossible to replicate hAF swallowing. We aimed to evaluate if hAF lyophilization is feasible and does it affect biological activity of hAF.

Methods used We collected hAF (n=16) from uncomplicated term pregnancies and divided into 3 groups: unprocessed control, concentrated by microfiltration, and by dialysis. EGF, HGF, GM-CSF and TGFβ were measured by multiplex assay. Biological trophic activity was assessed by cell proliferation and IL-8 induced IL-8 production by intestinal epithelial cells (FHs74).

Summary of results After dialysis/lyophilization GM-CSF and TGFβ were preserved with partial loss of EGF and HGF. HAF increased cell proliferation and reduced LPS induced IL-8
Adolescent medicine and pediatrics

Concurrent session

Friday, February 14, 2020

472 IMPROVED EDUCATIONAL OUTCOMES THROUGH A SCHOOL-BASED WELLNESS INITIATIVE

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Purpose of study Education level is an important social determinant of health which contributes to health disparities. Some school-based programs that improve nutrition or increase physical activity demonstrate improved academic performance of students. However, programs with a single health focus are not similarly effective. Programs that address multiple domains of wellness note greater impact on student health measures. With a coordinated wellness approach we expect a synergistic impact on educational outcomes as well. Long-term evaluation studies are lacking to support this hypothesis. The purpose of this longitudinal study was to evaluate the impact of participation in a coordinated school wellness initiative, the Docs Adopt School Health Initiative© (DASHI), on educational outcomes.

Methods used This prospective cohort study compared educational outcomes in schools that participated in DASHI to those that did not during the 10-year study period. Data was obtained from publicly available State Report Cards for all schools in SC, 2007–2008 through 2016–2017. Variables examined included attendance, suspension/expulsion and grade retention rates. Analysis was conducted using repeated measures modeling and ANOVA, controlling for dose effect.

Summary of results 249 out of 1,475 South Carolina schools (17%) participated in DASHI. Mean years of participation were 4.1 (SD 2). Schools participating had improved attendance, suspension/expulsion and grade retention rates. On average, every 4 years of participation in DASHI was associated with a 0.5% increase in a school’s attendance rate (p<0.0001), a 0.77% decrease in its suspension/expulsion rate.
The Efficacy of Telehealth as an Alternative to Face-to-Face Visits for Pediatric Weight Management

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Purpose of study: Telehealth offers a means of expanding quality care to patients who cannot readily access the resources available at large medical centers. Research on the use of telehealth for pediatric weight management to date has primarily focused on feasibility and satisfaction, with little available data existing on efficacy.

Methods used: We examined data from subjects enrolled in a nutrition and lifestyle program for overweight and obese children 2 to 22 years old, during the time period of January 2017 to September 2019. Data was collected from a database that records patients' anthropometrics and lab work every six months. Patients were encouraged to attend monthly visits; however there was no required length of participation in the program. Descriptive statistics for each group included age, sex, gender, and average baseline body mass index (BMI). Subjects who followed up at a minimum of six months after their initial visit were examined for change in BMI and BMI Z-score during the time period from their initial to their final visit.

Summary of results: A total of 360 patients who underwent face to face visits and 15 in telehealth clinic visits were followed for change in BMI. There were no significant differences in age, gender, race, or total days on study between the two groups. The average baseline BMI was 31.9 for the face to face cohort and 32.0 for the telehealth cohort (p=0.4312). The change in BMI for each group was 0.8 [-0.5 to 2.7] in the face to face group and -0.3 (-0.7 to 0.4) in the telehealth group (p=0.0356). The change in BMI z-score from first to last visit in this time frame was 0.0 [-0.1 to 0.2] in the face to face group and -0.1 [-0.2 to 0.0] in the telehealth group (p=0.1427).

Conclusions: Our results show that there was a significant difference in the change in BMI between the face to face and telehealth groups. However, there was no significant difference when BMI was standardized by z-score. This leads us to believe that telehealth can serve as at least an equally effective means of pediatric weight management for patients who lack access to face to face visits. Further research is being undertaken to examine changes in lab values and behaviors related to weight management, which may be able to refine the efficacy of telehealth, especially over a short time interval.

Abstracts

Trends and Demographics of Pediatric Firearm Injuries from 2000–2015

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Purpose of study: Firearm-related injuries are the second leading cause of pediatric death in the US. Understanding the details of these injuries is vital to identify at-risk populations & tailor interventions. The aim of this study was to analyze trends of firearm pediatric injuries & deaths in a high-risk southern state and identify the populations at most risk.

Methods used: A chart review of firearm-related hospitalizations at the state's only freestanding children's hospital was conducted from 2000–2015. The Jefferson County Medical Examiner's office provided additional data to account for children who died prior to making it to a hospital setting. 28 variables were analyzed. Data analysis was conducted using the SAS frequency procedure.

Summary of results: 356 patients were enrolled in the study (n=254, 71% from hospital records & n=102, 29% from Medical Examiner's office). The annual number of firearm-related injuries & deaths rose by nearly 250% from 2000 to 2015. Ages of victims ranged from 0.11 to 19 years (median 14). Males accounted for 3 out of every 4 victims (73%, n=261). African Americans were the most affected ethnicity (70%, when ethnicity was known). Unintentional firearm injuries had the most remarkable and consistent increase in frequency. Shootings most commonly occurred during the summer months (34%). The age of the shooter ranged from 1–47 years (median 13). Immediate family members (father, mother, siblings) were the most frequent gun owners. Playing with a gun accounted for 85% of unintentional injuries. For those requiring hospitalization (51%, n=183), median & average length of stay was 5 days & 9.9 days, respectively. Death was the most common outcome (33%). Suicides (85%) & homicides (78%) most often resulted in death.

Conclusions: In a state with high firearm ownership and death rates, annual pediatric firearm injuries and deaths rose by nearly 250% in 15 years. Firearm injuries were found to have seasonality, wide range of ages, and high mortality rate. When known, the victim or immediate family members were the most frequent firearm owner and shooter.

A Comparison Between the Frequency of Problems on a Standardized Psychosocial Screening Tool in Depressed vs. Non-Depressed Adolescents

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Purpose of study: HEADDSS is a psychosocial assessment tool used in Adolescent Medicine to determine if there are problems in six domains including the adolescent's home, educational, activities, drugs and other substance use, depression and relationships including sexual activity.
The purpose of this study is to investigate a correlation between the HEADDS psychosocial assessment tool for adolescents with vs without a diagnosis of depression.

Methods used As part of a cross-sectional study, a retrospective review of 132 charts containing equal numbers of depressed and non-depressed adolescents were selected for clinic patients over 2-year time span. The non-depressed control group was matched for age and sex. The number of HEADDS domains positive for each patient as well as the total items overall positive were compared for depressed vs. non-depressed patients. Finally, a multivariate analysis was implemented to determine which domains most correlated with depression.

Summary of results The mean number of pertinent positive items in the HEADDS assessment was found to be 4.2 times higher in the Depression group vs the control group (7.74 ±4.9 vs 1.83±2.2, Mann Whitney test: p<0.001). The mean number of positive domains in the HEADDS assessment was found to be 2.2 times higher in the Depression group vs the Control group (2.76±1.5 vs 1.24±1.22, Mann Whitney test: p<0.001). The differences remained significant even after removing the HEADDS depression score from the totals. A multiple logistic-regression (minus the depression domain) found 'use of substances' and 'problems with school' remained positively associated with depression after controlling for the other domains.

Conclusions Results from this study conclude that the problems found on the HEADDS assessment are correlated with depression. The finding that use of substances and problems at school have a strong correlation with depression warrants additional prospective research.

Purpose of study The goal of this study is to compare the outcomes of traumatic brain injury (TBI) for children whose caregivers present with no explanation for the injury vs. those with an explanation.

Methods used A retrospective study of 253 children, 0–36 months old who presented with TBI to the Emergency Department was conducted. Mechanisms of injury that had a degree of uncertainty such as falls, no explanation, struck by object were included whereas motor vehicle, bicycle related accidents or penetrating injury were excluded. Data was further stratified based whether an explanation of head injury was present vs. no explanation. Chi-square was used to compare outcomes including clinically important traumatic brain injury (CiTBI), clinical markers of serious head injury including Glasgow score ≤8, seizures on presentation, or intensive care unit admission for those with vs. without caregiver explanation of mechanism of injury. Also, comparisons of suspicion of abuse, and outcomes after discharge were conducted. Summary of results 19 of 24 infants (79.2%) with no explanation vs. 65 of 229 (28.4%) with explanation were found to have CiTBI (p=0.001). For no explanation there were higher rates vs. explanation of having: GCS ≤8 (16.7% vs. 4.8%; p=0.041 Fisher exact test), seizures (29.2% vs. 12.8%; p=0.038 Fisher Exact Test) and admission to ICU (66.7% vs. 39.1%; p=0.009). Suspicion for abuse was found in 100% for no explanation vs. 45.2% with explanation (p<0.001). Also, outcomes at discharge were unfavorable in 33.3% with no explanation vs. 7.9% with explanation (p=0.001 Fisher Exact Test).

Conclusions Head injury in children is a major cause of morbidity and mortality. When no explanation is given in cases of traumatic brain injury, this study revealed increased incidence of CiTBI, increased markers of clinical acuity, higher suspicion for abuse, and poorer outcomes when compared to cases with caregiver explanation of the mechanism of injury. Lack of history should serve as a strong indicator to evaluate for CiTBI, especially in the children.

Purpose of study Methicillin Resistant Staphylococcus Aureus (MRSA) prevalence is rising and neonates with skin and soft tissue infections (SSTIs) are vulnerable to systemic spread of disease. IDSA recommendations exist for outpatient treatment of localized SSTI in neonates, though providers routinely pursue cultures and admission for parenteral antibiotics. Prior research revealed low yield of infectious workups for afebrile SSTI in healthy neonates. However, in high MRSA prevalence populations, the diagnostic yield of infectious workups remains unclear, especially if source control (i.e. drainage of an abscess) cannot be achieved. This study aims to evaluate rates of serious bacterial illness (SBI) in healthy neonates in a high MRSA population (60% of isolates).

Methods used A retrospective review was performed from 2008 to 2018 on patients presenting to Children’s Health with ICD 9/10 codes for SSTI. Patients were excluded if they were not previously healthy. After data collection, patients were grouped into abscess and cellulitis cohorts and compared for admission rates, parenteral antibiotic use, MRSA-positive wound culture and SBI defined as positive blood or urine cultures. Normally-distributed continuous outcomes were analyzed with Student’s t-test and categorical outcomes with chi-square test.

Summary of results Of 385 patients, 91 healthy neonates with ICD 9/10 codes for SSTI met inclusion criteria: 46 with abscesses, 35 with cellulitis, and 10 miscoded as SSTI. MRSA positivity was similar in abscess and cellulitis cohorts (17% vs 14%, p=0.71). No abscess patients had SBI compared with 5 cellulitis patients (4 with positive urine cultures, one with positive blood culture). No MRSA positive patients developed serious bacterial illness. Cellulitis patients were more likely to have SBI (14% vs. 0%, p=0.03), require parenteral antibiotics (89% vs. 22%, p<0.0001), and require hospital admission (60% vs. 30%, p<0.01).

Conclusions In our high MRSA prevalence population there was no increased risk of SBI in healthy neonates with SSTI and MRSA positivity. Cellulitis patients had higher rates of SBI, hospital admission, and antibiotic use suggesting they are prone to systemic disease given lack of source control. Thus, we propose that healthy neonates with abscess be treated outpatient upon source control while those with cellulitis undergo further evaluation inpatient.
TRICHOMONAS VAGINALIS INFECTION AMONG YOUNG WOMEN IN A JUVENILE DETENTION CENTER

E Oshrn*, M Eissa, LI Benjamins, R Beyda. UT McGovern Medical School, Houston, TX

10.1136/jim-2020-SRM.478

Purpose of study Since 2014, there’s been a steady increase in the incidences of sexually transmitted infections (STI). While not a reportable infection, Trichomonas Vaginalis (TV) is the most common non-viral STI in the U.S. However, universal screening in asymptomatic patients is not recommended. In 2015, the CDC STI guidelines recommended considering screening women in high prevalence areas like correctional institutions, but most juvenile correction facilities currently do not screen. With the improved sensitivity of urine nucleic acid amplification testing (NAAT) for TV, an opportunity exists to routinely screen detained young women. We set out to assess TV prevalence and risk factors among young women in a juvenile detention center.

Methods used We conducted a prospective study in a large urban juvenile detention facility in the Southeastern U.S. from April to December 2016. Upon admission, all detained young women submitted a urine sample for gonorrhea and chlamydia testing. Remnant urine from these samples was tested for TV using the APTIMA TV NAAT. Outcomes included identifying the prevalence of TV among detained young women and risk factors for infection. Funding for the study was provided by Hologic, Inc. The Houston Department of HHS provided partial laboratory testing in kind. The IRB from McGovern Medical School and the Juvenile Justice Center approved this study.

Summary of results 355 young women submitted urine specimens. 28 patients (7.9%) tested positive for TV. Of the 28 patients, 20 (71.4%) were African American (AA), 2 (7.14%) were Hispanic while 6 (21.4%) were white. Co-infection with GC/CT occurred in 14 (50%) of patients. 44% were asymptomatic. 39% reported a previous STI, 22% reported 4 sexual partners in the last year and 47% used contraception. Young women who tested positive for TV were more likely to be AA, have symptoms on intake, and report sexual partners within the past 12 months compared to women who tested negative for the infection (p-value <0.05)

Conclusions In our study population, the prevalence of TV was 7.9% among detained young women with 50% having a co-infection with another STI. As nearly half of those with TV reported contraception use and no symptoms, we recommend routine screening among this population.

478 PAPAS SALUDABLES, NIÑOS SALUDABLES’ PROGRAM: HISPANIC MOMS EXPERIENCES OF A FATHER-FOCUSED LIFESTYLE INTERVENTION ON FAMILY HEALTH BEHAVIORS

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10.1136/jim-2020-SRM.479

Purpose of study Healthy Dads, Healthy Kids (HDHK) was the first obesity prevention program targeting fathers and children and showed improved behavior-related outcomes in Australia. The purpose of the Papas Saludables, Ninos Saludables (PSNS) program was to assess the feasibility of culturally adapting the HDHK program to target overweight or obese Hispanic fathers and their children—making PSNS the first study to target this group. PSNS maintained the original father-child focus of HDHK, but enhanced the original program by adding a new weekly video and Facebook component to engage Hispanic mothers. The aim of this study was to investigate the experiences of mothers regarding the impact of the PSNS program.

Methods used Qualitative interviews were conducted by trained bilingual staff using structured interview guides to obtain mother’s perspectives after their family completed the program. Mothers received weekly video surveys to complete that were analyzed using SPSS software.

Summary of results A total of 26 mothers were interviewed. A majority of mothers enrolled their families in PSNS to improve father-child relationships. These mothers cited that PSNS helped fathers spend more time with their children which translated into improved child well-being, confidence, and communication skills. Mothers noted that PSNS improved their family’s health knowledge, nutrition habits, screen media use, and physical activity behaviors. Mothers who joined the Facebook page had a positive experience and were able to see the program’s real-time impact. Overall, 72.3% of mothers received links and 86.4% of these mothers reported watching the weekly videos. Of these mothers, 82.9% found the videos very useful and 95.7% agreed or strongly agreed that they felt more prepared to make healthy lifestyle changes.

Conclusions The mothers believed the PSNS program was effective in promoting lifestyle changes and strengthening father-child relationships. The strong sense of family belonging integral to the Hispanic community points to the utility of PSNS targeting both parents by including a virtual program component for mothers.

480 PNEUMOMEDIASTINUM SECONDARY TO CANNABINOID HYPEREMESIS SYNDROME IN AN ADOLESCENT WITH IRRITABLE BOWEL SYNDROME

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10.1136/jim-2020-SRM.480

Case report A 17-year-old Caucasian male with past medical history of irritable bowel syndrome (IBS-D) was transferred from a referring hospital due to computed tomography (CT)-confirmed pneumomediastinum following a three-day course of nausea, vomiting, and diarrhea. Patient noted intermittent nausea and vomiting once to twice weekly for the last few months. One week prior to admission he had an episode attributed to IBS-D exacerbation with emesis described as foul-smelling, bilious, and bloody. Patient denied fever, foreign travel, or change in diet but endorsed headache, 17-pound weight loss within the last month, and decreased oral intake and urination. Differential diagnosis included esophageal perforation, Boerhaave’s syndrome, Mallory–Weiss tear, gastroenteritis, cyclic vomiting syndrome, and inflammatory bowel. Complete blood count, C-reactive protein, complete metabolic panel, amylase, and lipase were unremarkable except for leukocytosis of 13,370.
Head CT ruled out acute intracranial hemorrhage. Esophagogram ruled out esophageal perforation. Patient developed tarry stools, and stool occult blood was positive. GI pathogen panel test, HIV test, and urine culture were all negative, ruling out infectious etiology. An upper endoscopy with biopsies was otherwise normal. Rapid urease test was negative. A urine drug screen tested positive for cannabinoids, which combined with symptom presentation and pneumomediastinum suggested cannabinoid hyperemesis syndrome, a condition of cyclic vomiting associated with chronic, high-dose cannabis use and compulsive hot showers to mediate symptoms (1). Patient clinical status improved, nausea and vomiting resolved, and he was discharged on omeprazole and sucralfate and counseled on the importance of discontinuing cannabis.

Conclusion A thorough social history to assess for THC use must be obtained to rule out cannabinoid hyperemesis syndrome in adolescents with IBS-D who are presenting with symptoms suggestive of disease exacerbation. This disease is underrecognized in adolescents, and as cannabis policy undergoes rapid transformation in the U.S with approved therapeutic and recreational use, it should be considered as a differential.

A 15-year-old female with no significant past medical history presented with nausea for one year. One year prior to her visit, the patient had a bout of viral gastroenteritis which lasted one week; however, the nausea she experienced with the illness persisted. She had since been unable to tolerate most liquids due to extreme fear of vomiting. She endorsed dizziness when standing, nausea, and panic attacks whenever her nausea flared. Due to persistent symptoms, an extensive workup was done; CBC, CMP, H. Pylori stool studies, abdominal films, gastric emptying study and celiac testing were all within normal limits.

At presentation, the patient was able to eat solid foods but reported greater fear of emesis after drinking liquids. She was urinating once daily with no recent weight change. Vital signs showed a resting heart rate of 96 bpm that went to 106 bpm after standing. Body mass index was within normal range (23.4 kg/m²) and urinanalysis showed a specific gravity of >1.030. Her symptoms had necessitated withdrawal from public school and enrollment in home school. The patient was diagnosed with dehydration and anxiety related to a fear of vomiting (emetophobia) and was counseled to increase her fluid intake by eating thickened liquids such as pudding and soup to improve her hydration status. Hydroxyzine was prescribed for her anxiety and to independently address her nausea. Two weeks later, she endorsed significant improvement in symptoms resulting in increased fluid intake and increased urination. Her urine specific gravity decreased to 1.020. Hydroxyzine had an overall positive effect on her anxiety, and fluoxetine was added to her regimen. Three months after initial presentation, she endorsed returning to eating, drinking, and urinating normally. Urine specific gravity was 1.010. She reported she was going out with friends and interested in going back to school.

Severe anxiety related to a fear of vomiting after an acute gastroenteritis, and resulting chronic dehydration, served as the root cause for significant impairment in this patient’s health and quality of life for a year. This case demonstrates the importance of fully assessing relevant psychosocial elements related to any disease process in order to appreciate the scope of disease and effective treatment when working with adolescents.

Case report As the only known cause of epidemic parotitis in humans, mumps has historically been a clinical diagnosis defined by bilateral or unilateral parotid gland swelling preceded by a prodrome of fever, headache, myalgia and fatigue. Although vaccination programs have successfully decreased the incidence of mumps worldwide, sporadic cases are still reported even in areas with high vaccination rates. Case A previously healthy 17 year old Spanish speaking male presented to the ED with painful left-sided facial swelling. Swelling presented acutely without preceding illness or trauma and had gotten progressively worse for two days. The patient reported subjective fevers and pain associated with the facial swelling but denied fatigue, headache, URI symptoms or dental problems. The patient denied recent travel or sick contacts and immunizations were up to date, including MMR. Physical exam showed significant left sided parotid and submandibular edema without fluctuance and tender cervical and submandibular adenopathy. Ultrasound showed an enlarged, heterogeneous, and hypervascular parotid gland without abscess. Workup revealed an elevated CRP and amylase and a positive Monospot test.

Discussion This case presents a few points for discussion. The first being vaccine efficacy. In countries with high MMR vaccination rates, sporadic cases of mumps are still seen. These cases are confirmed with serum mumps IgM antibody testing and have been reported even among vaccinated individuals. Regarding this case, the clinical presentation was consistent with mumps parotitis. However, a history of vaccination suggested an alternative etiology. Patients with EBV infections, as determined by a positive monospot, may have false positive results to mumps IgM testing. This is due to production of cross-reactive antibodies by polyclonal B cells. In contrast, patients with true mumps parotitis are unlikely to have a positive monoclonal test.

Conclusion Clinicians should consider alternative viral etiologies for parotitis including EBV. Doing so will reduce false reporting and improve diagnostic accuracy. Further development in cost effective viral detection is still needed.
Role of Citrullination of Collagen in Autoimmune Arthritis

10.1136/jim-2020-SRM.483

Purpose of study Rheumatoid Arthritis (RA) is a common form of autoimmune arthritis, and patients have increased anti-cyclical citrullinated protein (anti-CCP) antibodies. Citrullination is the process by which arginine residues are converted to citrulline via PAD (protein arginine deiminase). Since collagen is a ligand for the immunosuppressive receptor LAIR-1, found on immune cells, citrullination of collagen may affect its interaction with LAIR-1, leading to more severe autoimmune arthritis. Citrullinated type I collagen was produced and administered to mice using the collagen-induced arthritis model to determine its effect on arthritis.

Methods used Native type I collagen was treated with PAD enzyme to induce citrullination. C57BL/6 mice expressing the chimeric (human/mouse) DRB1*0101 construct were immunized subcutaneously at the base of the tail with 100 µg of type II collagen emulsified with complete Freund’s adjuvant (CFA). Arthritis severity was scored on a scale from 0–4 with 0 being a normal paw and 4 meaning pan-swelling of the paw with anklyosing. Mice were bled at 6 weeks and sera were analyzed for antibodies reactive against citrullinated or normal collagen.

Summary of results Type I collagen [a mixture of a1(I) and a2 (I)] either treated or untreated with PAD enzyme was administered intrasynovially (in hind paws) on days 6, 13, and 21 to groups of 10 DR1 mice which had been immunized with CII/ CFA to induce arthritis. By day 60, the mice treated with citrullinated Type I collagen had a more severe arthritis than mice given type I collagen (mean severity score 7.3±4.6 versus 2.8 ±3.5, p=0.02). Compared with mice treated with α1(II), the mice treated with cit- α1(I) had higher antibody titers to citrullinated and non-citrullinated type I collagen (12±6 versus 29.5 ±23, p=0.04; 23±8 versus 34.6±15.3, p=0.05).

Conclusions In conclusion, the injection of citrullinated type I collagen intrasynovially led to a more severe arthritis as compared to mice given untreated collagen. Citrullinated collagen may either bypass immunosuppressive receptors or become more immunogenic. A better understanding of the mechanisms by which citrullination of proteins affects autoimmunity could enhance our understanding of how to treat autoimmunity.

Intestinal Microbiota is dispensable for the Development of Systemic Autoimmune Disease in BXD2 Mice

1H Hong*, 2Q Wu, 2P Yang, 2A Esman, 3M Crowley, 3O Crossman, 3C Morrow, 1J Foote, 3S Schoeb, 3C Elson, 4H Hsu, 1JD Montu, 1UB, Birmingham, AL; 2Department of Genetics, University of Alabama at Birmingham, Birmingham, AL; 3Department of Cell, Developmental, and Integrative Biology, University of Alabama at Birmingham, Birmingham, AL; 4Department of Microbiology, University of Alabama at Birmingham, Birmingham, AL; 5Department of Genetics, Animal Resources Program, University, Birmingham, AL; 6UB School of Medicine, Birmingham, AL

Purpose of study Systemic lupus erythematosus (SLE) is an autoimmune disease associated with skin rash and multiple organ involvement. Research studies have suggested that obesity is a major factor contributing to the onset and progression of SLE. However, the relationship between obesity and SLE pathogenesis is still unclear. Our study aimed to establish an obesity-associated lupus mouse model to investigate their pathophysiologic link using MRL/lpr lupus prone mice.

Methods used Twenty MRL/lpr mice were fed a regular diet (RD) or high fat diet (HFD, 60% calories comprised of fat). Body weights and skin lesion were recorded weekly. Urine protein using Bradford assay was assessed. Blood was collected for IgG, anti-dsDNA and anti-nuclear antibody (ANA) detection. At week 14, spleen was measured and weighed. Kidney and skin biopsy were embedded in paraffin for H&E, PAS, and Masson’s staining to detect lupus histopathological lesions and quantified as kidney index and histological skin score based on fibrinoid necrosis, periglomerular infiltrate, and inflammatory dermatitis.

Summary of results Obesity was achieved with a significant difference of mouse body weight between the RD and HFD groups by week 3 and continued until week 14 (p<0.05 to p<0.01). Evidence of SLE development, such as skin rash on the dorsal neck and back in HFD group developed as early as week 6 and occurred in 55.6% of the HFD group vs 11.1% of the RD group (p<0.05). Splenomegaly was observed in the HFD mice (p<0.05). Proteinuria increased from week 11 to 14 in HFD mice. There was an increased trend of anti-dsDNA and IgG titer in HFD group, but no difference of ANA was observed between these two groups. HFD mice also had a higher histological score of skin (p<0.05) and higher acute and chronic index of kidney than RD mice.

Conclusions Our results show an accelerated lupus development in MRL/lpr mice with HFD compared to mice with RD, indicating HFD-induced obesity predisposes to SLE development. This model will be used for further studying the mechanism underlying the link between obesity and SLE development.
THE EFFECTS OF STRESS PERCEPTION, ANXIETY, AND IMMUNE STATUS CORRELATES WITH TREATMENT RESPONSE IN PATIENTS WITH ASTHMA


Purpose of study Immune factors play a key role against disease progression in hepatocellular carcinoma (HCC). This study compares pre-treatment immune function to chemoembolization, ablation, and radioembolization treatment response, new tumor development, and tumor explant pathology.

Methods used A retrospective analysis was performed on patients with HCC who were bridged to liver transplant from 7/7/2011 to 1/25/2019 (n=162). Locoregional therapy was determined by a consensus review of a multidisciplinary liver conference, including drug-eluting bead transarterial chemoembolization (DEB-TACE), Yttrium radioembolization segmentectomy, and microwave ablation. Treatment response was based on modified RECIST criteria. Pre-treatment laboratory markers, including absolute lymphocyte count (ALC), were compared with post-treatment imaging response and sustained treatment response prior to transplant as well as tumor biology and necrosis rates at explant.

Summary of results 321 treatments were performed on 162 patients during the 7-year study period. Prior to locoregional therapy, 79 patients were lymphopenic (ALC <1.2), and 83 were lymphocompetent (ALC >1.2). Based on the most immediate post-treatment imaging prior to transplant, lymphopenia was associated with poor long-term response to locoregional therapy (49% complete response (CR), 21% partial response (PR), 17% stable disease (SD), 13% progressive disease (PD)) vs 70% CR, 25% PR, 5% SD, 0% PD, p<0.001). Additionally, lymphopenic patients were more likely to develop new tumors during a wait-list interval (40% vs 4%, p<0.001). LymphocOMPETENT patients demonstrated higher necrosis rates at explant (p<0.001) as well as higher rates of complete pathologic necrosis (40% vs 22%, p=0.01) and near-complete (>90%) necrosis (59% vs 32%, p=0.001).

Conclusions Unfavorable locoregional treatment response was associated with low lymphocyte counts, a marker for immunosurveillance, suggesting a role in post-treatment tumor activity as well as the development of new tumors and pathologic necrosis.
Abstracts

488 ANTI-CD3 AND ANTI-CD28 BEAD-BASED STIMULATION FOR IN VITRO GENERATION OF HUMAN T CELLS FOR USE IN A PATIENT-DERIVED ORTHOTOPIC MOUSE MODEL

C Haupt*, X Zhang, H Yip, G Mareesh, L Baste, N Mathew, A Bhattachar, H Matrana, D Margolin, L Li. Ochsner Health System, New Orleans, LA

10.1136/jim-2020-SRM.488

Purpose of study Humanized mice have become a staple for the study of cancer therapeutics. Traditionally, normal donor human peripheral blood mononuclear cells (PBMC) are isolated and engrafted in order to humanize immunocompromised mice. However, in order to most closely model the patient, it is necessary to use the patient’s own PMBC for the humanization of immunocompromised mice. This presents a challenge as both the cell quantity and quality are limited. Here, we present a method for isolating and expanding healthy donor cells for use in mouse humanization. We aim to refine and utilize this expansion method to use cancer patient PBMC for mouse humanization.

Methods used Normal donor PBMC were isolated and cultured in RPMI with rHL-2 and stimulated with artificial antigen-presenting cells (aAPC). On day 14 cells were engrafted via intraperitoneal injection to recombine activating gene (Rag2) and common cytokine receptor gamma chain (IL2Rγ) double knockout (Rag2-/-/IL2Rγ-/-) mice. Mice were also injected with thawed PBMC from day 0 before stimulation. One group of 6 mice received high and low doses of thawed PBMC from day 0. The second group of 6 mice received high and low doses of activated PBMC from day 14. On days 7 and 14 samples were collected for FACS analysis.

Summary of results PBMC were expanded over 14 days. Day 14 post-injection, the thawed cells outperformed the stimulated cells. Peritoneal washes contained up to 29% CD8+ cells and 52% CD4+ cells. Blood contained up to 12% CD8+ cells and 13% CD4+ cells. Spleens contained up to 13% CD8+ cells and 4.2% CD4+ cells. By contrast, only CD4+ cells were seen in mouse tail blood (92%+) and peritoneal washes (79%) across all conditions for mice given stimulated cells. CD8+ cells were at most 12% in peritoneal washes on day 14.

Conclusions The aAPC mediate in vitro expansion of normal human donor T cells. Unfortunately, the activated T cells did not persist in vivo. Only activated CD4+ T cells were seen in the peritoneal washes. While the expansion can allow for more number of mice per experiment, optimization of aAPC stimulation is required if we hope to emulate the cancer patient immune system in a murine model.

489 IMPACT OF CHILDHOOD OBESITY ON ACUITY OF ASTHMA EXACERBATION IN CHILDREN VISITING THE EMERGENCY DEPARTMENT AND/OR HOSPITAL ADMISSION

P Vuppalla*, R Mehta, J Chen. Medical College of Georgia, Alpharetta, GA

10.1136/jim-2020-SRM.489

Purpose of study Acute asthma exacerbation is one of the leading causes of hospitalizations and ER visits for children in the US. Studies have reported that obesity may increase incidence of asthma. This study specifically aimed to elucidate the severity of asthma exacerbation between obese and non-obese pediatric patients by comparing Clinical Asthma Score (CAS), frequency of Emergency Department visits, frequency of hospital admissions, length of hospitalization, and medical management between the two groups.

Methods used This retrospective study analyzed records of 401 patients seen in the ED or admitted to CHOG due to asthma exacerbation between 1/1/2015 and 12/31/2018. Patient demographics, initial CAS, the number of ED/Hospital/PICU admissions, total LOS, administration of continuous albuterol, terbutaline, prolonged steroids, and ketamine infusion during admission was collected. Statistical analysis with P value <0.5 was considered significant.

Summary of results 250 (62.34%) were in the non-obese group and 151 (37.66%) in the obese group. A two-sample t-test performed with unequal variances found that the initial CAS for obese patients was significantly higher than that of non-obese patients (p=1.72 × 10^-7), and the average LOS in the PICU or overall admission was significantly longer for obese patients (p=0.0028 and p=0.004 respectively). Number of ED visits and continuous albuterol administration were significantly higher (p=0.04) and (p=0.01) respectively between obese and non-obese groups. No differences were found in the number of Hospital/PICU admissions and overall medical management.

Conclusions Obese children with acute asthma are sicker at the time of presentation, have higher morbidity and use of healthcare resources compared to normal weight children. Further efforts are needed to improve the health of these children. A prospective study is needed to understand how weight status influences the health of children with acute asthma and measures to reduce morbidity.

490 AN OPEN WOUND WITH AN OPEN QUESTION: IS IT ECTHYMA GANGRENOSUM?

N Krishnan, K Rechcigl*, A Arzinegas, Z Vaghaiwalla, G Kailey. University of Florida College of Medicine, Jacksonville, FL

10.1136/jim-2020-SRM.490

Case report We present the case of a 57 year old female who presented with a 30 cm necrotic wound on her left thigh. Upon admission, the patient was taken for surgical debridement. Within a week of admission, she developed a new eschar on her right thigh. Skin biopsies of both lesions grew multidrug resistant P. aeruginosa susceptible only to a 5th generation cephalosporin, Ceftolozane/Tazobactam. Despite antibiotics, wound healing was slow, and rheumatology was consulted for concern of pyoderma gangrenosum (PG). Evaluation for inflammatory arthritis, inflammatory bowel disease, systemic vasculitis, paraproteinemia, pro-coagulant diseases and drug screening were negative. The main wound was deep with basal granulation tissue and partially necrotic edges. The clinical picture was not consistent with PG. Given her initial presentation with an eschar, extensive hospitalizations, poor diabetic control and biopsies revealing P. aeruginosa, a diagnosis of ecthyma gangrenosum (EG) was made.

There are increasing reports of EG in patients who are immunocompetent and with non-pseudomonal infections. In
our case, we suspect the patient's immunocompromised state was from severely uncontrolled diabetes. While it can be difficult to distinguish between the two, PG often presents as ulcers with well-defined borders, not as an eschar. Moreover, the distribution of the lesions is important to consider. Eschars from EG generally occur in the gluteal and perineal region. Diagnosis is largely clinical and relies on maintaining a high degree of suspicion. Skin biopsy and blood cultures are useful and the identification of Pseudomonal species in the tissue culture further substantiates the diagnosis. Differential diagnoses should include warfarin-induced skin necrosis, vasculitis, pancreatic dermatitis, microvascular occlusion disorders (e.g. cryoglobulinemia), cholesterol emboli and coagulopathies. Non-healing, necrotic wounds may be multifactorial, but it is important to keep EG on the differential, especially in wounds that present as eschars. This case report serves to add to the growing body of literature on this underreported condition that bridges Infectious Disease and Rheumatology.

Discussion GPA is a necrotizing granulomatous vasculitis typically involving the lungs and kidneys. ANCA is usually detected but can be negative in 10% of cases which may delay the diagnosis. Our case is unique as the patient presented with skin rash that was initially treated as cellulitis and misled the diagnosis. Although skin biopsy alone is not diagnostic, the overall clinical picture was suggestive of seronegative GPA. The treatment of choice is steroids with long term remission rate up to 90% of the cases if combined with immunosuppressant drugs.

Conclusion Skin rash can be the presenting symptom of systemic vasculitis. Clinicians are urged to maintain a high level of suspicion for seronegative GPA.

Concurrent session
2:00 PM
Friday, February 14, 2020

Heart Failure and Arrhythmias

PLEUROPERICARDIAL EFFUSION, THE FIRST MANIFESTATION OF MATURE B CELL LYMPHOMA
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10.1136/jim-2020-SRM.492

Case report A 67-year-old man with a history of multiple unprovoked deep vein thromboses presented with rapidly worsening dyspnea for one week. Imaging revealed bilateral large pleural effusions and a large pericardial effusion. Due to tamponade activity on echocardiography, he underwent a pericardial window. Pericardial biopsy showed nonspecific inflammation and cytology was not collected. Pleural fluid was exudative but workup for underlying etiology was negative. Shortly after, he suddenly developed a significant leukocytosis and blastemia, raising the concern for malignancy. Flow cytometry was consistent with mature B cell lymphoma and cytogenetic analysis confirmed aggressive disease. The patient opted out of further investigation and succumbed to his illness within the ensuing two weeks.

Pleural and pericardial effusions are a common complication of malignancy. Lymphomas are a leading cause of malignant effusions but often only observed in disseminated or advanced stages of the disease in which lymphadenopathy and extra-thoracic organ involvement predominates. Rarely, are pleuropericardial effusions the initial manifestation of Non-Hodgkin’s Lymphoma. These effusions are largely asymptomatic, leading to a delay in diagnosis. Fluid analysis can be nonspecific and, unfortunately, the sensitivity of cytology in pericardial and pleural effusions for lymphoma is low; therefore, a negative cytology does not exclude malignancy. Pericardial effusions may be the first manifestation of an underlying malignancy and therefore it is imperative to evaluate for malignancy in every case. The presence of any effusion at the time of diagnosis is associated with poor prognosis and treatment is largely palliative.
Purpose of study An estimated $30.7 billion is spent on heart failure each year, with a significant portion due to readmissions. Although follow up within 7 days of a heart failure exacerbation is associated with better outcomes, readmission rates remain high. For this reason, a closer inspection of the patients that avoid readmissions is needed to devise a better discharge plan. This study looks to accomplish this by comparing readmission rates and discharge methodologies of cardiology and internal medicine services.

Methods used Patients admitted for a heart failure exacerbation, as determined using ICD-10 codes, between January 1st, 2018 and December 31st, 2018 were included in this single-center retrospective cohort study. Patients were excluded if they had a ventricular assist device, recent heart transplant, or the advanced heart failure service functioning as the primary team. Included patients were divided into those on the cardiology service vs internal medicine services. The primary objective was to determine the impact of primary team on discharge medication optimization. Secondary outcomes included length of stay, 30-day readmission, and inpatient and 30-day all-cause mortality.

Summary of results A total of 168 patients were included. Of these, 100 (59.5%) were managed by internal medicine, and 68 (40.5%) by cardiology. There was no statistically significant difference in the primary or secondary outcomes. However, it was found that 97% of patients discharged from the cardiology service had documented follow up appointments, compared to 85.9% of patients discharged from internal medicine (p=0.018). Of those with a documented follow up, those discharged from cardiology were more likely to have their appointments scheduled before discharge (75% vs 56%; p=0.019).

Conclusions While there was no statistically significant difference in the primary or secondary outcomes, it was found that patients admitted to the internal medicine service have a lower rate of scheduled outpatient follow up upon discharge. This finding could imply that interdepartmental communication is needed to ensure that patients obtain consistent follow ups upon discharge. Further data is needed to evaluate if obtaining a cardiology consult translated to more consistently scheduled follow up appointments.

Case report Isolated left-sided infective endocarditis (LSE) in intravenous (IV) drug users is a rare condition. This subgroup has an increased risk of morbidity and mortality from arterial embolism causing complications such as acute coronary syndrome (ACS). Early diagnosis and intervention is crucial to avoid complications. Our case focuses on this unusual complicated presentation to improve our index of suspicion and ensuring optimal management in subsequent cases.

A 32-year-old female with history of IV heroin abuse, was brought to the emergency room in septic shock with multi-organ failure. Cardiology was consulted due to an initial 12-lead EKG demonstrating ST elevation in anterior leads and positive troponin trending to $>40 \text{ ng/mL}$ (Normal Range $<0.045$). She did not get an emergent coronary angiography due to initial hemoglobin (Hgb) of $3.2 \text{ g/dl}$ and ST elevation improving on subsequent EKGS with optimization of Hgb.

Transcatheter aortic echocardiogram (TTE) demonstrated a reduced left ventricular ejection fraction of $36-40\%$ with distal left ventricular akinesis suggestive of takotsubo cardiomyopathy vs left anterior descending artery (LAD) infarct. TTE also showed a $12 \times 11 \text{ mm}$ mobile density on the aortic valve with moderate aortic regurgitation. Findings were confirmed with transthoracic echocardiogram which additionally showed likely right coronary cusp leaflet perforation and a second smaller vegetation on non-coronary cusp without involvement of mitral or right sided cusp and no direct communication between right and left heart.

Blood cultures grew methicillin sensitive staphylococcus aureus, streptococcus group C and Escherichia coli which were managed with antibiotics. Given the possibility that initial presentation was ST elevation myocardial infarction from vegetation embolism, coronary artery angiography was done prior to aortic valve replacement (AVR) surgery. Results of the coronary artery angiography showed a small distal LAD occlusion with no collaterals indicative of embolic ACS. Patient underwent AVR surgery with tissue valve without any coronary artery bypass graft due to poor and small distal LAD not amenable to anastomosis. Her subsequent hospital course was uneventful and discharged in a stable condition.
ACUTE FULMINANT EOSINOPHILIC MYOCARDITIS

J Surla*, J Dillon, K Hoppens, C Clines, T Dodd, LS Engel, E Dauchy. LSU Health Sciences Center, New Orleans, LA

Case report Eosinophilic myocarditis is characterized by myocardial eosinophilic infiltration with peripheral hypereosinophilia. Disease presentation ranges from asymptomatic myocarditis to acute fulminant necrotizing myocarditis leading to cardiogenic shock and arrhythmias.

Case A 31-year-old woman with no significant past medical history presented with a one week history of worsening heart palpitations with associated intermittent light-headedness and shortness of breath. Aside from a pulse of 113 beats/min, ther remainder of her vital signs were unremarkable. Physical exam was only notable for tachycardia with irregular rhythm. Complete blood count, differential, and urine toxin screen were unremarkable. Initial troponin level was elevated to 0.57. EKG showed tachycardia with a rate of 115, irregular rhythm, and frequent pre-ventricular and pre-atrial complexes. TTE demonstrated normal systolic function, questionable hypo-kinesis of the middle anteroseptal left ventricular wall, and a left ventricular strain pattern with apical sparing abnormalities. A NM Tc99 pyrophosphate scan was negative for transthyretin amyloidosis. Approximately 15 hours after admission she developed tonic-clonic seizure and pulseless electrical activity. ACLS protocol was initiated followed by intubation and subsequent multiple episode of cardiac arrest. Emergent cardiac catheterization showed no evidence of obstructive coronary artery disease. She continued to have persistent polymorphic ventricular tachycardia/ventricular fibrillation that was not controlled by multiple antiarrhythmic drugs, overdriving transvenous pacer and external defibrillation. After counseling patient’s family on her poor prognosis, her family made the decision to remove life support. Autopsy revealed eosinophilic myocarditis as the cause of death.

Discussion Acute necrotizing eosinophilic myocarditis (ANEM), a fulminant form of heart failure, is mostly associated with hypereosinophilia. Patients with eosinophilic myocarditis without concomitant hypereosinophilia generally have a mild clinical course without overt heart failure or cardiogenic shock. Our case is interesting as this patient developed fulminant myocarditis with cardiogenic shock and fatal arrhythmia without having associated peripheral eosinophilia.

Purpose of study Current guidelines recommend 6 months of dual antiplatelet therapy (DAPT) following placement of drug-eluting stents (DESs) if implanted for stable ischemic heart disease and 12 months if implanted in a setting of acute coronary syndrome. However, several recent RCTs have suggested that after implanting new-generation DESs, DAPT for as little as 3 months is not only as effective as long-term (12 months) DAPT, but also safer.

Methods used Relevant randomized controlled trials were included, and risk ratios were calculated using random effects models. Inclusion criterion was that short-term DAPT continue not more than 3 months.

Summary of results Six randomized controlled trials with a total of 28,702 patients met our criteria. These trials generally included patients with both stable ischemic heart disease and acute coronary syndrome. Short-term DAPT ended after 1 month in two trials and after 3 months in the remainder. Long-term DAPT ended after 12 months in all trials. No differences between short- and long-term DAPT were found in the risks for all-cause mortality, cardiovascular mortality, myocardial infarction, and stent thrombosis. However, short-term DAPT decreased both major bleeding risk and any bleeding risk compared to long-term DAPT.
Abstracts

Gastroenterology

Concurrent session

2:00 PM

Friday, February 14, 2020

ABSTRACT WITHDRAWN

499

NEW INSIGHTS INTO MICROBIOTA OF THE UPPER GASTROINTESTINAL TRACT


Purpose of study The duodenum is the first part of the small intestine to receive acidic chyme from the stomach, neutralized by bicarbonate, solubilized by bile salts, and mixed with digestive enzymes in preparation for absorption. High diseases have traditionally been regarded as separate entities, recent evidence points towards shared biological pathways, underlying a need to study CVD and cancer conjointly. We examined the association between CVD risk factors and incidence of cancer over the life course in a biracial community-based cohort.

Methods used The analysis included 1,368 participants of the Bogalusa Heart Study who had at least 3 measurements of CVD risk factors throughout life (57.6% women, 32.8% black, baseline age=10.5±3.6 years, follow-up=37.2±4.8 years). CVD risk factors assessed included systolic and diastolic blood pressure, LDL-C, HDL-C, plasma glucose, serum triglycerides, and body mass index. Cancer cases were ascertained via the Louisiana Tumor Registry. Cox proportional hazards regression assessed the association between CVD risk factors and cancer incidence, adjusting for race, sex, smoking, and blood pressure-, lipid-, and glucose-lowering medications.

Summary of results There were 88 incident cases of cancer, and breast (22.7%), cervical (11.4%), and prostate (9.1%) were the most highly represented malignant neoplasms. Notably, body mass index had the most robust association with incident cancer (HR=5.83, 95% CI: 2.24, 15.19; p=3.0x10−4). We observed a strong association between annualized change in blood pressure per mmHg and hazard of all cancers (for systolic, HR=2.24, 95% CI: 1.50, 3.35; p<0.0001 and diastolic, HR=4.86, 95% CI: 2.86, 8.27; p<0.0001). Race modified the relationship between lipids and cancer, such that blacks (HR=0.46, 95% CI: 0.26, 0.80; p=6.0x10−4) but not whites (HR=1.26, 95% CI: 0.81, 1.93; p=0.30), exhibited a protective association for cancer per annual mg/dL increase in HDL-C.

Conclusions Subclinical increases in adiposity and blood pressure broadly amplify the risk for incident cancer, while maintenance of HDL-C decreases cancer risk, specifically in blacks. Control of CVD risk factors in childhood and throughout the life course may lead to improved overall cancer prevention in the general population.

500

TARGETABLE MICRORNAS IN THE COLORECTAL CANCER EXTRACELLULAR MICROENVIRONMENT

1L McKean Baste*, 2S Baker, 1A Klinger, 1G Marsh, 1I Helmers, 1X Zhang, 1E Flemington, 1Z Lin, 2C Salomon, 1D Margolin, 1L Li. 1Ochsner Medical Center, New Orleans, LA; 2University Health Sciences Center, New Orleans, LA; 3University of Queensland, Brisbane, Australia

Purpose of study MicroRNAs (miRNAs) are short non-coding RNAs that are implicated in post-transcriptional regulation of gene expression by affecting stability and translation of mRNAs. The extracellular lymph node stromal cell (LNSC) microenvironment may enhance tumorigenesis via extracellular vesicle (EV) mediated communication of miRNAs. Abnormal expression of miRNAs in human cancers is associated with enhanced tumorigenesis and metastatic potential.

Methods used Total miRNA sequencing was performed on tonsil-derived stromal cells and their EVs, mesenteric LNSCs and their EVs, and 5 well-studied colorectal cancer (CRC) cell lines using Next Generation Sequencing. MicroRNAs overexpressed in LNSCs and their EVs compared to CRC cells were identified using the miRsky approach. miRNA targets were identified using miRTarBase v7.0.

Results & conclusions We found that EVs from CRC cell lines and LNSCs contained a distinct miRNA signature compared to their cell counterparts. We identified 33 miRNAs overexpressed in CRC cell lines, 21 miRNAs overexpressed in LNSCs, and 34 miRNAs upregulated in CRC cell lines EVs compared to lysates. These miRNAs target genes involved in various biological processes, including cell cycle regulation, apoptosis, and metastasis.

Conclusion The miRNA expression profile of EVs from CRC cell lines and LNSCs provides insights into the EV-mediated communication and potential targetable miRNAs for CRC therapy.
further analyzed using in silico prediction models (Diana-miRPath v2.0). MicroRNAs with higher expression in LNSC EVs than CRC cells were compared with known cancer specific pathways in the Kyoto Encyclopedia of Genes and Genomes (KEGG) database and were selectively chosen for tumor cell migration assays.

**Summary of results** In *vitro* testing using a migration assay was performed on the SW620 CRC cell line transfected with two miRNA mimics, miR-130 and miR-155, and compared to regular and transfection reagent controls. Cells treated with the miR-155 but not miR-130 mimic showed significantly increased cellular migration and proliferation compared to the controls (P<0.001). Preliminary *in vivo* experiments using an orthotopic mouse model showed promising tumorigenesis with miR-155 mimic transfected cells compared with control groups.

**Conclusions** We have previously shown that LNSCs and the associated EVs appear to contribute to enhanced CRC tumorigenesis, possibly through EV transfer of miRNAs. Our studies suggest miR-155 mimic transfection enhances CRC progression. Currently, additional miRNAs are under investigation to screen potential targeted therapeutic strategies for human CRC.

**Abstract 502 Table 1** GE with 1 year follow up

<table>
<thead>
<tr>
<th>GE Study</th>
<th>Baseline</th>
<th>1 Year Follow Up</th>
<th>Percentage Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Hour</td>
<td>82.1</td>
<td>75</td>
<td>9%</td>
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<tr>
<td>2nd Hour</td>
<td>64</td>
<td>48.3</td>
<td>25%</td>
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<tr>
<td>3rd Hour</td>
<td>41.2</td>
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<td>39%</td>
</tr>
<tr>
<td>4th Hour</td>
<td>26.7</td>
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<td>64%</td>
</tr>
</tbody>
</table>

**Conclusions** This study shows that most (60%) IG patients can normalize their GE after 1 year of treatment accompanied by improvement in symptoms. However, there is a disparity on the degree of symptom reduction and change in GE. Further research with larger numbers of IG patients and longer follow up will be necessary to address this finding.

**Abstract 503 Does Patient Location (Urban or Rural) Influence Risk Factors and Incidence Rate for 30-Day Readmission for Hepatic Encephalopathy?**

**Purpose of study** Literature suggests that an index admission with Hepatic Encephalopathy (HE) is associated with all-cause readmission in patients with cirrhosis. Recent literature proposes that urban and rural patients may have different morbidity and mortality. We determined the 30-day all-cause readmission rate and risk factors for adults admitted with a principal diagnosis of HE originating from a rural or urban location.

**Methods used** We utilized AHRQ’s 2014 Nationwide Readmissions Database to identify admissions with a principal diagnosis of HE (ICD-9 572.2). Applicable admissions were all adults (age ≥18) from January 1 to November 30, 2014. Patients who died during index admission or with missing covariates were excluded. The 2013 NCHS Urban-Rural Classification System was used to classify if originating from a urban or rural location. All-cause including HE readmissions within 30-days of an index HE admission were analyzed. Statistical analysis was completed with Stata 15 (StataCorp, College Station, TX). Predictors for readmission were determined using a multivariate logistic regression model.

**Summary of results** A total of 20,644 patients met criteria for inclusion with 6,870 all-cause readmissions (33.27%) within 30-days of index admission. The readmission rate from urban (33.68%) and rural locations (30.68%; p-value 0.002) was statistically different. There was no difference in the readmission rate for HE from urban (13.61%) and rural locations (12.95%; p-value 0.34). Risk factors for readmission from rural locations were younger, higher income quartile, and those with CKD present. For patients from urban locations, risk factors for readmission were younger, female, Medicaid insurance, LOS (7 to 14 days), and had CKD present.

**Conclusions** Nearly 1 in 3 individuals admitted for HE will be readmitted. While patients from urban locations are more likely to be readmitted than those from rural areas, the risk factors are similar. Additional research is needed allowing interventions for individuals at higher risk for readmission.
Purpose of study Malignant obstruction of the biliary tree confers a worse outcome. Despite the difference in length of patency between plastic stents (PS) and self-expanding metal stents (SEMS), we lack evidence that one has increased efficacy in bilirubin regression over the other. Understanding the difference is especially important given the procedural risk in this already frail population and the large cost difference between PS and SEMS.

Methods used We retrospectively compared 211 patients with PS or SEMS placed for malignant hyperbilirubinemia to analyze their impact on bilirubin regression.

Summary of results There was a significant decrease in bilirubin regression with both PS and SEMS but no rate difference at the 2 week, 4 week, and 12 weeks (p<0.001).

Conclusions Both PS and SEMS are effective in palliation of malignant hyperbilirubinemia regardless the level of biliary obstruction. SEMS does not confer a faster rate of bilirubin regression compared to PS.

### Abstract 504 Table 1

<table>
<thead>
<tr>
<th>Level of Obstruction</th>
<th>2 Weeks</th>
<th>4 Weeks</th>
<th>12 Weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>Plastic:</td>
<td>Plastic:</td>
<td>Plastic:</td>
</tr>
<tr>
<td>N=96, Mean=0.61</td>
<td>N=62, Mean=0.13</td>
<td>N=60, Mean=0.10</td>
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<tr>
<td>N=66, Mean=0.80</td>
<td>p-value=0.30</td>
<td>p-value=0.71</td>
<td>p-value=0.74</td>
</tr>
<tr>
<td>Distal</td>
<td>Plastic:</td>
<td>Plastic:</td>
<td>Plastic:</td>
</tr>
<tr>
<td>N=50, Mean=0.71</td>
<td>N=35, Mean=0.37</td>
<td>N=36, Mean=0.13</td>
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<tr>
<td>N=38, Mean=0.97</td>
<td>p-value=0.36</td>
<td>p-value=0.12</td>
<td>p-value=0.30</td>
</tr>
<tr>
<td>Mid</td>
<td>Plastic:</td>
<td>Plastic:</td>
<td>Plastic:</td>
</tr>
<tr>
<td>N=12, Mean=0.51</td>
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<td>N=8, Mean=0.02</td>
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<tr>
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<td>p-value=0.56</td>
<td>p-value=0.41</td>
</tr>
<tr>
<td>Hilar</td>
<td>Plastic:</td>
<td>Plastic:</td>
<td>Plastic:</td>
</tr>
<tr>
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<td>N=17, Mean=0.20</td>
<td>N=13, Mean=0.05</td>
<td></td>
</tr>
<tr>
<td>N=16, Mean=0.64</td>
<td>p-value=0.75</td>
<td>p-value=0.41</td>
<td>p-value=0.34</td>
</tr>
</tbody>
</table>

### Abstract 504 Table 2

<table>
<thead>
<tr>
<th>Variable</th>
<th>Metal (n=196)</th>
<th>Plastic (n=105)</th>
<th>Overall (n=210)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean (SD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>6.9 (2.3)</td>
<td>7.2 (2.3)</td>
<td>7.0 (2.3)</td>
</tr>
<tr>
<td>Hemoglobin (Hb)</td>
<td>9.7 (2.3)</td>
<td>9.6 (2.3)</td>
<td>9.6 (2.3)</td>
</tr>
<tr>
<td>Total bilirubin decrease (mg/dL)</td>
<td>8.7 (3.3)</td>
<td>7.6 (2.6)</td>
<td>7.9 (3.2)</td>
</tr>
<tr>
<td>Total bilirubin decrease (mg/dL)</td>
<td>8.7 (3.3)</td>
<td>7.6 (2.6)</td>
<td>7.9 (3.2)</td>
</tr>
</tbody>
</table>

### Abstract 505

#### Purpose of study

Gastrointestinal bleeding is a common cause of hospital admission, with generally agreed upon approaches for resuscitation, triage, and management. Central dogma in management is serial monitoring of hemoglobin/hematocrit. While there is evidence that more restrictive cutoffs for blood transfusion yield better outcomes, there is minimal data available to inform the frequency with which blood levels should be checked. We hypothesized that less frequent laboratory monitoring is associated with fewer transfusions while not affecting time to endoscopic intervention or hospital length of stay.

#### Methods used

This study was a retrospective cohort examination of 860 patients admitted for gastrointestinal bleeding between 2013 and 2017. We excluded patients with hospital length of stay greater than 14 days. We stratified the frequency of complete blood count (CBC) collection to less frequent laboratory monitoring (1–3 in the first 48 hours of admission), intermittently frequent (4–6 in the first 48 hours), and more frequent (>6 in the first 48 hours).

#### Summary of results

The cohort was 45% female with an average age of 62 years. The mean number of CBCs in the first 48 hours was 5.6. 67% of the cohort was transfused; the average amount of blood transfused was 2.6 units. When matched for comorbidity, anticoagulant use, systolic blood pressure, location (ward vs. ICU), hemoglobin, and INR, patients receiving more frequent monitoring were more likely to receive a blood transfusion (0.93 vs. 0.76, p<0.05). Furthermore, when patients were transfused, they received more blood (4 units vs. 2 units, p<0.05). There was no significant difference in time to endoscopic intervention (38.7 hours vs. 38.8 hours), hospital length of stay (5.2 vs. 5.4 days), or mortality (10% vs. 6%), in patients receiving less frequent lab monitoring.

#### Conclusions

More frequent monitoring of hemoglobin was associated with a higher likelihood of blood transfusion while having no effect on time to endoscopic intervention. Furthermore, more frequent monitoring was associated with more total units of blood transfused. These findings were consistent with the hypothesis that less frequent laboratory monitoring is associated with fewer transfusions while not affecting time to endoscopic intervention or hospital length of stay.
when controlling for comorbidities, admission hemoglobin, and vital signs at presentation. The data suggest that patient care might be improved by less frequent blood count monitoring.

**506** NONSELECTIVE INHIBITION OF TYPE 4 PHOSPHODIESTERASES INDUCES GASTROPARESIS IN MICE

W McDonough*, I Aragon, J Rich, JM Murphy, L Abou Saleh, A Boyd, A Kolotova, W Richter. University of South Alabama, Mobile, AL

10.1136/jim-2020-SRM.506

**Purpose of study** Non/PAN-selective inhibitors of Type 4 phosphodiesterases (PDE4s), a group of enzymes that hydrolyze the second messenger cAMP, exert promising therapeutic benefits, such as memory-enhancing and anti-inflammatory effects, but also induce emesis and nausea, curbing their clinical use. The PDE4 family consists of four subtypes/genes (PDE4A to D), each playing unique and non-overlapping roles in the body. This study aimed to identify the specific PDE4s involved in emesis and nausea. While mice are anatomically unable to vomit, PDE4 inhibition in mice induces gastroparesis, which is a well-known cause of nausea and vomiting in humans and was thus used as a correlate.

**Methods used** Gastroparesis was assessed in KO mice deficient in individual PDE4 subtypes and in mice treated with PAN-PDE4 inhibitors, as well as their respective controls. We used a long-term model, in which food accumulated in the stomach of mice fed ad libitum for 3 days, as well as an acute model, in which fasted mice were given a FITC-labeled food bolus by oral gavage, euthanized 30 min later, and FITC/food-retention in the stomach was then measured.

**Summary of results** Treatment with PAN-PDE4 inhibitors increased stomach sizes to twice that of controls without changing the mice’ food intake, suggesting a specific effect of PDE4 inhibition in restricting gastric emptying. Structurally distinct PDE4 inhibitors all induced gastroparesis, indicating it is a class effect. Conversely, YM976, an inhibitor which does not cross the blood-brain-barrier, did not induce gastroparesis suggesting that gastroparesis results from altered neuronal regulation, rather than from PDE4 inhibition in the stomach/periphery. Ablation of PDE4A, B, C or D in the respective KO mice did not induce, nor did it protect the animals from PAN-PDE4 inhibitor-induced gastroparesis, implying that it results from the concurrent inhibition of multiple PDE4s.

**Conclusions** Selective ablation of individual PDE4 subtypes does not induce gastroparesis in mice. Thus, potentially, any of the four PDE4 subtypes may be targeted individually for therapeutic benefits without inducing nausea or emesis. In addition, PDE4 inhibitors that do not cross the blood-brain barrier may also be free of these side effects.

**508** BLOOD TRANSFUSION PRACTICES IN UPPER GASTROINTESTINAL BLEEDING: RESPONSE TO A LANDMARK STUDY

CB Wilhoit*, N Holman, D Rockey. Medical University of South Carolina, Charleston, SC

10.1136/jim-2020-SRM.508

**Purpose of study** Lack of clear evidence in red blood cell (RBC) transfusion during GI bleeding has led to varied recommendations over the years. However, prior studies have provided evidence about appropriate RBC transfusion thresholds, and a ‘landmark’ study published in 2013 provided evidence in patients with upper gastrointestinal (UGI) bleeding. We hypothesized that the response to the evidence would lead to improved RBC transfusion practice at our institution.

**Methods used** We examined RBC transfusion in patients with UGI bleeding who presented to the Medical University of South Carolina from January 2010 through December 2013. We abstracted clinical data including demographic, medical
history, medications, physical examination findings, laboratory data, endoscopic data, and RBC transfusion practices. We considered appropriate RBC transfusion to have occurred when performed for a Hgb <7.0 g/dL.

**Summary of results** 270 patients hospitalized with UGI bleeding had 606 RBC transfusions; 355 transfusions in 107 patients were appropriate, and 251 transfusions in 163 were inappropriate. In 2010, 2011, and 2012, the rates of appropriate RBC transfusions were 61/124 (49%), 92/172 (53%), and 84/142 (59%), respectively. There was a statistically significant difference in appropriate transfusions in 2013 (118/168 [70%]) compared to 2012 (84/142 [59%]), P=0.003, as well as to years 2010–2012 (237/438 [54%], P<0.003).

**Conclusions** The data suggest that there was an improvement in RBC transfusion practices after a landmark study, but also highlight that RBC transfusion practices in UGI bleeding remain imperfect.

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509  **COUNTERING A HEPATITIS A OUTBREAK IN TENNESSEE**

1SJ Soufleris*, 1N Thomas-Gosain, 1B Waters. 1University of Tennessee Health Science Center, Memphis, TN; 2VA Medical Center, Memphis, TN

10.1136/jim-2020-SRM.509

**Purpose of study** A multistate outbreak of hepatitis A virus (HAV) hit Tennessee in late 2017. To date, 2565 cases of HAV have been reported in Tennessee resulting in 1548 (60%) hospitalizations and 21 deaths. High-risk groups (HRG) include recreational drug use, homelessness, chronic liver disease and men who have sex with men. Once identified, HRG should be screened for HAV and vaccinated if not immune. Our aim was to identify HRG patients and increase immunity (defined as HAV immunization or serological immunity).

**Methods used** A database of HRG patients at the Memphis VAMC was created based on ICD-10 codes. Lab and vaccination data from medical records were used to determine HAV immunizations and serologic immunity. Due to universal military HAV vaccination since 1997, Veterans serving after this time were not included in HRG.

**Summary of results** At present, 58.7% of 5130 HRG Veterans are immune. This increased from 54.7% (n=4404) in September 2018 (table 1). The number of HRG Veterans increased over time and many were included in multiple HRG. A higher percentage of patients with chronic liver disease (80.9%) were immune compared to other HRG. 145 HAV vaccinations were given from 10/1/18 to 9/30/19. Multiple interventions were implemented from May 2019 to the present which increased screening and vaccination of HAV Veterans (figure 1).

**Conclusions** Vaccination rates improved in HRG during the study period, however a significant number remain non-immune. Engagement of high-risk patients, improved education of patients and clinicians of the HAV outbreak, and multi-faceted interventions are needed in order to increase vaccination rates.

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510  **SCREENING AND REFERRAL PRACTICES FOR NONALCOHOLIC FATTY LIVER DISEASE BY RACE AND ETHNICITY IN A PRIMARY CARE CLINIC**

R Patil*, PK Nagaraj, H Kuo, G Noel. University of Alabama at Birmingham, Birmingham, AL

10.1136/jim-2020-SRM.510

**Purpose of study** Nonalcoholic fatty liver disease (NAFLD) has become the most common pediatric liver disease in the developed world. Primary care providers are at the forefront of the obesity epidemic and therefore care for many children with obesity-related liver disease. The prevalence of NAFLD varies widely by race/ethnicity, mainly attributed to genetic polymorphisms. Differences in screening and referral patterns by race/ethnicity in the primary care setting have not been studied. This study aims to explore racial differences in screening and referral for NAFLD and potential implications for disease burden in a high-risk patient population.

**Methods used** This retrospective chart review evaluated data from patients aged 5–17 years with BMI ≥85th percentile at the Primary Care Clinic at Children’s of Alabama from 2008 to 2019.
Conclusions Significant differences exist in NAFLD screening and referral practices by race/ethnicity. Although Hispanic patients were known to be at increased risk for NAFLD, they were screened at lower rates than African Americans in our cohort. African Americans, however, were less likely to be referred if they had abnormal screening labs. Awareness of these differences may allow for more intentional efforts to standardize practices such that all patients receive care according to established guidelines.

Hematology and oncology I

Concurrent session

2:00 PM

Friday, February 14, 2020

511 NUCLEAR FACTOR ERYTHROID 2 RELATED FACTOR 2 EXPRESSION IN NORMAL AND CANCEROUS ORAL MUCOSA


Purpose of study This study examines the expression and cellular location of Nuclear Factor Erythroid 2 Related Factor 2 (NRF2) within the head and neck tumor and non-tumor tissue of self-identified Caucasian American and African American patients treated at a safety net hospital. African Americans diagnosed with Head and Neck Squamous Cell Carcinoma (HNSCC) and Esophageal Squamous Cell Carcinoma (ESCC) have a reported average survival rate that is nearly 50% lower than the average survival rate reported in Caucasians Americans in the United States. After controlling for environmental factors such as socioeconomic status, comorbid conditions, stage at diagnosis and increased risk behavior, there continues to be a significant difference in the survival outcomes between racial groups. NRF2 is an antioxidant regulating transcription factor that has been linked to carcinogenesis and decreased responsiveness to chemotherapy. Distinctive NRF2 pathway enrichment has been particularly noted in African American ESCC, however, it is still unclear if similar patterns exist for HNSCC. The aim of this study is to identify the location and degree of expression of NRF2 in HNSCC’s of various grades and to note whether or not any significant differences exist between racial groups.

Methods used In order to examine the degree of expression and the location of NRF2, IHC with anti-NR2 antibody and semiquantitative scoring was performed on FFPE tissue biospecimens that were retrieved via biopsy from distinct laryngeal, oropharyngeal, and oral sites from patients who self-identified as non-Hispanic African American or non-Hispanic Caucasian American.

Summary of results The results revealed a positive correlation between tumor grade and stain intensity with a tendency toward nuclear localization with increased tumor grade. In our sample, there did not appear to be a significant difference in NRF2 expression between racial groups or between current and prior users of tobacco.

Conclusions These findings provide evidence for the benefit of continued research into potentially targeting NRF2 and NRF2 regulators with drug therapies. The increased NRF2 expression and nuclear localization with increased tumor grade, provide further support for NRF2’s role in the progression of carcinogenesis and the decreased response to treatment in advanced HNSCC.

512 MUCOSA-ASSOCIATED LYMPHOID TISSUE LYMPHOMA TRANSLOCATION PROTEIN 1 AS A NOVEL TARGET IN PRECURSOR B-CELL ACUTE LYMPHOBLASTIC LEUKEMIA

Y Mouawad*, J Meyers, E Flemington, F Socolla, H Safah, NS Saba. Tulane University, New Orleans, LA

10.1136/jim-2020-SRM.512

Purpose of study MALT1 is a para-caspase required for BCR-mediated NF-κB activation. The role it plays in precursor B-cell acute lymphoblastic leukemia (B-ALL) remains unknown. We examined the role of MALT1 in B-ALL and the biological consequences of inhibiting its activity.

Methods used MALT1 expression was determined by immunoblot in B-ALL using 17 cell lines. Cell line sensitivity to MALT1 inhibition was tested using two molecules: Z-VRPR-fmk, and MI2. Freshly collected PBMCs from patients in leukemic phase (7 B-ALL, 24 CLL, and 4 CML) and from five healthy volunteers were also tested against serial dilutions of MI2 for 48h.

The proteolytic activity of MALT1 was studied by measuring its ability to cleave its targets.

RNA sequencing was used to determine the changes in gene expression profiling (GEP) following a 24h treatment with Z-VRPR-fmk in 3 highly sensitive B-ALL cell lines. Summary of results MALT1 expression varied between cell lines. Most cell lines were dramatically inhibited by Z-VRPR-fmk, with appropriate controls, independent of the cell-of-origin (pro, pre, mature) or the presence of the Ph chromosome. Ibrutinib-resistant cell lines were amongst the most sensitive to both Z-VRPR-fmk and MI2. Among patient samples, B-ALL showed the highest sensitivity to MI2, followed by CLL, while the rest were resistant.

With the exception of the Burkitt cell line 2F7, no cleavage of MALT1 targets was detected at baseline, nor after proteasomal inhibition with MG-132 or following crosslinking of pre-BCR with anti-IgM in pre-B ALL. The constitutive activation
of MALT1 in 2F7 was effectively inhibited by Z-VRPR-fmk as shown by a marked reduction in target cleavage and an increase in full length proteins.

Out of 39,514 tested genes, there were 160 genes whose expression changed ≥2-fold at P<0.05. Gene Set Enrichment Analysis (GSEA) identified 34 Hallmark and Oncogenic Signatures gene sets relevant to B-ALL that were all downregulated by Z-VRPR-fmk (FDR<10%, and normalized enrichment score (NES)>1.50), mTOR-S6K and TANK-binding kinase 1 (TBK1)-dependent gene signature being most affected.

Conclusions In conclusion, MALT1 plays a critical role in B-ALL survival likely through a novel mechanism that involves mTOR-S6K pathway, independently from pre-BCR/BCR signaling.

514 MAXIMIZING PET/CT UTILITY IN STAGING OF FOLLICULAR LYMPHOMA (FL)
F St-Pierre*, S Broski, T Habermann, T Witzig, Mayo Clinic, Rochester, MN
10.1136/jim-2020-SRM.514

Purpose of study A key issue in FL is the identification of patients who will fail early. We recently reported (Am J Hematology 2019) that bone involvement on FDG-PET/CT predicts early clinical failure. In aggressive lymphomas, PET has replaced the routine need for a staging BMB. There is no such evidence in FL. The goal of this study was to determine the value of PET/CT in determining bone involvement in FL.

Methods used We included 548 patients from the Mayo Clinic Lymphoma Database with newly diagnosed FL grades 1–3A between years 2003–2016, with available BMB results and PET/CT imaging at diagnosis. Bone and spleen involvement on PET/CT, bone SUVmax and SUVmean at L3, and BMB results were recorded and compared.

Summary of results Using BMB as the gold standard, the sensitivity and specificity of PET/CT in detecting bone involvement were 60% and 80%, respectively. We noted that 59 patients had focal bone involvement on PET/CT rather than a diffuse component, and found that 47% of these patients had a negative BMB obtained in the posterior iliac crest. Excluding these patients, the sensitivity and specificity of PET/CT in detecting bone involvement were 53% and 88%, respectively. 29% of patients had evidence of splenic FL involvement on PET/CT. The sensitivity and specificity of spleen involvement on PET/CT in predicting bone involvement by BMB were 55% and 86%, respectively. We recorded SUV data at L3 in the 439 patients who had either a diffuse pattern of bone involvement on PET/CT, or a negative scan. The negative predictive value (NPV) for an SUVmax of <2.0 was 96%, and the NPV for SUVmean <1.4 was 100%. There was no logical cut-off point for a positive predictive value >95%.

Conclusions In newly diagnosed FL, the sensitivity of bone involvement on PET/CT is insufficient for it to routinely replace BMB. However, in patients where the need for BMB at staging is being debated, certain factors on PET/CT can help facilitate this decision. The detection of focal bone lesions on PET can make BMB unnecessary. If both the spleen and bone appear involved on PET/CT, this conveys a specificity >90% for bone involvement, and BMB can likely be avoided. If SUVmax at L3 is <2.0 or SUVmean is <1.4, the BMB will likely be negative, with a NPV >95%.

515 TIME RESTRICTED FEEDING MITIGATES HIGH ADVANCED GLYCAITION END PRODUCTS DIET-ENHANCED TUMORIGENESIS IN A BREAST CANCER MOUSE MODEL
H Karanchi*, B Krisants, L Nogueira, VJ Findlay, DP Turner, Medical University of South Carolina, Charleston, SC
10.1136/jim-2020-SRM.515

Purpose of study Recent evidence implicates AGE (advanced glycation end products) in cancer biology and disparities. AGE induce inflammation and oxidative stress by signaling through receptor for advanced glycation end products (RAGE). Dietary AGE are linked to both increased risk and progression of breast cancer. Overnight fasting duration may be associated
with breast cancer risk and recurrence risk. The purpose of the study is to investigate the link between dietary AGE and intermittent fasting with breast cancer risk and outcomes, in an animal model.

Methods used In order to assess effect of time restricted feeding on tumor progression in breast cancer model, we weaned mice at 3 weeks of age and started them on a high AGE diet. At 8 weeks of age, mice were injected with 0.5x10^6 Met1 cells orthotopically into inguinal gland. Following this, one group of mice had access to high AGE diet at all times, and one group (time restricted feeding) had access to high AGE diet for only 6 hours each day (10am to 4pm). Water was made available at all times in both groups. The duration of the restricted feeding was 4 weeks during which time tumor growth was examined and measured twice weekly by digital calipers.

Summary of results We have shown that circulating and tissue AGE levels are elevated in mice fed high AGE diet. Previous data also show that chronic AGE consumption alters normal mammary ductal tree development, including increased TEB number, size and stromal recruitment. Ductal hyperproliferation and abnormal ductal morphology is also observed. We have also demonstrated that consumption of a high AGE diet accelerates tumor growth in our Met1 orthotopic model. We show here that intermittent fasting in our dietary AGE model reduced mammary tumor progression.

Conclusions Dietary AGE are linked to both increased risk and progression of breast cancer, time restricted feeding mitigates high AGE diet induced progression of breast cancer, findings worthy of further investigation in human studies with potential as a population wide strategy that is practical and affordable to reduce breast cancer risk and improve outcomes.

Summary of results We found that recurrent ovarian cancer patients (3rd- 5th relapse) prospectively treated with ChemoID-guided, high cell kill chemotherapy had an improvement in the median PFS corresponding to 5.4 months (3rd relapse), 3.6 months (4th relapse), and 3.9 months (5th relapse), respectively when compared against historical data. Additionally, we observed that ovarian cancer patients identified as non-responders by ChemoID had 30 times the hazard of death compared to those women that were identified as responders (p<0.001) with respective median survivals of 6 vs. 13 months (p<0.001).

Conclusions The data suggest that the ChemoID drug response assay has the potential to help guide individualized chemotherapy choices to improve ovarian cancer patient outcomes.

Summary of results Both Arbo and the primary MCL cells obtained from the pleural effusion were negative for EBV DNA by qPCR. Flow cytometry showed kappa-restricted cells that were positive for CD5, 19, 20, 22, and 23, and negative for CD2, 3, 7, 10, and 71. FMC7 was positive in Arbo and negative in primary cells, as opposed to CD38 that was negative in primary MCL cells while they were identified in 5.2% of MCL patients. Inhibition of cell growth was seen with ibrutinib at increasing concentrations with an IC50 of ~ 0.4 μM.

Conclusions Arbo’s karyotype was complex contrasting with the normal 46XY karyotype found in the primary MCL cells. The presence of t(11;14)(q13;q32) was confirmed by FISH, additionally overexpression of cyclin-D1 was confirmed by western blot. Whole exome sequencing (WES) was performed on DNA collected from Arbo revealing a total of 148,059 SNPs. Whole exome sequencing (WES) was performed on DNA collected from Arbo revealing a total of 148,059 SNPs. Whole exome sequencing (WES) was performed on DNA collected from Arbo revealing a total of 148,059 SNPs.

Conclusions In conclusion Arbo is a new blastoid MCL cell line that is fully characterized and will be available to the research community.

Supported by a grant from the Ladies Leukemia League, Inc., of the Gulf South Region.
Abstracts

518 CHARACTERISTICS OF MARIJUANA USAGE IN SICKLE CELL PATIENTS
A Roy*, M Konda, A Goel, A Sasapu. University of Arkansas for Medical Sciences, Little Rock, AR
10.1136/jim-2020-SRM.518

Purpose of study Sickle cell disease (SCD) pain is a significant health care issue in the United States which prompts physicians to prescribe opioids. Many SCD patients are using marijuana to help with their pain, anxiety, appetite, mood and sleep. We are still unsure about the medical benefits of marijuana in SCD patients as there are very limited studies done so far. In our study, we sought to examine the characteristics and complications of marijuana usage in SCD.

Methods used The National Inpatient Sample database for the year 2016 was used to identify SCD and cannabis-related disorder (CRD) admissions. ICD-10 codes are used for identifying the SCD patients and also for CRD. Statistical analysis was performed using STATA and univariate and multivariate analyses were performed. The outcomes that are studied included mortality, length of stay, hospital regions and the association of marijuana use with anxiety, mood disorders and the complications of SCD.

Summary of results A total of 37,307 admissions with SCD were identified, out of which 4.09% (N=1526) had cannabis use disorders. The association of cannabis use with in-hospital mortality was found to be not statistically significant. Based on the hospital regions in the US. Cannabis use in SCD was seen more prevalent in South region (44%), then Midwest or north-central (26%), northeast (19%), west (10%), (p=0.003). Also, the median length of stay was less in patients with CRD when compared to patients without CRD (4.88 ± 0.2 vs 5.11 ± 0.03) and likewise cost of stay.

The association of cannabis use was not found to be statistically significant with acute chest syndrome and splenic sequestration. Cannabis use was, however, found to be associated with the vaso occlusive crisis and avascular necrosis (OR=1.02, p=0.003 and OR=1.14, 0.022 respectively). Interestingly, SCD patients with CRD have more risk of developing anxiety (OR=2.32, p=0.000) and also mood disorders (OR=2.5, p=0.001). The difference persisted after adjusting for age, gender, race.

Conclusions Marijuana use is more seen in the southern and north-central regions in patients with SCD. Our study showed that it can cause anxiety and mood disorders. Large randomized control trials have to be done to assess if SCD qualifies for prescription of medical marijuana as it possesses benefits as well as risks.

519 GAMMA AMINOBUTYRIC ACID A RECEPTOR PI SUBUNIT EXPRESSION AS A PROGNOSTIC BIOMARKER FOR COLON CANCER PATIENTS
1T Dobbin*, 2G Maresh, 3H Hallmens, 4X Zhang, 5H Green, 6N Leidenheimer, 7D Margolin, 1L. University of Queensland/Ochsner Clinical School, New Orleans, LA; 2Laboratory of Translational Cancer Research, New Orleans, LA; 3Ochsner Clinical Foundation, New Orleans, LA; 4TSUHSC, New Orleans, LA
10.1136/jim-2020-SRM.519

Purpose of study As a significant contributor to worldwide disease burden, colon cancer (CoCA) is an important target for future innovations in therapies. The extracellular vesicle mediated communication within the lymph node stromal environment has been implicated in the process of cancer progression. Gamma aminobutyric acid (GABA) A receptor pi subunit mRNA has been shown to be upregulated in these vesicles. While GABAA is well established within neurons, the pi subunit has been associated with increased aggression in certain pancreatic, ovarian and breast cancers. We aim to assess the relative protein expression level of the pi subunit (GABRP) as a biomarker for increased risk of recurrence for CoCA.

Methods used The study involves 20 pairs of stage II CoCA patients’ tumors, one set whose tumor did not recur, and one whose tumors recurred either locally or distant. They were matched by age, sex, tumor location, and degree of differentiation. A tissue microarray of both sets was constructed, and immunohistochemistry (IHC) staining for GABRP was performed. These slides were subsequently scanned for digital quantification analysis using Aperio Imagescope and percentage of positive expression of the pi subunit were compared and statistically analyzed between the patient populations using GraphPad Prism 8 software.

Summary of results The presence of GABRP was identified by the specific brown-colored staining of the cytoplasm by IHC staining. Data analysis of the stained microarrays showed increased percentage of positive GABRP expression in the recurred tumor group compared to the non-recurred group with Student t test (69.5%±10.6 vs 59.3%±11.1, p=0.0196).

Conclusions Our results suggest that GABRP could serve as a promising tissue marker for prognosticating CoCA outcomes. GABRP overexpression may contribute to the progression and recurrence of CoCA and may be used as a potential therapeutic molecular target, pending further investigatory in vivo and in vitro experiments.

520 MECHANISMS OF IMMUNE EVASION IN CHEMOTHERAPY INDUCED SENESCENT BREAST CANCER CELLS
A Shihbandi*, JG Jackson. Tulane University School of Medicine, New Orleans, LA
10.1136/jim-2020-SRM.520

Purpose of study We previously showed that patients with TP53 wild-type (WT) breast cancers have dismal survival after chemotherapy. For example, median survival for chemotherapy treated TNBC patients with TP53 WT tumors is 45 months, which contrasts sharply with patients that have TP53 mutant tumors (263 months, p=0.0038). These patients fare the worst because in response to chemotherapy, breast cancer cells that are TP53 WT avoid cell death and persist in the residual disease in a state of arrest termed cellular senescence. Discovering how senescent cells in the residual disease evade immune clearance is imperative to prevent relapse and improve breast cancer response to chemotherapy.

Methods used We used RNA-seq to study the immune contexture after chemotherapy in p53 WT MMTV-Wat1 tumors and human breast cancer cell lines. GSEA was performed to identify enriched pathways following treatment. Tumors from chemotherapy-treated/untreated MMTV-Wat1 mice were harvested, fixed, sectioned, and stained to assess expression of various markers using confocal microscopy.
Summary of results Cells in residual disease following chemotherapy were highly enriched for antigen presentation (p<0.25 FDR). To determine why these tumors were not cleared by the immune system despite evident antigenicity, we examined factors involved in immune suppression. We found a remarkable elevation of immune checkpoint PD-L1 expression in residual disease of TP53 WT tumors. We observed that within chemotherapy-treated tumors, PD-L1 was expressed on the membrane of tumor cells that were negative for senescence markers yH2AX/p21 (p<0.0001). PD-L1 expression persisted in the relapsed tumor, suggesting that the cells that could proliferate and drive relapse were cells that had high PD-L1 expression. This suggests that senescent tumors may be vulnerable to anti-PD-L1 therapy, a rationale supported by an enrichment for genes that predict response to anti-PD-L1 (p<0.25 FDR).

Conclusions PD-L1 was upregulated in TP53 WT tumors following treatment with chemotherapy. PD-L1 expression specifically occurred in non-senescent cells after chemotherapy, and expression persisted in the relapsed tumor. Mammary tumors were enriched for genes predictive of response to immunotherapy.

Infectious diseases I
Concurrent session
2:00 PM
Friday, February 14, 2020

522 A PILOT STUDY OF THE IN VITRO INTERACTION OF FOSFOMYCIN AND MEROPENEM AGAINST METALLO-B-LACTAMASE PRODUCING PSEUDOMONAS AERUGINOSA USING ETEST AND TIME-KILL ASSAY
S Jahan*, H Davis, DS Ashcraft, GA Pankey. UMMC, Jackson, MS
10.1136/jim-2020-SRM.522

Purpose of study Pseudomonas aeruginosa is a nosocomial pathogen containing various resistance mechanisms. Especially difficult to treat are metallo-ß-lactamase (MBL)-producing Pseudomonas. In 2019, Albiero et al showed checkerboard method synergism of meropenem (MER) + tobramycin (FOS) against 10 MBL-producing P. aeruginosa. Our aim was to further evaluate the combination against MBL-producing P. aeruginosa using different methods (Etest and time-kill assay (TKA)).

Methods used Twenty unique MBL-producing P. aeruginosa were obtained from the CDC. FOS + MER MICs were determined in triplicate by Etest and by broth microdilution (BMD) for MER (BMD not recommended for FOS MICs per CLSI guidelines). Synergy testing with FOS + MER was performed in triplicate by our MIC:MIC Etest method and read at 20h. The mean summation fractional inhibitory concentration (ΣFIC) was calculated: synergy ≤0.5; additivity >0.5 -1; indifference >1-4. TKA was read at 0 and 20h, with synergy defined as ≥2 log10 decrease in CFU/ml after 20h by the combination compared to the most active agent alone; additivity, 1 to <2 log10 decrease; indifference, <1 log10 change.

Summary of results Etest MICs (µg/ml) were: MER >32 (all resistant) and FOS 4-512 (20% resistant, based on epidemiologic cutoff of ≤128 for FOS defined by EUCAST). BMD MICs for MER were 8 > >64 µg/ml (all resistant). With Etest, MER + FOS revealed synergy (ΣFICs: all 0.5) in 3/20 (15%), additivity (ΣFICs: 0.7, 1.0) in 2/20 (10%) and indifference (ΣFICs: 1.1-1.9) in 15/20 (75%). TKA showed synergy (log10 change: 2.1 to 2.5) in 5/20 (25%), additivity (log10 change: 1.2, -1.9) in 2/20 (10%) and indifference (log10 change: -0.9 to +1.4) in 13/20 (65%). Concordance between methods was 16/20 (80%).

Conclusions MBL-producing P. aeruginosa is a serious global threat. Synergy of MER + FOS was found in 3/20 (15%)
with Etest and in 5/20 (25%) with TKA. Although only a small number of isolates demonstrated synergy, the authors feel that the Etest MIC:MIC method may be useful to rapidly evaluate other antimicrobial combinations. Any in vitro synergy/additivity may or may not correlate clinically. Testing of additional antimicrobials should be performed.

**523** ANALYSIS OF CSF MULTIPLEX PCR IN A PEDIATRIC POPULATION

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10.1136/jim-2020-SRM.523

**Purpose of study** Analysis of cerebrospinal fluid (CSF) via polymerase chain reaction (PCR) allows for the rapid identification of causative organisms responsible for meningitis.

**Methods used** A retrospective analysis was conducted of a pediatric population with a positive CSF multiplex PCR panel admitted at Children’s and Women’s Hospital, Mobile, AL from 6/1/16 to 8/31/18. Patients with positive findings on CSF multiplex PCR were identified and data was collected via chart review. Patients were grouped by age (less than 30-days-old, 30 to 90-days-old, and greater than 90-days-old). Patients who had multiple CSF multiplex PCR studies performed had only their first encounter included.

**Summary of results** Of the 79 individuals that met the inclusion criteria, the median age was 38 days old (range: 1 day old to 12 years old). 58 patients (73%) were positive for a viral organism with the majority having Enterovirus (64%) followed by HHV6 (19%). A bacteria was identified as a causative agent in 21 patients (27%), with the most common pathogens being S. agalactiae (29%) and E. coli K1 (29%). Cryptococcus neoformans/gattii was not identified in this study. Significant differences were noted between the viral and bacterial groups in CSF protein (p=0.03), CSF glucose (p=0.03), and serum CRP (p=0.003). There were no significant differences noted between the two groups in regards to CSF WBC (p=0.11) and serum WBC (p=0.19). CSF PCR was able to identify 11 bacteria in patients with negative CSF cultures, 3 of which had no antibiotic pre-treatment. Twenty-six of 53 patients (49%) with identified viral pathogens had no CSF pleocytosis in contrast to 9 of 20 patients (45%) with bacterial etiologies. Of these 9 patients, 2 had negative CSF cultures. In patients started on empiric antibiotic therapy, antibiotics were discontinued within 24hrs in 14 of 40 patients (35%) with viral meningitis and de-escalated in 10 of 21 patients (48%) with bacterial meningitis. No patients with a positive viral etiology on CSF PCR were later diagnosed with bacterial meningitis on CSF culture.

**Conclusions** CSF multiplex PCR has demonstrated utility in identifying the etiology of meningitis in children allowing for early discontinuation or de-escalation of empiric antibiotics within 24 hours of PCR results.

**Discussion** To our knowledge, this is the first case of wound botulism reported in the state of Louisiana. Subcutaneous or intramuscular injection of black tar heroin is the primary risk factor for being exposed to botulism in patient’s using IV drugs. Similar to previous cases, our patient presented with vague symptoms that lended to a relatively broad differential of neuromuscular diseases. The diagnosis of botulism is frequently delayed due to higher suspicion for other illnesses on the differential such as myasthenia gravis. The treatment of botulism includes the administration of botulinum antitoxin.

**525** EVALUATION OF A CRYPTOCOCCAL ANTIGEN LATERAL FLOW ASSAY AND THE BURDEN OF CRYPTOCOCCAL DISEASE IN ATLANTA, GEORGIA

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10.1136/jim-2020-SRM.525

**Purpose of study** Cryptococcus neoformans is a major cause of morbidity and mortality among HIV-infected persons and there is scarce data on disease prevalence in the U.S. We sought to determine the prevalence of cryptococcal disease and compare the performance of a cryptococcal antigen (CrAg) lateral flow assay (LFA) versus latex agglutination (LA) test.

**Methods used** All patients from Grady Memorial Hospital in Atlanta, GA who had a serum or cerebrospinal fluid (CSF) sample sent for CrAg LA testing between November 2017 – July 2018 were included. The LFA was performed on all samples by research staff. Rates of disease and agreement between the LA test and LFA were calculated.
Summary of results Among 467 patients, 570 LA tests were performed; 417 on serum and 153 on CSF. Mean age was 44 years, and most were male (69%). Most patients had HIV (79%); median CD4 count was 73 cells/mm³ and 77% were not receiving ART. Cryptococcal testing was done in 53 persons without apparent risk factors. Thirty-two (7%) patients had a positive serum or CSF test. Eight (2%) patients had both a positive serum and CSF LA and LFA assay. While overall agreement between the LA and LFA was substantial to high for CSF (k=0.71) and serum (k=0.93), respectively, there were important discrepancies. Five patients had false-positive CSF LA tests, determined by negative CSF LFA testing, India ink, and CSF cultures. All were treated with amphotericin and fluycytosine with one patient experiencing a severe anaphylactic reaction to amphotericin.

Conclusions We found a moderately high rate of cryptococcal disease and important discrepancies between the LA test and LFA. Clinical implications of our findings include earlier detection and treatment of cryptococcosis, and averting unnecessary treatment of meningitis associated with adverse events.

526 MULTIPLEX POLYMERASE CHAIN REACTION FOR DETECTION OF GASTROINTESTINAL PATHOGENS IN CHILDREN AT THE UNIVERSITY OF SOUTH ALABAMA CHILDREN’S AND WOMEN’S HOSPITAL
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10.1136/jim-2020-SRM.526

Purpose of study Infectious diarrhea is a common pathology in the pediatric population. Improved sensitivity of laboratory diagnostic methods such as multiplex PCR assay (BioFire-Filmarray GI Panel) for detection of potential causative pathogens leads to more rapid diagnoses. The objective of this study was to determine the frequency of infection with different etiologic agents and their possible seasonal patterns affecting children hospitalized with diarrhea at USACWH as determined by BioFire-Filmarray.

Methods used After IRB approval, a retrospective chart review was performed on all pediatric multiplex PCR GI panels obtained from June 2016 to August 2018. The monthly frequency for each of the 22 assay targets was calculated. A descriptive analysis of the data was performed for co-pathogen detection, seasonal patterns, and history of relevant immunizations.

Summary of results A total of 772 assays were performed during the study period at a total cost of $154,000 ($200/test), with a total of 594 positive results. The most commonly detected targets were C. difficile, EPEC, and Norovirus. Approximately 10% of positive C. difficile results were also positive for Norovirus. 45% of positive C. difficile results and 58% of positive EPEC results were positive for at least one other pathogen. 20% of patients who tested positive for Rotavirus were immunized with the Rotavirus vaccine within four weeks of the positive result.

Conclusions Among children admitted to USACWH during the study period, targets detected included viral (32%), bacterial (66%), and protozoan pathogens (2%). A seasonal pattern was observed for Norovirus and Rotavirus infections. There was a correlation in the frequency of detection of Norovirus and C. difficile which was attributed to colonization with C. difficile. In children with symptoms of enteric infection, a positive multiplex PCR assay result for C. difficile or EPEC may not be indicative of true infection, but of colonization. Some positive Rotavirus results may have been due to recent immunization. The development of clinical criteria for the performance of this diagnostic method is recommended in order to maximize its value.

527 REDUCING ANTIBIOTIC USAGE IN HOSPITALIZED CULTURE NEGATIVE YOUNG FEBRILE INFANTS: A QUALITY IMPROVEMENT PROJECT
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10.1136/jim-2020-SRM.527

Purpose of study A collaborative quality improvement (QI) project among residents, hospitalists, infectious disease physicians, nursing, and pharmacy was developed following recognition of the variability in practice and antibiotic usage. The aim of the QI project was to achieve a 10% reduction in 9 months (April 2018 to December 2018) in the mean antibiotic utilization rate (AUR) for culture negative young febrile infants <60 days of age. The aim would be achieved without a 5% increase in hospital readmissions and re-initiation of antibiotics within 5 days of discontinuation.

Methods used The baseline AUR was calculated from retrospective data obtained using specific admit diagnosis codes for febrile infants aged <60 days for a period of 5 months prior to implementing an agreed upon algorithm. The evidence-based algorithm centered on discontinuing antibiotics at 24 hours negative culture and withholding antibiotics with confirmed viral infections in low risk groups. Following the introduction of the algorithm in April 2018, multiple Plan-Do-Study-Act cycles were employed and data was collected to track outcome, balancing, and process measures. Patients that required intensive care unit management or those treated for bacterial infections were excluded.

Summary of results The mean AUR decreased from 14.2 to 11.9 antibiotic days per 1,000 hospital days over the 9-month period (16.2% decrease). As of August 2019, the mean AUR decreased from 14.2 to 9.3 antibiotic days per 1,000 hospital days over a 17-month period (34.5% decrease). The Median length of stay (LOS) decreased from 4 days to 3 days (p<0.05). Overall algorithm compliance among hospitalists and residents was 58%, which was under the target goal of 80%. Readmission rates decreased from 8% prior to algorithm implementation to 3%. No one was restarted on antibiotics once they were discontinued.

Conclusions As a result of implementing an evidence-based clinical pathway, we safely decreased our AUR and length of stay. Despite having 58% compliance with the algorithm, a significant and sustained decrease in AUR was achieved. Improving compliance will likely lead to even further decrease in AUR.

Abstracts
LONG TERM OUTCOMES AMONG PATIENTS WITH TUBERCULOUS MENINGITIS: THE IMPACT OF DRUG RESISTANCE

Purpose of study Tuberculosis meningitis (TBM) is the most fatal form of TB disease, however, there is scarce data on clinical and post treatment outcomes and even less on the impact of multi drug-resistance (MDR). To help fill these knowledge gaps, we conducted a study evaluating predictors of mortality among patients treated for TBM.

Methods used We conducted a retrospective cohort study. Patients treated for TBM at the National Center for TB and Lung Diseases (NCTLD) in Tbilisi, Georgia between 2013–2017 were eligible. For each case, we abstracted clinical, microbiological, laboratory, and radiological data. End of treatment outcomes (cured, completed, lost to follow up, failure, and death) were obtained through the NCTLD database and long-term outcomes (dead or alive) were obtained through the National Death Registry ≥1 year after treatment completion. We compared outcomes among TBM patients with and without HIV and MDR disease.

Summary of results Among 310 admissions for TBM evaluation; 246 had either definite, probable or possible TB and were included in analyses. In regard to demographics, 95 (39%) patients were female, 36 (15%) had HIV, 31 (13%) were hepatitis C antibody positive, and 47 (19%) had a previous history of TB. There were 45 patients with microbiologic confirmation of TBM by a positive CSF Xpert MTB/RIF (n=25) and/or mycobacterial culture (n=35) result. Rifampicin resistance (RR) or MDR status was suspected or confirmed in 29 (12%) patients and 6 (2%) patients were diagnosed with isoniazid resistant TBM. Overall, 73 (30%) people died with 39 deaths occurring during treatment and 34 occurring after treatment. The proportion of death was higher in TBM patients with HIV infection vs. HIV uninfected individuals (56% vs 25%, p<0.001) and among patients with MDR/RR vs. drug sensitive disease (66% vs. 25%, p<0.001).

Conclusions Mortality among patients with TBM is high both during treatment and after treatment. Factors associated with death included HIV infection and MDR disease. Our results highlight the need to follow TBM patients post treatment, target TB prevention in people with HIV and develop new treatment options for MDR TBM.

PRIMARY CARE AND PREP IN TITLE X FAMILY PLANNING CLINICS

Purpose of study Pre-exposure prophylaxis (PrEP) is underutilized by women in the US. Title X family planning (FP) clinics may be ideal settings for PrEP delivery for women, but PrEP integration is currently limited in these settings. Cost concerns are cited as barriers to PrEP delivery in clinical settings that mostly see men. Title X FP clinics are not uniform in the services they provide, as some only provide FP and sexual health care but others integrate FP within primary care services. Thus, cost concerns may vary based on these other services. We examined factors that influence perceptions of costs and resources related to PrEP delivery in Title X FP clinics in the Southern US.

Methods used We used the Consolidated Framework for Implementation Sciences Research (CFIR) to create a web-based survey of Title X FP staff across 18 Southern states from February-June 2018. We used t-tests and unadjusted logistic regression models to compare respondent, clinic, and regional factors and IS Cost and Resources-related survey item responses by whether the respondent’s clinic also provided primary care services.

Summary of results Among 529 respondents from 286 unique clinics, 41% were providers, 40% nurses/other staff, and 17% administrators. Most worked in health departments (67%) and federally-qualified health centers, FQHCs (11%). Primary care services were more common in FQHCs (p<0.0001), urban-located clinics (p<0.01) and clinics in counties with more uninsured residents (p<0.0001) and fewer residents living in poverty (p=0.03). Only 109 (20%) worked in clinics that currently provide PrEP; those whose clinics also provide primary care services were more likely to provide PrEP (26% vs. 17%, p=0.02). Among 420 respondents from clinics not providing PrEP, those whose clinics had primary care services were more likely to respond that they had the necessary financial resources (p<0.01) and staffing (p<0.01) for PrEP implementation compared to those without primary care.

Conclusions Among Title X FP clinics in the South, current PrEP provision was higher among clinics that also provide primary care. Clinics that provide primary care services (such as FQHCs) had lower perceived cost and resource barriers to PrEP and therefore may be key avenues to expand PrEP delivery for women in the US.
to determine factors associated with diagnosis of true UTI, defined, liberally, as >10,000 colony forming units (CFU)/mL of a pathogenic organism in urine culture. We also analyzed urine culture and susceptibility results to determine optimal empiric therapy. We developed a clinical pathway to optimize UTI diagnosis and treatment.

Summary of results We included 1339 children in the analyses. Children who had 1+ or greater leukocyte esterase (LE) (Odds Ratio [OR] 3.1, 95% CI 1.8–5.4), nitrates (OR 18.2, 95% CI 8.9–37.5), >10 white blood cells (WBC) on UA (OR 3.3 95% CI 2.1–5.4) had greater odds of having UTI (all p<0.001). Fever and dysuria were not associated with UTI (both p>0.2). Limiting empiric therapy to patients with one or more of the above criteria would reduce unnecessary antibiotic prescriptions by 11% while only missing 3% of UTIs. Enterobacteriacae (E. coli 90%, K. pneumoniae 6%) accounted for 85% of UTIs, and only 8% of those infections were resistant to 1st generation cephalosporins, revealing that cephealxin or cefazolin would be the optimal choice for empiric therapy.

Conclusions Over-diagnosis of UTI leads to unnecessary antibiotic use. Our data reveals clear diagnostic parameters to increase the likelihood of accurate diagnosis and provides evidence for using 1st generation cephalosporins as treatment. By creating a clinical pathway, we aim to use this data practically in both the ED and inpatient settings.

532 INCIDENCE AND RISK FACTORS FOR ZYGOMYCOSIS IN RENAL TRANSPLANT PATIENTS

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Purpose of study Due to necessary immunosuppression, renal transplant patients are at increased risk for zygomycosis, which is a rare, invasive, mold infection attributable to the class Zygomycetes. Diabetes, neutropenia, deferoxamine therapy, and immunosuppressive medications have been associated with increased risk of zygomycosis in studies of solid organ transplant recipients. To focus on renal transplant patients, the United States Renal Data System (USRDS) was queried to determine the incidence and risk factors for zygomycosis.

Methods used All renal transplant patients of the USRDS from 1988–2015 were queried for a diagnosis of zygomycosis after the first transplant date using ICD-9 and ICD-10 codes. We defined proven zygomycosis by a histopathologic or fungal stain procedure code within 7 days of the diagnosis code. For demographic and clinical diagnosis risk factors, the adjusted relative risk (aRR) was calculated by logistic regression controlling for person years at risk.

Summary of results Of 306,482 renal transplant patients, 222 had codes consistent with proven zygomycosis (0.07%). The incidence of zygomycosis increased until 2000 (peak 17.6 per 100,000 person years), and subsequently declined. Hispanic ethnicity (aRR=1.45, 95% confidence interval [CI] 1.00–2.09), age 65 years or greater (aRR=1.64, [CI] 1.12–2.39), cadaver or other donor type (aRR=2.41, [CI] 1.65–3.52), and tacrolimus (aRR=2.09, [CI] 1.51–2.91) were associated with increased risk. Comorbidities associated with decreased risk of zygomycosis included female sex (aRR=0.68, [CI] 0.51–0.90), other race compared to white race (aRR=0.51, [CI] 0.44–1.43), mycophenolate mofetil (aRR=0.67, [CI] 0.50–0.90), azathioprine (aRR=0.53, [CI] 0.37–0.78), and iron overload (aRR=0.36, [CI] 0.37–0.85).

Conclusions Differences in knowledge base for providers regarding HPV and the HPV vaccination were not statistically significant, but differences in attitudes about the HPV vaccine and timing of initiation differ between genders. Despite increasing evidence that initiation and/or completion of the HPV vaccine does not increase sexual risk-taking behaviors, this attitude continues to persist among male providers. Strong provider recommendation is an important factor in initiation and completion of the HPV vaccine series regardless of the gender of the provider. Future studies may be aimed at correlating the responses of those who believe the HPV vaccine increases risky sexual behaviors with initiation and completion rates and/or reducing implicit provider biases.
Neurology and neurobiology
Concurrent session
2:00 PM
Friday, February 14, 2020

533  NIVOLUMAB-INDUCED MYASTHENIA GRAVIS SYNDROME IN A PATIENT WITH HEPATOCELLULAR CARCINOMA

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10.1136/jim-2020-SRM.533

Background Nivolumab, an immunoglobulin G4 monoclonal antibody, works as a checkpoint inhibitor preventing programmed cell death receptor and ligands from binding to T cells. Its use has been approved for treatment of stage IV malignancies; however immunologically related adverse effects ranging from autoimmune hemolytic anemia, sarcoidosis to myasthenia gravis have been reported. Autoimmune adverse events can be controlled by discontinuation of nivolumab along with steroid treatment vs plasmapheresis.

Case report A 63-year-old male with medical history of hepatocellular carcinoma recently started on nivolumab chemotherapy presented with a one-month history of bilateral eyelid drooping and double vision. He first noted mild left sided eyelid drooping after his second infusion. After third nivolumab infusion, patient noted worsening of ptosis progressing to bilateral eyelid drooping and double vision. An ice pack test showed improvement in levator function and in diplopia 2–3 minutes after its application. The patient was evaluated one month after his last/third nivolumab injection and he reported that his symptoms had steadily improved shortly after discontinuation of chemotherapy. He did not report shortness of breath, dysphagia, muscle weakness or fatigue at any period during this time. Labs were unremarkable except for abnormalities in liver function tests. Serum testing for MG included AchR and MUSK antibodies which were negative. A single fiber EMG was also negative for MG. Chest imaging did not reveal thymoma. He was prescribed low dose steroid and taper and alternate chemotherapy was pursued.

Conclusion This is the first case report to our knowledge of a patient with hepatocellular carcinoma developing MG-like symptoms induced by nivolumab. Symptoms were identified early, followed by cessation of chemotherapy which played a role in halting symptom progression. The symptoms of ptosis were described after the second infusion, and worsened after the third, but symptoms were not associated with detectable antibodies. This suggests further scope in investigating for unknown antibodies that can be involved in neuromuscular junction diseases and possible therapeutic targets.

534  CEREBRAL GAS EMBOLISM AFTER HYDROGEN PEROXIDE INGESTION

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10.1136/jim-2020-SRM.534

Introduction Hydrogen peroxide (H2O2) is often used as an antiseptic agent due to its oxidizing properties. Accidental ingestion of H2O2 is uncommon and may present with gastric rupture. Very few cases in literature have described severe consequences such as gas embolism. We report the case of a patient who suffered multiple gas embolic strokes from H2O2.

Case report A 60-year-old woman was brought to the hospital after she attempted a ‘stomach cleanse’ and ingested around 8 ounces of 35% H2O2. She had sudden deterioration in mental status and required intubation. CT head showed loss of gray-white matter differentiation. MRI brain confirmed multiple bilateral cerebral and cerebellar infarcts suggestive of gas embolic strokes. There were concerns of pneumomediastinum on CT chest, however, endoscopy did not reveal any perforation. Video EEG was suggestive of severe encephalopathy. The patient was extubated after a week. She continued to have cognitive dysfunction and dysphagia. She was discharged to a skilled nursing facility for further rehabilitation.

535  ANXIETY ATTACKS WITH FEATURES SUGGESTING FOCAL SEIZURES SHOULD BE EVALUATED IN THE EPILEPSY MONITORING UNIT

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10.1136/jim-2020-SRM.535

Introduction Pathologic anxiety can manifest as persistent anxiety with or without periods of exacerbation or as paroxysmal anxiety attacks occurring spontaneously or in response to external or internal stimuli. Most anxiety attacks are purely
psychogenic, but some may involve epileptic mechanisms. As illustrated by our case, some anxiety attacks warrant a referral to the epilepsy monitoring unit (EMU) to determine if they are focal seizures.

**Case report** A 37-year-old woman with anxiety attacks was evaluated in the EMU. The attacks were highly stereotyped — mild anxiety, lightheadedness, and palpitations occurred abruptly and resolved after about 30 seconds. Routine EEGs and brain MRI with epilepsy protocol were normal. She had a febrile convulsion at the age of 3 and a generalized seizure at the age of 30 while being treated for systemic lupus erythematosus (SLE) in the hospital. Phenytoin was started and she took this drug for 3 years. She also had behavioral issues in the past but all resolved with remission of SLE. One year prior to EMU admission, she started having 4–8 anxiety attacks per month. Topiramate was added to phenytoin; the latter was discontinued later. Topiramate 50-mg bid reduced the frequency of her attacks to 1–2 per month and she only had attacks perimenstrually. During 3 days of videoEEG monitoring in the EMU, 8 anxiety attacks were recorded, each lasting about 30 seconds. All attacks were focal seizures with epileptiform discharges appearing on the left temporal scalp region when the patient was experiencing mild anxiety, lightheadedness, and palpitations. Heart rate acceleration was also noted during the attacks. Topiramate was increased to 100-mg bid on the day of discharge; the patient has been seizure-free since then.

**Conclusion** In a patient with anxiety attacks, the index of suspicion that the attacks are focal seizures is high if: (1) the attacks are brief, (2) the degree of anxiety during the attacks is mild, (3) the symptoms are highly stereotyped, and (4) the patient is normal between the attacks from a psychiatric standpoint. To determine whether anxiety attacks are focal seizures or not, the attacks must be recorded and analyzed in the EMU.

**Summary of results** 18 of the 20 (90%) nations with the highest burden of brain and nervous system cancer deaths were in the highest two quartiles for GDP per capita, and 8 out of 20 (40%) were in the highest quintile. All 20 nations were European; 12 of the 20 (60%) were in Eastern or Southeastern Europe. 19 of the 20 (95%) nations with the highest burden of brain and nervous system cancer YLD were in the highest quintile for GDP per capita, 7 of the 10 (70%) wealthiest nations on earth were among the top 20 nations in terms of YLD.

**Conclusions** Our analysis shows a direct correlation between a nation’s wealth and morbidity and mortality due to brain and nervous system cancer. Although mortality from brain and nervous system cancer was highest throughout Europe, YLD was greater in wealthier Western and Northern European nations. Lower reported morbidity and mortality in developing nations may be due to underdiagnosis or poverty associated mortalities which forestall cancer related death. Nevertheless, these patterns are changing along with improving global health. Many such factors will increase demand for neurosurgical care for brain and nervous system cancers.

**Abstract 536**

**THE GLOBAL BURDEN OF BRAIN AND NERVOUS SYSTEM CANCER AND INCREASING DEMAND FOR NEUROSURGICAL CARE**

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**Purpose of study** Central nervous system cancers comprise two percent of all diagnosed cancers, but contribute disproportionately to morbidity and mortality. Diagnosis of brain and nervous system cancers require advanced neuroimaging. Optimal treatment is complex and expensive and often requires definitive or emergent neurosurgical care. The Global Burden of Disease (GBD) is an international collaboration and the largest comprehensive investigation of global health disease burden ever conducted. We hypothesized that higher income nations would show a greater burden of brain and nervous cancer morbidity and mortality.

**Methods used** Using GBD data, we abstracted death by cause and prevalence of years lived with disability (YLD) for brain and nervous system cancer for every nation in the world. Using data from the Global Health Data Exchange, we determined GDP per capita for each nation. We constructed bar graphs to visually correlate the global burden of intracranial cancer with GDP per capita. We looked at other characteristics of nations with particularly large and small disease burden, including region, quality of healthcare system, and access to neurosurgical care.

**Abstract 537**

**POST-STREPTOCOCCAL POSTERIOR REVERSIBLE ENCEPHALOPATHY SYNDROME**

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**Introduction** The clinical radiographic of posterior reversible encephalopathy syndrome (PRES) as a sequel of a streptococcal infection is rare. We report a previously healthy adolescent with new onset seizures who was found to develop PRES with hypertension associated with post-streptococcal glomerulonephritis (PSGN).

**Abstract 537 Figure 1** Initial MRI findings
Case report A 15-year old female who developed facial swelling 5 days after initiating antibiotics for streptococcal infection presented in status epilepticus. She was noted to be consistently hypertensive. Brain MRI showed bilateral increased T2/FLAIR signal with restricted diffuse within the cortical and subcortical areas of occipital and posterior frontal lobes (figure 1). Work-up confirmed recent streptococcal infection with elevated antistreptolysin O (510 IU/mL; N: 0–200) and DNase-Ab titers (970 IU/mL; N: 0–310). She had typical findings of PSGN with low C3 level (11 mg/dL; N 82–163) and nephritic urine with hematuria, proteinuria and red cell casts. Antibiotic and steroid therapy combined with aggressive management of the hypertension led to a rapid recovery. Repeat MRI 1 week after admission revealed near resolution of increased signaling (figure 2). C3 level normalized progressively with normalization 5 weeks after onset.

Conclusion The onset of PRES after streptococcal infection in previously healthy children is rare. In this setting, we believe that the neurologic manifestations of PRES are the result of the hypertension related to PSGN.

RESOURCE


539 VEGETABLE-INDUCED HYPERKALEMIC PERIODIC PARALYSIS

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10.1136/jim-2020-SRM.539

Case report Periodic paralyses are a group of neuromuscular conditions presenting with episodes of flaccid weakness stemming from mutations in ion channel-encoding genes. Examples of these include hypokalemic, thyrotoxic, and hyperkalemic variants. With the prevalence of the hyperkalemic variant estimated to be 1:200,000, its infrequency makes it a challenging diagnosis.

Here we describe a 7-year-old female initially diagnosed with basilar migraines who had been hospitalized on multiple occasions. Since age 4, she had 5–10 minute episodes of extremity stiffness followed by lethargy and unsteady gait lasting several days. Prior evaluation included unremarkable MRI head and spine, EEG, and lumbar puncture. Patient was trialed on cyproheptadine, which yielded reduction in event frequency.

During recent hospitalization, patient was lethargic and hypotonic with difficulty bearing weight and poor truncal strength. By day 2 of admission, these symptoms improved. Potassium decreased from 3.6 to 3.1 mmol/L. Chart review revealed elevated potassium levels (6.3 and 5.6 mmol/L) on two of her previous hospitalizations. Due to a potential
correlation between hypotonic episodes and increased potassium levels, an in-depth history was obtained. Family history was negative for migraines and paroxysmal weakness. It was elicited that the patient preferred to eat 3–5 cups of broccoli and drink 2–3 cups of milk per day. Conservative estimates indicate that this intake accounted for over 2 g of the 2.3 g daily allowance of recommended potassium. Previously, a genetic panel sent to rule out paroxysmal dystonia was negative. Due to concerns regarding a clinical diagnosis of hyperkalemic periodic paralysis (HPP), genetic testing for mutations in the SCN4A gene were obtained. Results returned positive for a pathogenic variant, c.4774A>G (p.Met1592Val), of the SCN4A gene.

Prevention of acute episodes of HPP includes dietary modifications, carbonic anhydrase inhibitors, and thiazide diuretics. Future treatment plan for this patient includes dietary modifications and starting acetazolamide to reduce frequency of episodes.

### Conclusion

**Dysphagia** is usually a co-existing complaint in patients with neurological disorders such as stroke, multiple sclerosis and others. It can also be misdiagnosed as functional when present with psychiatric comorbidities. A positive family history in addition to objective exam findings of ptosis and dysphagia is required to clinically diagnose OPMD. In Louisiana, there is a prevalence of autosomal recessive conditions in the Acadian population, and genetic testing should be considered in evaluation of patients presenting with dysphagia without a clear etiology. Muscle biopsy is indicated in individuals with suspected OPMD who have two normal PABPN1 on genetic testing. A thorough family history along with approach to identify when genetic testing is indicated can guide in diagnosis and management of these patients.

**Abstracts**

**540 CONCUSSIONS: THE DIAGNOSED, THE MISDIAGNOSED, AND THE UNDIAGNOSED**

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**Purpose of study** Concussions are one of the most common forms of traumatic brain injury (TBI). Unfortunately, current research suggests that mild TBIs cannot always be accurately diagnosed via routine neurological examination. A lack of an objective method to assess concussions on the field raises concern for second-impact syndrome (SIS), which can lead to permanent brain damage or even fatality. The purpose of this study is to expose the prevalence of mild traumatic brain injuries among high school football players and to explore the possibility of implementing eye tracking performance as an objective way to assess cases of potential concussion.

**Methods used** This multi-part study first surveyed high school athletes at Frenship High School in Lubbock, Texas. Student athletes filled out a baseline concussion survey, then assessed their eye tracking performance via the EyeGuide Focus, a 10-second test that involves visually tracking a continuous, figure 8 shape. During the sports season, when there is concern of mild TBI during the game, the athlete will be reassessed with the Eye Guide Focus. This test will be compared to their baseline score to determine if there is a decline in eye tracking performance, which raises concern for a concussion injury.

**Summary of results** The survey examined 836 high school athletes, 97 (11.6%) of whom were diagnosed with a concussion during the sports season. Among the 306 responding high school football players, 47 (15.4%) were diagnosed with a concussion by a physician. Respondents who started playing sports at age 5 or younger were 2.549 times more likely to report at least one non-diagnosed concussion when compared to those who began playing at age 12 or older (x^2 = 5.217, p = 0.022).

**Conclusions** Survey data showed a significantly high incidence of concussion among youth football players, and was especially concerning for incidence of non-diagnosed concussions in youth athletes. With the establishment of a baseline EyeGuide Focus score in youth athletes, the goal of this study is to implement eye tracking performance as a mainstream form of quickly and accurately detecting concussions.

**541 A CASE OF OCULO PHARYNGEAL MUSCULAR DYSTROPHY PRESENTING AS DYSPHAGIA**

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Case Oculopharyngeal muscular dystrophy (OPMD) is a genetic disorder caused by PABPN1 gene mutations in GCN trinucleotide causing polyalanine repeats. Inherited in autosomal recessive or autosomal dominant manner, symptom onset is usually in adulthood. OPMD is characterized by extracocular muscle weakness causing bilateral ptosis, and weakness of pharyngeal muscles causing dysphagia for solids followed by liquids. Patients often have secondary complications such as malnutrition and aspiration pneumonia. Weakness of proximal/limb girdle muscles and tongue muscles can occur; patients may require gait-assistance as disease progresses, and are sometimes described as with ‘wet-sounding voice’. From genetic anticipation, these patients can suffer from neuropathy, cognitive decline, and psychiatric symptoms with earlier onset of disease.

**Case report** We report a fifty-four-year old woman who presented with dysphagia for solids that progressed to dysphagia for liquids. Speech showed minimal to no slurring. An esophagogastroduodenoscopy revealed dilated esophagus. Family history was positive for OMD in relatives from more than two successive generations. Genetic testing was positive for >11 GCN trinucleotide repeats in PABPN1 gene. Speech therapy and GI follow up was recommended for patient, along with genetic counseling. Surgical corrective therapies for ptosis and dysphagia are available, however symptoms recur a few years after correction.

**Conclusion** Dysphagia is usually a co-existing complaint in patients with neurological disorders such as stroke, multiple sclerosis and others. It can also be misdiagnosed as functional when present with psychiatric comorbidities. A positive family history in addition to objective exam findings of ptosis and dysphagia is required to clinically diagnose OPMD. In Louisiana, there is a prevalence of autosomal recessive conditions in the Acadian population, and genetic testing should be considered in evaluation of patients presenting with dysphagia without a clear etiology. Muscle biopsy is indicated in individuals with suspected OPMD who have two normal PABPN1 on genetic testing. A thorough family history along with approach to identify when genetic testing is indicated can guide in diagnosis and management of these patients.
RAPID SPREAD OF ACUTE SPHENOID SINUSITIS TO THE Cavernous Sinus and Pituitary Gland

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10.1136/jim-2020-SRM.542

Introduction Cavernous sinus lesions can present with ophtalmoplegia, visual loss, ocular pain, Horner’s syndrome, or sensory loss in the ophthalmic or maxillary nerve territory. Except for pituitary apoplexy, lesions of the pituitary gland do not usually spread rapidly to the cavernous sinus. Sphenoid sinus infection or inflammation can spread intracranially and cause meningitis, subperiosteal, epidural, subdural, or cerebral abscess, preseptal or orbital cellulitis, or cavernous sinus thrombosis.

Case report A 62-year-old man with 1-week history of right frontal headache and 2-day history of diplopia presented with right eye ptosis, mydriasis, and ophthalmoplegia consistent with right third nerve palsy. He was already taking amoxicillin-clavulanate for sinusitis for 3 days. Past medical history was significant for patent foramen ovale and hypertension. He had no fever or other signs of infection. Basic blood tests showed diabetes mellitus. Stroke workup, including head CT and CTA, was unremarkable. He developed a right sixth nerve palsy the next day. MRI of the brain, orbits, and pituitary showed increased T2 signal and contrast enhancement in the right cavernous sinus, pituitary gland, and sphenoid sinus mucosa. He received intravenous ampicillin-sulbactam for 3 days followed by amoxicillin-clavulanate. Intravenous hydrocortisone was administered for 5 days with complete resolution of headache. He still had diplopia when he was discharged after 8 days. He completed a 10-day course of antibiotics and prednisone taper at home. Third nerve palsy resolved completely after 1 month and sixth nerve palsy after 2 months. Follow-up MRI of the brain and pituitary after 3 months showed significant reduction in pituitary swelling, absence of contrast enhancement in the cavernous sinus, and clearing of sphenoid sinusitis.

Conclusion Although the diagnostic approach was initially focused on finding the cause of the pituitary and cavernous sinus lesion, the resolution of ophthalmoplegia and MRI lesion suggests that right sphenoid sinusitis has spread rapidly to the pituitary and cavernous sinus. Intracranial extension of infection or inflammation should be suspected in patients with unresolved sinusitis, persistent headache, and focal neurologic signs.

Belly dancer’s dyskinesia (BDD) is an extremely rare condition consisting of involuntary and repetitive rhythmic movements of the abdominal wall, an appearance which resembles belly dance. It is frequently associated with abdominal pain. BDD is often associated with spinal and diaphragmatic pathology, prior surgery or trauma and medications. Very few pediatric cases have been reported, all of which were secondary to other conditions, and to our knowledge, no idiopathic cases of BDD have been reported in children.

Case report A 14-year-old female presented to ED with episodic painful, intermittent involuntary movements of the abdomen for 6 months without any fever, emesis or psychiatric history. This patient had normal vital signs, physical exam, laboratory work up and imaging, including ultrasound of the abdomen and MRI of the spine. BDD was suspected based on clinical basis and self-recorded video of the episode. A trial of oral clonazepam showed remarkable improvement in symptoms.

Discussion/Conclusion Limited literature and rarity of this syndrome often leads to delay in diagnosis and treatment. A thorough history and physical exam is necessary as there are no standardized tests available for diagnosis. Anti-epileptics, benzodiazepines and anti-psychotics have been used to treat this condition with varying success.

Nutrition & dietary supplements

Concurrent session

Friday, February 14, 2020

EFFECT OF MACRONUTRIENTS ON METABOLIC PARAMETERS AND REMISSION OF TYPE 2 DIABETES

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10.1136/jim-2020-SRM.544

Purpose of study Compare the effects of High Protein(HP) vs High Carbohydrate(HC) diets with energy restriction on weight loss, body composition (lean(LM) and fat mass(FM)), metabolic parameters and remission of Type 2 Diabetes (T2D).

Methods used The study is a randomized clinical trial comparing a HP(30%protein, 40%carbohydrates, 30%fat) diet vs HC (15%protein, 55%carbohydrates, 30%fat) diet in obese T2D subjects recruited from the Memphis area and performed at the UTHSC Clinical Research Center. Obese T2D African American and Caucasian men and women ages 20–65 years meeting study criteria were recruited and placed on the HP or HC diet for 6 months(mo) with food provided weekly. T2D was determined at baseline using the Oral Glucose Tolerance Test(OGTT) with the criteria of fasting glucose≥126 mg/dl and/or 120 min glucose≥200 mg/dl and HbA1C>6.5%. Remission of T2D was determined with the OGTT(fasting glucose≤126 mg/dl and 120 min glucose≤140 mg/dl) and HbA1C<6.5% after 6 mo on the diets. Metabolic parameters including weight, Cardiovascular Risk Factors (CVR) (blood pressure, lipids), insulin sensitivity(IS), inflammatory markers (IM) were determined at baseline and at 6 mo. DXA was used to evaluate percent LM and FM. Statistical Analysis: Data was analyzed using Wilcoxon signed-rank and Wilcoxon rank-sum tests.

Summary of results Both HP and HC diet groups had significant improvement in IS, but the HP improvement was more significant and all obtained remission of T2D; whereas, the HC group did not. Both the HP and HC diet groups had...
significant weight loss; however, the HC diet group lost significant FM and LM, whereas, the HP diet group only lost significant FM. Both groups had significant improvement in CVR (BP, lipids, CRP) and IM; however, the HP group had a more significant improvement in CRP and IM than the HC group.

Conclusions The HP diet is more effective (100%) in remission of T2DM than the HC (33%) diet. The study shows that remission of T2DM can be obtained by a macronutrient diet that limits calorie intake leading to weight loss and improvement in CVR.

Our results suggest that LM preservation in the HP diet may be more important than total weight loss in the remission of T2D to NGT, possibly due to the high insulin sensitivity of muscle cells.

**EPHEDRINE CONTAINING NUTRITIONAL SUPPLEMENT CAUSING NSTEMI**

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10.1136/jim-2020-SRM.545

**Introduction** According to the most recent National Health and Nutrition Examination Survey, nearly 40% of adults had obesity, which is the highest rates ever documented by NHANES.\(^1\) Given the limitations of diet and exercise, an estimated 13.2% of American adults have tried commercial weight-loss supplements. We report a case of NSTEMI associated with ephedrine containing nutritional supplement in a young and otherwise healthy adult.

**Case presentation** Patient is a 35-year-old Caucasian with no significant past medical history who initially presented with new onset palpitation. The patient reported taking a ‘fat burning nutritional supplement’ that morning for weight loss. Upon presentation, patient was tachycardic with HR of 130/min, temp. of 98°F, RR 14/min, BP 120/57, and SpO\(_2\) of 98% in room air. Examination of the pulmonary and cardiovascular system was unremarkable except for tachycardia. EKG showed sinus tachycardia and no ST segment or T-wave abnormality. Lab values showed: WBC, 17300/\(\mu\)L; potassium, 2.4 mEq/L; Chloride, 107 mEq/L, bicarb, 15 mEq/L; BUN, 8.1 mg/dL; creatinine, 1.6 mg/dL; blood glucose, 276 mg/dL; Lactic acid 10.7 mmol/L; Troponin I of 0.86 (Normal high for Lab 0.45). Other labs and imaging studies of CTA was unremarkable. The patient was admitted and received multiple boluses of crystalloid and replacement of electrolytes. The main metabolic effects are hyperglycemia, hypokalemia, and lactic acidosis apart from its cardio stimulatory effects.

The above case demonstrates the potentially life threatening complication such as NSTEMI due to unregulated use of nutritional supplements containing ephedrine.

**THE TRANSITION PHASE OF NUTRITION: A PRAGMATIC APPROACH IN ELBW INFANTS**

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10.1136/jim-2020-SRM.546

**Purpose of study** There are no guidelines for the transition phase (TP) of nutrition. Hence, the delivery of protein (P) and calories can be inconsistent. Aim: To assess if our current method of delivering P & C during TP of nutrition in ELBW infants is optimal.

**Methods used** A retrospective review of ELBW infants born from 2014–16 at the University of Mississippi NICU was performed. TP was defined as the period when the enteral feeds (EF) were increased from 30 ml/kg/day up to 120 ml/kg/day while TPN was weaned (Total fluids goal (EF+TPN) was 150 ml/kg/d with a goal of 3.5–4 g/kg of protein and 100–110 kcal/kg/d of calories. Infants were started on 100 ml/kg/d of fluid and a goal of 4 g/kg/d of P in TPN after birth. Dextrose and lipids (IL) were advanced based on their tolerance. EF were started with breast milk (BM) and advanced by 10–20 ml/kg/d and was fortified to 24 cal/oz when the EF were >50 ml/kg/d. Poor growth defined as a difference in Z score >-1 from the beginning of TP to the end of TP.

**Summary of results** 123 ELBW infants were evaluated for TP nutrition. About 68% received ≥100 Kcal/kg/d of C and 76% received ≥3.5 g/kg/d of P during TP. BM was fortified to 24 cal/oz @ ≤80 ml/kg/d in 46% of the infants. IL were discontinued at a mean enteral volume of 96 ±16 ml/kg. No poor growth was noted for WEIGHT and only 8% had poor head growth in the cohort by the end of TP. Infant characteristics for the target P shown in the figure 1.

**Conclusion** The majority received the target goals of C &P and all maintained good weight growth with our current method of TP nutrition. Earlier fortification of BM & later discontinuation of IL may allow even a greater number of infants to receive the target P & C and maintain normal growth.
### Abstract 547

**PREMATURE INFANT FECAL ELASTASE QUANTITIES WITH AN EXCLUSIVE HUMAN MILK DIET**

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10.1136/jim-2020-SRM.547

**Purpose of study** Elastase is essential for the breakdown of fat micelles to aid absorption of fatty acids at the intestinal mucosa. We hypothesize that preterm infants fed an exclusive human milk (HUM) diet will have improvement in fecal elastase quantities from initiation of feeds to attainment of full, fortified enteral feeds.

**Methods used** Prospective, observational study of n=22 preterm infants born between 24–34 weeks gestation with BW <1250 g fed HUM. Fecal samples were collected during trophic feeds (early) and at full, fortified enteral feeds (late). Fecal elastase quantities were measured using Pancreatic Elastase ELISA per product protocol. Time points were compared using an unpaired 2-tailed t-test for each infant.

**Summary of results** Table 1 shows descriptive statistics of enrolled infants. Late samples’ fecal elastase concentration were significantly higher in comparison to Early Samples (p=0.0055).

**Conclusions** Fecal elastase concentrations increase in preterm infants fed a HUM diet after obtaining full enteral feeds at 34 weeks PMA. Further investigations comparing growth velocities in preterm infants fed a HUM diet to stool elastase quantities may elucidate the relationship of a HUM diet and growth.

<table>
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<tr>
<th>Abstract 547 Table 1 Enrolled infant demographics</th>
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<tr>
<td>% Male</td>
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<tr>
<td>Gestational Age (weeks)</td>
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<tr>
<td>Birth Weight (g)</td>
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<td>Time to Full Feeds (days)</td>
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**Abstract 547 Figure 1** Fecal elastase quantities at early (DOL 7) vs late (34 weeks post menstrual age, PMA) time points.

### Abstract 548

**COMPARISON OF GROWTH AND NUTRITION OUTCOMES OF PRETERM INFANTS (1250–1500 GRAMS BIRTH WEIGHT) WHO RECEIVED HUMAN MILK-BASED HUMAN MILK FORTIFIER VS BOVINE-BASED HUMAN MILK FORTIFIER**

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10.1136/jim-2020-SRM.548

**Purpose of study** To compare the growth and nutrition outcomes of preterm infants 1250–1500 grams (g) birth weight (BW) fed human milk-based human milk fortifier (HHMF) vs bovine milk-based HMF (BHMF) in the NICU.

**Methods used** Retrospective cohort study comparing HHMF vs BHMF in preterm infants 1250–1500 g BW receiving mother’s milk supplemented with donor milk. Growth z-scores were calculated using Fenton 2013 curves. Nutrition outcomes included days to full feeds (130 mL/kg/day) and parenteral nutrition (PN) days. Secondary outcomes included NEC, intestinal perforations, CLD, ROP, PDA, severe IVH, and late onset sepsis. Comparisons were adjusted for BW.

**Summary of results** Among 150 infants, there were no differences in race, sex, or Apgar scores. HHMF fed infants were born earlier, had lower BW, and higher% of SGA infants at birth compared to BHMF (table 1). HHMF infants had higher growth velocity, weight z-scores, and FOC at discharge compared to BHMF fed infants. HHMF group had less SGA infants at discharge after adjusting for BW (p=0.06). There were no differences between groups in mean days on PN, days to full feeds, or secondary outcomes.

**Conclusions** Despite being younger and smaller at birth, HHMF fed infants went home at a similar postmenstrual age (PMA) and had less postnatal growth failure than BHMF infants. This study demonstrates that HHMF diet is associated with improved growth outcomes for infants 1250–1500 g BW.

<table>
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<th>Abstract 548 Table 1 Growth and nutrition outcomes</th>
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<td>Parameters</td>
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<tr>
<td>Mean ± SD</td>
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<td>Gestational age at birth (wks)</td>
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<td>SGA at birth– n(%)</td>
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<td>Length of stay (days)</td>
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<td>PMA at discharge (wks)</td>
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<td>Growth velocity (g/day)</td>
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<td>Discharge wt z-score</td>
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<td>Discharge length z-score</td>
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<td>Discharge FOC z-score</td>
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<td>SGA at discharge– n(%)</td>
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CHARACTERIZING ADVENTUROUS EATING IN CHILDREN: SOCIODEMOGRAPHIC, FEEDING BEHAVIOR, AND CHILD WEIGHT GAIN CORRELATES

1A Paul*, 2EM Bergner, 3J Gollins, 4R Shypailo, 5A Miller, 6L Muneg, 7M Pesch, 8Alabama College of Osteopathic Medicine, Mobile, AL; 2Appugliese Professional Advisors, North Easton, MA; 1University of Michigan, Ann Arbor, MI

10.1136/jim-2020-SRM.549

Purpose of study Adventurous eating in adulthood has been associated with increased dietary variety and healthy body mass index, however little is known about correlates of adventurous eating in children.

Methods used Data were collected at three time points: Baseline (age 4 years), Time point 1 (age 6 years), Time point 2 (age 8 years). At each time point mothers completed questionnaires and anthropometrics were measured. At baseline and Time point 1, children participated in observational eating tasks. Statistical analysis was done using cluster analysis.

Summary of results Two clusters were identified: Adventurous eaters and Non-adventurous eaters. Being an adventurous (vs. non) eater at time point 1 was correlated with greater child surgery, dietary variety, ability to delay gratification and maternal pressure to eat. Being an adventurous (vs. non) eater was associated with greater maternal restriction at time point 1. Adventurous eating was not associated with child body mass index z-score, or prospective weight gain.

Conclusions Adventurous eating is correlated with child temperament traits that are associated with seeking novel experiences. There also may be maternal influence on child adventurous eating. Adventurous eating was not associated with cross-sectional or prospective body mass index z-score. We hope that this study will help to open new doors into the topic of adventurous eating to provide a better clinical approach when evaluating childhood eating behaviors.

MID-UPPER ARM CIRCUMFERENCE IN 5 YEAR OLD FORMER PRETERM INFANTS IS CORRELATED WITH BMI, WEIGHT-FOR-LENGTH, BONE MINERAL CONTENT, AND BONE MINERAL DENSITY

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10.1136/jim-2020-SRM.550

Purpose of study Preterm infants are at risk for long-term metabolic complications. There are no studies which have evaluated mid-upper arm circumference (MUAC) as a tool for assessment of bone health when compared to dual-energy X-ray absorptiometry (DXA) scans. We examined the relationship of MUAC measures with growth parameters and bone health in former preterm infants at age 5.

Methods used As part of a longitudinal cohort study, 31 preterm infants were identified and evaluated at 5 years of age. Measurements including weight, length, MUAC, and DXA were obtained. CDC Z-scores were used for all variables except DXA measures of lean and fat free mass. All DXA measures were sans-head. Linear regression and Pearson’s correlation coefficient (r) were used to assess bivariate associations.

Summary of results 31 former preterm infants (gestational age 28.0 ± 2.2 weeks, birth weight 889 ± 216 grams) were evaluated at age 5.3 ± 0.2 (mean ± SD). MUAC Z-scores (−0.82 ± 0.9) were significantly correlated with Z-scores for weight-for-length, BMI, bone mineral content (BMC), Height- and Age-Adjusted BMC (HAZ), bone mineral density (BMD), and fat-free mass (table 1). The correlation between MUAC Z-scores and BMD HAZ Z-scores was not found to be significant.

Conclusions MUAC can be an informative assessment of nutritional status and bone health in former preterm infants, as compared to BMI and DXA scans.

SIBLING RIVALRY OR SOMETHING MORE: AN INTERESTING CASE OF MALNUTRITION

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10.1136/jim-2020-SRM.551

Case report Nutritional deficiencies are uncommon in children in the United States due to government programs and fortification of common foods. While the American Academy of Pediatrics supports exclusive breastfeeding until six months of age, children who are exclusively breast fed are at risk of these nutritional deficiencies if not properly supplemented, especially if the family follows a restrictive diet. In our case, a 12-month-old exclusively breastfed twin male, ‘Twin A,’ was directly admitted from his Primary Care Provider’s office for severe protein-calorie malnutrition with concomitant severe anemia discovered on routine screening. The patient’s mother was strictly vegan, a Jehovah’s Witness, and also breastfeeding the patient’s twin brother, ‘Twin B.’ Neither twin received any supplemental vitamins or minerals and while the family had tried to introduce baby foods, the patient began to refuse these shortly after their initiation.

On admission, Twin A’s weight was 5.5 kg (Z-score of -5) with a hemoglobin of 4.1 g/dL and iron studies confirming iron deficiency anemia. Other notable labs included a low 25-hydroxy-vitamin D level (4.5 g/dL), hypocalcaemia (8.6 mg/dL), along with a markedly elevated serum alkaline phosphatase (1,010 unit/L) and parathyroid hormone level (271 pg/mL). An osseous survey revealed findings consistent with rickets for which he was given Vitamin D replacement with a one-time
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Stress. The family refused blood transfusion per their religious beliefs but did consent to IV iron infusions. Patient was discharged home after clinical improvement with well-defined nutrition goals. He has since followed up in multiple clinics, all with good documented weight gain and normalization of labs.

Due to nutritional issues for Twin A, Twin B was evaluated for anemia, vitamin D deficiency, and rickets, but was found only to have mild anemia. Mother was also evaluated and found to have low weight for an adult, mild anemia, low vitamin D level, but normal B12 levels.

This case highlights not only the importance of proper nutritional and dietary counseling in the primary care setting starting at childbirth, but also touches on the importance of understanding different belief systems and anticipating challenges that may arise when caring for unique populations.

552 FEEDING ON A SCHEDULE AND APPETITIVE TRAITS OF PREMATURE VERSUS TERM INFANTS

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10.1136/jim-2020-SRM.552

Purpose of study For term infants, feeding on a schedule is not recommended because it ignores infant hunger and fullness cues, decreases expression of these cues, and increases the risk for overfeeding. Feeding on a schedule is the norm, however, for premature infants in the neonatal intensive care unit (NICU). It is important to determine if scheduled feeding continues after discharge, and whether premature infants display less responsiveness to food cues and to satiety as compared to term infants. We hypothesize that parents of premature infants will report more feeding on a schedule, and their infants will exhibit less responsiveness to food and satiety, as compared to term infants.

Methods used Data for this analysis were obtained from infants enrolled in studies evaluating early life predictors of growth. Questionnaires to assess feeding practices and infant food and satiety responsiveness were administered to parents of term infants (2-37 weeks gestational age) at 3 months of age, and of premature infants (25-32 weeks gestational age) at 3 months corrected age. Analyses of covariance were used to compare scheduled feeding, and infant food and satiety responsiveness, among term versus premature infants, adjusting for weight-for-age Z score and race.

Summary of results Data from N=29 premature and N=77 term infants were included in this analysis. Compared to term infants, parents of premature infants reported more feeding on a schedule (p<0.001), and their infants displayed less food responsiveness (p=0.003), but no difference in satiety responsiveness in adjusted models.

Conclusions Results support the hypothesis that parents of premature infants continue to use scheduled feeding after discharge home, and their infants display less responsiveness to food cues, as compared to term infants. Future research should examine whether scheduled and non-responsive feeding practices predict a more rapid rate of weight gain for premature infants, as they do in term infants, and whether this association is at least partly mediated via reduced display of infant hunger and fullness cues. Ultimately, knowledge of feeding practices used by parents of premature infants will support the development of educational programs to optimize feeding and growth after discharge.

Perinatal medicine I
Concurrent session
2:00 PM
Friday, February 14, 2020

553 LARGE-SCALE ANALYSIS OF SERUM BIOMARKERS IN PRETERM INFANTS AND THE DEVELOPMENT OF BPD

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10.1136/jim-2020-SRM.553

Purpose of study Bronchopulmonary dysplasia (BPD) is a chronic lung disease often seen in premature infants. Previous work has shown that liberal fluid regimens resulting in hypotension increase the risk of BPD. The goal of this project is to determine if common biomarkers that contribute to fluid balance such as glucose, albumin, sodium, hemoglobin and creatinine are associated with BPD.

Methods used Infants born with BW<1800 g were identified from a NICU database from Jan 2014-Dec 2018. Lab data was downloaded and CRIB2 scores were calculated to account for baseline severity of illness; patients were categorized by BW and hour of life. ANOVA, linear and logistic regression analyses were done to compare serum glucose, albumin, sodium, hemoglobin and creatinine between BPD vs non-BPD infants.

Summary of results Over 700,000 data entries from 605 patients during their entire hospital stay were obtained. 70,896 values were selected representing the serum sodium, glucose, albumin, hemoglobin (Hb), and creatinine levels between BPD vs non-BPD infants.

Conclusions Results support the hypothesis that parents of premature infants continue to use scheduled feeding after discharge home, and their infants display less responsiveness to food cues, as compared to term infants. Future research should examine whether scheduled and non-responsive feeding practices predict a more rapid rate of weight gain for premature infants, as they do in term infants, and whether this association is at least partly mediated via reduced display of infant hunger and fullness cues. Ultimately, knowledge of feeding practices used by parents of premature infants will support the development of educational programs to optimize feeding and growth after discharge.

Conclusions Given these findings, serum glucose may have an impact on lung disease development in preterm infants. Further studies must be undertaken to determine the safest glucose range depending on GA, BW and severity of illness without affecting growth. The next step is to perform a case-control study to eliminate confounding variables. If the same result is found, the phenomenon of ‘glucotrauma’ can be further explored.
PROTECTIVE ROLE OF ADENOSINE MONOPHOSPHATE-ACTIVATED PROTEIN KINASE ALPHA IN HYPEROXIA-INDUCED EXPERIMENTAL BRONCHOPULMONARY DYSPLASIA

AL Elsaie*, BS Shivanna, AS Shrestha, RR Menon. Baylor College of Medicine, Houston, TX; Baylor College of Medicine, Sugarland, TX

Purpose of study Bronchopulmonary dysplasia (BPD) is the most common chronic lung disease of preterm infants and hyperoxia is a major risk factor for this disease. Histopathologically, BPD is characterized by alveolar simplification (fewer and larger alveoli). Our studies showed that hyperoxia exposure increases lung adenosine monophosphate-activated protein kinase alpha (AMPKα) activation in neonatal mice. Whether this alteration is a compensatory or contributory phenomenon in hyperoxia-induced experimental BPD is unknown. Therefore, we hypothesized that lung AMPKα activation protects against hyperoxia-induced experimental BPD in neonatal mice.

Methods used C57BL/6J wild-type (WT) male and female mice pups were housed in air (21% FiO2, normoxia) or 70% O2 (hyperoxia) for 14 d while they are injected intraperitoneally (i.p.) with the AMPKα agonist, aminoimidazole-4-carboxamide ribonucleotide (AICAR), or the vehicle daily through postnatal days (PND) 1 to 14. Lung tissues were harvested on PND7 or PND14 to determine lung AMPKα activation and development, respectively. AMPKα activation was determined by immunoblotting, whereas alveolar development was evaluated by radial alveolar counts (RAC) and mean linear intercepts (MLI).

Summary of results At PND7, AICAR administration increased phosphorylated AMPKα protein levels, indicating that the compound activated AMPKα in our experimental conditions. Hyperoxia-exposed mice had a decrease in RAC and increases in MLI indicating that their alveoli were fewer in number and larger in diameter, respectively, when compared with normoxia-exposed mice. Interestingly, AICAR treated mice had increased alveolar development at basal conditions (normoxia exposure). Further, AICAR treatment decreased hyperoxia-induced alveolar simplification.

Conclusions These findings support our hypothesis that AMPKα signaling mitigates hyperoxia-induced experimental BPD in neonatal mice. We propose that AMPKα is a potential target for the development of new therapies for BPD.

INTRANASAL INSTILLATION OF THYROID HORMONE (T3) IMPROVES ALVEOLAR DEVELOPMENT IN A MURINE BPD MODEL

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Purpose of study Bronchopulmonary dysplasia is characterized by impaired alveolar development and varying degrees of fibrosis. Tri-iodothyronine (T3) has been shown to reduce lung fibrosis in adult mouse models. We hypothesized that pulmonary delivery of T3 improves alveolar development in the newborn mouse model of hyperoxia exposure.

Methods used Newborn C57BL/6 mice (6–10/group) were exposed to either air (21%) or hyperoxia (85%) from postnatal day 3 (P3) to day 14 (P14), while receiving either saline or T3 (0.1 mcg/g weight) intranasally daily. At P14, lung mechanics were evaluated on FlexiVent followed by collection of inflated lungs for lung morphometry by mean linear intercepts (MLI) and radial alveolar count (RAC).

Summary of results Hyperoxia exposure reduced lung compliance and increased resistance in saline-treated mice. This increase was prevented in T3-treated hyperoxia-exposed mice. T3-treated mice in air also showed increased compliance and...
Abstracts

556 COMBINATION ANTIRETROVIRAL THERAPY INDUCED CHRONIC INFLAMMATION CAN ADVERSELY AFFECT PLACENTAL ARCHITECTURE AND LEAD TO ADVERSE PREGNANCY OUTCOMES
N Arora*, VE Duncan, S Boppana, W Britt. University of Alabama at Birmingham, Birmingham, AL
10.1136/jim-2020-SRM.556

Purpose of study Combination antiretroviral therapy (cART) in pregnant women living with HIV has been shown to prevent perinatal HIV infection. Although generally considered to be safe, we are investigating an interaction between mitochondrial damage associated with nucleoside reverse transcriptase inhibitors that could lead to placental damage and poor pregnancy outcomes. Using, histopathological, and biochemical methodologies we will assess the contribution of inflammation induced by cART in placental samples, ex vivo choric explant system and in relevant trophoblast cell lines.

Methods used We propose to analyze placentas collected from a multicenter cohort (HIV ZIP) study. These include 150 exposed to both HIV and cART and 50 unexposed placentas. To assess chronic inflammation tissue will be assayed by RT-qPCR and qPCR for mtDNA, PCR array with target genes for the signature of mitochondrial damage and a set of genes that define a damage associated molecular patterns (DAMP) response.

Summary of results Preliminary data from the morphometric analysis of five random medium power fields of 10 cases and 7 controls as depicted in the attached image show a statistically significant decrease in syncytiot knots and villous area.

Conclusions We believe that findings from our study could provide an explanation for the phenotypic variability of outcomes of pregnancy in HIV infected women who are on cART during pregnancy and potentially identify new avenues to limit adverse outcomes of pregnancy in this population.

Abstract 556 Figure 1

557 INTRANASAL INSULIN REDUCES LONG-TERM IMPAIRED NEURODEVELOPMENTAL OUTCOME FOLLOWING HYPOXIC-ISCHEMIC BRAIN INJURY IN NEWBORN RATS
1N Dankhara*, 1JW Lee, 1L Ojeda, 1Y Pang, 1AJ Bhatt, 1L Fan. 1University of Mississippi, Jackson, MS, 2University of Mississippi Medical Center, Jackson, MS
10.1136/jim-2020-SRM.557

Purpose of study There is a critical need for additional therapies for hypoxic-ischemic (HI) encephalopathy (HIE) to improve survival and decrease morbidities. Intranasal insulin (lnsulin) administered immediately following HI exposure in P10 rats improves neurobehavioral outcomes and reduces ipsilateral brain damage at P11. The objective of the current project was to test the hypothesis that lninsulin provides long term neuroprotection against HI brain injury in neonatal rats.

Methods used At postnatal day 10 (P10), Sprague-Dawley rat pups were randomly divided into four groups: HI+lnsulin (Ins); HI+Vehicle (Veh); Sham+Insulin; Sham+Veh, with an equal male/female ratio. Pups either had HI exposure by permanent ligation of right carotid artery followed by 90 min of hypoxia (8% oxygen) or sham surgery followed by room air exposure. Immediately after HI or Sham, pups received either intranasal recombinant human insulin (25 µg) or an equivalent volume of Veh (Phosphate buffer solution) in each naris, followed by 4 more doses every 24 h. The Sham+Veh served as control. A blinded observer performed neurobehavioral tests at P21-25. Statistical analysis was performed via two-way ANOVA followed by the Holm-Sidak method. The sample size was determined to find a difference of 22% between means with the power of 85% and significance of p<0.05.

Summary of results Compared to the corresponding shams, pups in HI+Veh did, and HI+Ins did not have statistically significant poor weight gain, delayed right eye-opening, poor motor function during beam walking test, impaired motor & sensory integration during vibrissae forelimb test (P≤0.001). For all outcomes, there was a statistically significant difference between pups from HI+Veh and HI+Ins. Only male pups in HI+veh had reduced working memory during the Y Maze test (P=0.001) compare to Sham+Veh and which was improved in pups from HI+Ins. (n=4 pups/sex/group).

Conclusions lninsulin prevents HI induced poor weight gain and long-term neurobehavioral outcomes in rat pups with HI brain damage, thus has the potential to be a promising non-invasive therapy to improve outcomes of newborns with HIE.
Purpose of study To evaluate the association between RBC transfusion and mortality in infants with HIE, after accounting for illness severity and baseline hemoglobin.

Methods used Retrospective observational cohort study at 2 hospitals in Atlanta, GA. We included infants ≥1800 g at birth with moderate-to-severe HIE born from 1/1/08 to 12/31/13. We measured study exposures in the first 96 hours after birth and assessed survival until hospital discharge. We used Poisson regression with robust standard errors and Cox models to evaluate the association between number of RBC transfusions and mortality. We used standard covariate adjustment as well as propensity scoring (PS) with inverse probability of treatment weighting (IPTW) to address confounding by indication for RBC transfusion.

Summary of results Among the 132 included, 23% (95% CI 16–31) of infants received at least one RBC transfusion. In univariable analysis, each additional RBC transfusion was associated with increased mortality (RR 1.37, 95% CI 1.20–1.55). In multivariable analysis using 4 different models, each RBC transfusion was independently associated with mortality (RR estimates across models 1.14–1.19, each with P<0.05) and in the PS IPTW model, the RR of mortality per each RBC transfusion was 1.30 (95% CI 1.26–1.34). Similar findings were observed in survival analyses. Baseline hemoglobin was not associated with mortality, but was the factor most strongly associated with RBC transfusion.

Conclusions Among infants with moderate-to-severe HIE, RBC transfusion is associated with a higher risk of mortality. As severity of anemia was not associated with mortality, more restrictive RBC transfusion approaches may be beneficial in this population and such approaches warrant additional study.

Abstract 558 Table 1 RBC transfusion and mortality

<table>
<thead>
<tr>
<th>Factor-Multivariable Analyses</th>
<th>Bivariable, RR mortality (95% CI)</th>
<th>Multivariable, RR mortality (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1, n=132</td>
<td>Model 2, n=131</td>
</tr>
<tr>
<td>RBC transfusion (per each one), n=132</td>
<td>1.37 (1.29–1.55)</td>
<td>1.19 (1.07–1.32)</td>
</tr>
<tr>
<td>Severe HIE, n=132</td>
<td>12.2 (3.83–39.2)</td>
<td>11.3 (3.52–36.5)</td>
</tr>
<tr>
<td>Epinephrine in DR, n=131</td>
<td>4.18 (1.75–9.99)</td>
<td>1.28 (0.47–3.52)</td>
</tr>
<tr>
<td>Fluid administration in</td>
<td>1.57 (0.71–3.49)</td>
<td>0.56 (0.26–1.20)</td>
</tr>
<tr>
<td>DR, n=131</td>
<td>0.72 (0.59–0.88)</td>
<td>0.97 (0.76–1.24)</td>
</tr>
<tr>
<td>5 min Apgr (per 1 point increase), n=130</td>
<td>1.04 (0.92–1.18)</td>
<td></td>
</tr>
<tr>
<td>Hemoglobin (per 1 g/dL increase), n=131</td>
<td>1.04 (0.92–1.18)</td>
<td></td>
</tr>
</tbody>
</table>
Conclusions CHOs decrease Ko indole synthesis, enhance tili-
mycin production and increase Ko-induced enterocyte apop-
tosis. In infants colonized with Tox+ Ko, an increase in luminal
CHOs, as would occur with CHO malabsorption, could increase Ko pathogenicity.

Purpose of study Determine whether optimizing antenatal diet,
with butyrate supplementation or a high fiber (HF) diet, can
reduce severity of colitis in offspring. Butyrate is a short-
chain fatty acid that has been shown to enhance intestinal
barrier function, regulate intestinal mucosal immunity and
reduce inflammation in in vitro studies. Butyrate can levels
be increased by ingestion of a HF diet or certain probi-
otics. Therefore, we hypothesize that consuming butyrate or
a HF diet prenatally will reduce the severity of colitis in
offspring.

Methods used Mating pairs of C57BL/6 mice were fed 1%
butyrate supplementation, high fiber (HF) diet or regular diet
(control) throughout pregnancy. Pups were fed a regular diet
after weaning and acute (3% dextran sodium sulfate, DSS for
(control) throughout pregnancy. Pups were fed a regular diet
butyrate supplementation, high fiber (HF) diet or regular diet
had no effect on severity of acute colitis and had a
mixed effect on chronic colitis (reduced DAI score but no
effect on colon length). Our results suggest that protection by
antenatal butyrate may be microbiome-dependent. Antenatal
diet may impact fetal/neonatal gut development by several
potential mechanisms, including vertical transmission of the
maternal microbiome to the offspring and epigenetic effects of
butyrate.

Purpose of study A nationwide shortage of cardiology in
medically underserved areas (MUA) poses challenge to per-
forming advanced congenital heart disease (CHD) screening
requiring echocardiography, resulting in transfer of neonates to
distant regional Level III/IV NICUs. Telemedicine has been uti-
лизована в педиатрической популяции для расширение доступа к мед
с помощью телемедицины, но использование телемедицины для
стандартные значения требуют телемедицины в уровнях II или III NICU. Телемедицина широко использует
как инструмент, позволяющий расширять доступ к медицинскому
услугам в удаленных регионах.

Summary of results Over 4 years, telemedicine was used to
screen 43 infants for CHD. 16 infants (37%) had significant
findings on tele-echo that required follow up with conven-
tional echo, either as an outpatient at regional level IV NICU or an outpatient setting, was measured using intraclass correlation. Descriptive statistics were computed for
demographic and clinical variables.

Abstract 651 Table 1 Correlation between tele-echo and conventional echo findings

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Tele-Echo Findings</th>
<th>Did Infant require transfer to level IV? Y/N</th>
<th>Conventional Echo Findings done either inpatient or outpatient</th>
<th>Correlation between Tele-Echo and Conventional Echo Findings</th>
<th>Intervention Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Persistent small PDA, PFO</td>
<td>N</td>
<td>Resolved PDA, Small PFO</td>
<td>Strong</td>
<td>N/A</td>
</tr>
<tr>
<td>2</td>
<td>PFO vs ASD, PPS</td>
<td>N</td>
<td>True Fenestrated ASD</td>
<td>Strong</td>
<td>No</td>
</tr>
<tr>
<td>3</td>
<td>Moderate Septal Hypertrophy, Mild Ventricular Hypertrophy</td>
<td>Y</td>
<td>Severe HOCM, Severe LVOTO</td>
<td>Strong</td>
<td>Propranolol</td>
</tr>
<tr>
<td>4</td>
<td>Mild Concentric Hypertrophy, Mild MR</td>
<td>N</td>
<td>Resolved Hypertrophic Cardiomyopathy</td>
<td>Strong</td>
<td>No</td>
</tr>
<tr>
<td>5</td>
<td>AS, Possible CoA</td>
<td>Y</td>
<td>AS, CoA</td>
<td>Strong</td>
<td>Surgical Repair</td>
</tr>
<tr>
<td>6</td>
<td>Large PDA</td>
<td>Y</td>
<td>Large PDA, Small VSD</td>
<td>Moderate</td>
<td>PDA Coiling</td>
</tr>
<tr>
<td>7</td>
<td>Small VSD</td>
<td>N</td>
<td>Small VSD</td>
<td>Strong</td>
<td>No</td>
</tr>
<tr>
<td>8</td>
<td>PDA, Bicuspid Aortic Valve, VSD</td>
<td>N</td>
<td>PDA, Bicuspid Aortic Valve, VSD</td>
<td>Strong</td>
<td>No</td>
</tr>
<tr>
<td>9</td>
<td>Moderate Size PDA, Dilated Left Atrium</td>
<td>N</td>
<td>PDA, Mild CoA</td>
<td>Moderate</td>
<td>Surgical Repair</td>
</tr>
</tbody>
</table>
ABERRANT GLUCOSE CONTROL NOT FREE WATER INCREASES RISK OF BRONCHOPULMONARY DYSPLASIA IN NEONATES: CASE CONTROL STUDY

R Mohan*, J Kim, DC McCumin, D Anzueto, L Winter, CL Blanco. UT Health Science Center at San Antonio, San Antonio, TX

10.1136/jim-2020-SRM.562

**Purpose of study** Bronchopulmonary dysplasia (BPD) affects up to 15,000 VLBW infants annually with subsequent high morbidity. Hyponatremia has been reported to have a detrimental effect in lung disease due to fluid imbalances, but the effect of glucose has yet to be elucidated. We hypothesize that aberrant glucose control, not sodium, increases the incidence of BPD.

**Methods used** Case control matching was done from a database of 605 infants using the Matchit package for propensity score matching from the R statistical environment. BPD was the grouping variable and gestational age, birthweight and gender were the matching variables. ‘Nearest neighbor’ was the matching method, 1:1 as the ratio and caliper distance was set at 0.1. In total, 98 BPD cases were matched to 98 non-BPD cases. Post-match balance testing showed no significant differences for GA, BW or gender between the groups.

**Summary of results** We collected glucose (n=10,484), sodium (n=7,253), albumin (n=943), and creatinine (n=7,196) values during the hospital stay in all cases and controls. We found differences in median glucose (mg/dL) of BPD cases (87.0, IQR 74–100) vs controls (85.0, IQR 72–98) and median sodium (mEq/L) throughout hospital stay (140.0, IQR 137.5–142.5 vs 140.4, IQR 137.9–142.9, p=0.02, respectively); albumin and creatinine were similar. Glucose measured within 72 hours of life (HOL) was higher in BPD (median=92.4, IQR 76–108.8) vs controls (85.8, IQR 69.9–101.7, p<0.01), max glucose was higher (125.0, IQR 105–145 vs 117.0, IQR 98.1–135.9, p<0.01) and number of glucose values (>100 vs >125, p<0.05). Demographic characteristics and key morbidities were similar. After adjusting for CRIB2, IUGR, antenatal steroids, maternal diabetes, NEC and sodium, higher serum glucose remained associated to BPD (OR=1.04, CI=1.01–1.08, p=0.01), especially in the first 72 HOL (OR 1.03, CI=1.01–1.05, p<0.01) while sodium levels did not. Fluid, glucose and sodium intake adjustments are underway.

**Conclusions** We found that glucose control has a larger effect on BPD than sodium, more so in the first 72 HOL. Whether fluctuations in glucose measurements or fluid intake have an effect remains to be determined. Understanding the appropriate glucose targets that promote growth while decreasing the risk of BPD are needed.

Pulmonary and critical care

Concurrent session

2:00 PM

Friday, February 14, 2020

ROUTINE USE OF NONSTEROIDAL ANTI-INFLAMMATORY DRUGS (NSAID) IS EFFECTIVE, SAFE AND DOES NOT LEAD TO HIGHER RISK OF BLEEDING AND RENAL FAILURE WHEN USED POSTOPERATIVELY IN PEDIATRIC PATIENTS

T Li*, R Mehta. Medical College of Georgia, Augusta, GA

10.1136/jim-2020-SRM.564

**Purpose of study** Nonsteroidal anti-inflammatory drugs (NSAIDs) are great alternatives to opioids for excellent pain relief while avoiding CNS side effects like respiratory depression, nausea/vomiting, dependency, etc. However, during the post-operative period, some of the commonly used NSAIDs, such as ibuprofen and ketorolac, have increased risks of bleeding and renal dysfunction. We sought to determine the effectiveness of NSAIDs and their related side effects compared to...
Abstracts

opioids as well as evaluate the risk of bleeding complications and renal dysfunction related to the use of NSAIDS in postoperative pediatric patients.

Methods used A prospective observational study of patients <18 years old who underwent surgery at the Children’s Hospital of Georgia have been so far recruited. Written informed consent were obtained. Patient and or parents were asked to complete a survey on perception of their pain management and related side effects for up to 3 days after surgery. A retrospective data on amount, frequency, and side effects of different analgesic medications were collected. Postoperative data points were compared, and a multivariate analysis was performed to evaluate the effectiveness of NSAIDS in pediatric postoperative pain management.

Summary of results The first two days post-operatively, for 43 consented patients, survey scores did not show significant differences in pain management or well-being between patients scheduled for NSAIDs compared to opioids. However, patients given opioids reported more side effects in comparison to NSAIDS: 100% of patients given opioids reported one or more side effects compared to 32% of patients given NSAIDS (P=0.004).

Conclusions No differences in pain management were observed between patients with scheduled opioids vs. scheduled NSAIDS. Routine use of NSAIDS along with acetaminophen and reduce dose of opioids appear to be an effective and feasible strategy in the pain management for pediatric post-operative patients. We will continue data collection to further evaluate benefits and risks of NSAIDS and opioids use in pediatric postoperative patients.

IDENTIFICATION OF A NOVEL MICRORN A PANEL: POTENTIAL BIOMARKERS FOR NON-SMALL CELL LUNG CANCER

1,2C Kan*, 3H Crovetto, 4H Landreneau, 1,3L Li, 5,6H Soyer, 4MS Stark, 1,3S Gunn. 1Ochsner Clinical School-University of Queensland, Metairie, LA; 2Laboratory of Translational Cancer Research, New Orleans, LA; 3Ochsner Clinic Foundation, New Orleans, LA; 4University of Pittsburgh, Pittsburgh, PA; 5The University of Queensland, Brisbane, Australia; 6Princess Alexandra Hospital, Brisbane, Australia

Purpose of study Lung cancer causes the most cancer deaths in the United States. Currently, NIH statistics shows lung cancer has a 17.7% five-year survival rate. Non-Small Cell Lung Cancer (NSCLC) in its early stages is asymptomatic with symptoms only manifesting when the cancer is in an advanced stage, thus contributing greatly to its poor prognosis. There is therefore an urgent medical need for a minimally invasive test for early detection of NSCLC. MicroRNAs (miRNAs) have been recently investigated as a minimally invasive circulating biomarker in conjunction with radiography to significantly improve its sensitivity.

Methods used A total of 25 human lung biopsied adenocarcinoma (LUAD) or normal tissue were obtained from the Ochsner biobank (7 samples AJCC stage I, 4 samples AJCC stage II, 5 samples AJCC stage III, 4 samples AJCC stage IV, 5 normal tissue). MiRNA were extracted from the sample and send to LC Sciences (Houston, Texas) for miRNA microarray analysis. Target miRNA are selected from the genearray based on tumor sample signal >50, p<0.05 and at least 2.5-fold signal change.

Summary of results We have identified 6 miRNA which fits these criteria and displayed a near linear expression increase from normal tissue through to stage IV. Four miRNA (hsa-miR-31-5p, hsa-miR-96-5p, hsa-miR-183-5p, hsa-miR-182-5p) showed more than 10-fold higher expression (stage IV vs normal) and we postulate that these miRNAs may be detectable in patients’ blood and therefore may serve as a potential biomarker.

Conclusions We have identified a panel of miRNAs that may serve as a future ‘liquid biopsy’ test for NSCLC prognosis and early stage detection. Future experiments will focus on verifying the expression in matching patient plasma and determining if the biomarker panel is predictive and/or prognostic relative to patient outcome.

SLEEP APNEA IN END-STAGE RENAL DISEASE PATIENTS: RISK FACTORS AND MORTALITY


Purpose of study Sleep disturbances such as sleep apnea (SA) are prevalent in end-stage renal disease (ESRD) patients due to pharyngeal narrowing from airway edema and fluid shifts. Mortality and cardiovascular outcomes in patients with SA and ESRD have not been described in a large cohort. We investigated SA and other associated co-morbidities of survival, stroke, and myocardial infarction (MI).

Methods used A retrospective cohort study queried the United States Renal Data System for all ESRD patients 18 to 100 who initiated hemodialysis between 2005–2013. Out of the 2,462,344 patients, 838,131 met criteria for inclusion. Diagnosis of sleep apnea and clinical co-morbidities were determined from ICD-9 and ICD-10 codes. Demographic variables were obtained from CMS-form 2728. Cox Proportional Hazards modeling and logistic regression were used. Values were expressed as adjusted hazard ratio (aHR) and adjusted relative risk (aRR).

Summary of results From the inclusion cohort, 587 patients were found to have central and 22,724 were found to have obstructive SA. SA was more prevalent in younger, male, Caucasian patients. Patients with SA also had more diagnoses of tobacco and alcohol use, hypertension, heart failure, and diabetes. Both central (aHR=1.42) and obstructive (1.35) SA were associated with increased mortality. Other variables associated with increased mortality included a 1-year increase in age (1.04), starting dialysis with a catheter (1.38) or a graft (1.18), alcohol use (1.23), hypertension (1.14), and cardiovascular disease (1.24). Factors associated with decreased mortality included female sex (0.97), black race (0.78), Hispanic ethnicity (0.70), glomerulonephritis or polycystic kidneys causing ESRD (0.57), heart failure (0.94), and diabetes (0.68). Central (aHR=1.69) and obstructive SA (1.15) were significantly associated with an increased risk of stroke. Obstructive SA was not associated with MI.

Conclusions In the ESRD population, a diagnosis of either obstructive or central sleep apnea increases the risk of mortality and stroke. Early identification and therapy of SA may improve survival in this cohort.
ALCOHOL INDUCES CIRCADIAN DYSREGULATION OF PROFIBROTIC GENES IN THE MURINE LUNG

D Stephens*, 1X Fan, 2BS Staitieh, 3D Guidot, 1V Sueblinvong. 1Morehouse School of Medicine, Atlanta, GA; 2Emory University, Atlanta, GA

10.1136/jim-2020-SRM.567

Purpose of study Alcohol exposure disrupts the molecular circadian rhythm in many organ systems. It has also been shown to exacerbate alcoholic liver steatosis and fibrosis. A mouse model with an altered circadian rhythm (clockΔ) develops a spontaneous fibrotic-like pulmonary phenotype: and experiences increased renal fibrosis associated with elevated TGFβ expression in response to an injury. These data suggest circadian disruption plays a role in tissue disrepair. We reported that alcohol primes the lung for fibrotic disrepair following acute injury. We speculated that alcohol alters the circadian oscillation of the pro-fibrotic genes in the lung, which could lead to exacerbation of fibrotic disrepair following an injury. We hypothesize that alcohol exposure disrupts cellular circadian signaling by altering the core clock transcription factors CLOCK and BMAL1 and thereby leading to a fibrotic expression of fibroblasts within the lungs.

Methods used Eight-week-old C57Bl6/J mice were given 20% alcohol in their drinking water for 4 weeks, then mice were euthanized every 4 hours over 24 hours and lungs were collected and analyzed for TGFβ, CTGF, PDGFc and PDGFD, and IGF-1 expression. Primary lung fibroblasts were exposed to alcohol for 24h and assessed for CLOCK, BMAL1, Period 1 and 2 expression.

Summary of results Chronic alcohol ingestion increased the expression and disrupted the circadian oscillation patterns of TGFβ, CTGF, and PDGFD in mice. Chronic alcohol ingestion did not affect PDGFc or IGF-1 expression or their oscillation patterns. In vitro alcohol exposure downregulated the expression of BMAL1, Period 1 and Period 2 but had no effect on CLOCK expression.

Conclusions Chronic alcohol ingestion disrupts cellular circadian oscillation of several pro-fibrotic genes including TGFβ, CTGF, and PDGFD. We speculate that these changes are a consequence of alcohol-induced BMAL1 suppression, which leads to a dysregulation of the CLOCK-BMAL1 signaling pathway (as shown by attenuation of Period 1 and Period 2 gene expression in alcohol-treated lung fibroblasts). Our findings establish the importance of circadian rhythm regulation in alcohol-mediated lung disrepair and form the basis for a new approach to promote healthy repair in the lungs of individuals with alcohol use disorders.

BIOMARKERS IN CYSTIC FIBROSIS: ROLE OF HYDROGEN SULFIDE

S Kilaikode*, A Gardner, C Kevil, K Scott. LSU Health Science Center, Shreveport, LA

10.1136/jim-2020-SRM.568

Purpose of study The timely and accurate identification of cystic fibrosis pulmonary exacerbation (CF PEx) is crucial to initiate rational treatment. Many biomarkers have been studied, but none have provided clinically useful conclusion. Hydrogen sulfide (H2S) is a gasotransmitter with significant effects on the pathophysiology of respiratory diseases. Objective is to determine the serum and sputum concentrations of H2S in CF patients with stable pulmonary disease and during CF PEx.

Methods used After institutional review board approval, CF patients were recruited during routine clinic visits for this prospective observational study. Baseline H2S concentrations were measured in serum and sputum (or throat swab) at the time of routine laboratory and spirometry evaluations. If study subjects were hospitalized for PEx, serum and sputum H2S measured (total, bound and labile) at the onset of the exacerbation. H2 S concentrations were compared using paired t-test.

Summary of results Baseline and PEx-associated serum and sputum H2S concentrations were available from nine subjects ranging in age from 7 to 52 years. 44% of patients were male and 88% were Caucasian. The average FEV1 was 62% at baseline and 51% at the onset of PEx. The serum and sputum H2S concentrations are reported as mean±SEM, expressed in nmol/mg protein. The total, acid labile and bound sulfide concentrations were decreased at the onset of PEx compared to baseline in serum and sputum (figure 1). The decrease in plasma bound sulfide was significant (p=0.03).

Conclusions Preliminary analysis revealed that serum and sputum H2S levels are lower at the onset of PEx compared to baseline in a small cohort of CF patients. This data suggest the potential clinical utility of H2S as biomarker in CF PEx. Further studies recommended.

CHRONIC ALCOHOL INGESTION IMPAIRS MITOCHONDRIAL BIOENERGETICS IN RAT ALVEOLAR MACROPHAGES

D Khani*, 1M Ahmed, 1X Fan, 2S Yeligar, 2D Guidot, 2BS Staitieh. 1Emory University, Atlanta, GA; 2Emory University and the Atlanta VAMC, Atlanta, GA

10.1136/jim-2020-SRM.569

Purpose of study In addition to dramatically increasing the risk of acute respiratory distress syndrome (ARDS), chronic alcohol ingestion increases pneumonia rates considerably as well. Our group previously determined that many of alcohol’s effects are mediated through its impairment of innate immune function and antioxidant defenses. Given the importance of mitochondrial function to both of those key activities, we sought to determine the effects of alcohol exposure on mitochondrial function.
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Methods used A rat alveolar macrophage cell line (NR 8383 cells) was exposed to alcohol in vitro for 48 hours before assessment of glucose regulated protein 75 (Grp75), dynamin-related protein 1 (Drp1), and voltage-dependent anion channel (VDAC) hours by PCR. Primary alveolar macrophages were obtained from alcohol-fed and control-fed rats by whole-lung lavage and oxygen consumption rates (OCR) were assessed by Seahorse. In parallel, cells were treated with or without GM-CSF and VDAC protein levels were examined at 48 hours by immunofluorescence.

Summary of results Chronic alcohol ingestion significantly impairs OCR in rat alveolar macrophages. In vitro studies of NR8383 cells showed no alteration in expression of Grp 75 or Drp1 genes. However, VDAC was dramatically increased in both the alcohol-exposed and the rat model. VDAC protein levels were restored to normal by treatment of rat alveolar macrophages with GM-CSF.

Conclusions The significant changes in rat alveolar macrophage OCR with chronic alcohol exposure argues convincingly that mitochondrial bioenergetics are impaired in this setting. However, the lack of change in Grp75 and Drp1 genes with alcohol exposure in NR8383 cells that mitochondrial biomass and fission are likely stable. The marked increase in VDAC gene expression in suggests that alterations of voltage gating may be responsible for the suppression of bioenergetics. Increased VDAC protein expression from the animal model supports that theory, and its return to wild-type levels with GM-CSF suggests a potential therapy that warrants further investigation.

RAT ALVEOLAR MACROPHAGE MMP-9 IS INCREASED BY HIV AND DECREASED BY ACTIVATION OF ANTIOXIDANT DEFENSES

Purpose of study Although the mechanism is unknown, people with HIV are at a markedly increased risk of emphysema. Matrix metalloproteinase-9 (MMP-9) has been implicated in non-HIV associated emphysema and it is elevated in the alveoli of people with HIV. Previously we determined that HIV transgene (HIV Tg) expression in a rat model significantly increases MMP-9 expression and activity. Further, we have determined that HIV suppresses antioxidant defenses and that MMP-9 activity is inversely related to antioxidant activity. We hypothesized that activation of Nrf2, the master transcription factor responsible for antioxidant defenses, would reverse HIV-induced increases in MMP-9 activity.

Methods used A rat alveolar macrophage cell line (NR8383) was treated with the transactivator of transcription (Tat, an HIV protein) with or without sulforaphane (SFP, a Nrf2 activator) for 24 hours prior to assessment of MMP-9 gene expression by RT-PCR. Primary alveolar macrophages (AMs) from HIV Tg rats and their littermate controls were treated with or without SFP ex vivo. Twenty-four hours later, expression of MMP-9 gene was assessed by RT-PCR. In parallel, cells were plated and treated with SFP for 48 hours before assessment of the receptor for advanced glycation end-products (RAGE) and MMP-9 by immunofluorescence.

Summary of results Tat exposure increased MMP-9 gene expression in NR8383 cells and SFP treatment reduced those levels to normal. MMP-9 protein was significantly increased and RAGE (an inverse surrogate for MMP-9 activity) was significantly decreased in HIV-1 Tg rat AMs. SFP treatment reduced MMP-9 activity (but not protein) to normal levels (as determined by a restoration of RAGE to wild-type levels).

Conclusions Our data support the hypothesis that HIV-induced increases in MMP-9 activity are likely due, at least in part, to the suppression of antioxidant defenses by HIV proteins. Further work is needed to establish the relevance of this pathway in human subjects, but these studies offer the potential for an exciting new avenue of host-directed therapy for patients suffering from HIV-associated emphysema in the form of Nrf2 activation.

FEVER IN BRONCHIOLITIS IS ASSOCIATED WITH INCREASED HOSPITAL SEVERITY OUTCOMES AND HEALTHCARE UTILIZATION

Purpose of study Patients with bronchiolitis often present with congestion and cough. Fever may or may not be present. We evaluate the association of fever with bronchiolitis severity outcomes along with healthcare utilization such as antibiotic use, culture obtainment, and chest x-ray obtainment.

Methods used Term infants admitted between November 2015 through February 2017 with bronchiolitis were identified using ICD discharge codes. Clinical information such as age, sex, day of illness, presence of fever, location of fever, and height of fever along with outcome information such as length of stay, duration of respiratory support, intensive care utilization, antibiotic use, chest x-ray obtainment, and culture obtainment were collected. Binary outcomes were analyzed with multivariate logistic regression, while length of stay and length of respiratory support were treated as counts and analyzed with negative binomial regression and zero-inflated binomial regression.

Summary of results 256 patients met inclusion criteria. The median age was 98.5 days, and 156 (61%) patients had a fever. Patients with fever had significantly longer length of stay (IRR 1.34 [1.06, 1.7]) and longer duration of respiratory support (IRR 1.44 [1.12, 1.84]) relative to patients without fever. Patients with fever were 3.6 times more likely to have cultures obtained, and 3.6 times more likely to have antibiotics. No significant
difference was found in ICU admission or chest x-ray obtainment (table 1).

**Conclusions** We find fever in bronchiolitis is associated with increased length of stay and duration of respiratory support, as well as increased utilization of antibiotics and culture obtainment. These findings are important in predicting clinical course in bronchiolitis, assisting in appropriate triage, and providing opportunity for quality improvement initiatives.

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**Abstracts**

**Renal, electrolyte and hypertension I**

**Concurrent session**

**Friday, February 14, 2020**

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**572**

**NONTUBERCULOUS MYCOBACTERIA INDUCE MITOCHONDRIAL DYSFUNCTION IN MACROPHAGES**

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10.1136/jim-2020-SRM.572

**Purpose of study** The incidence of nontuberculous mycobacterial (NTM) disease continues to rise. Pulmonary infection is more prevalent than disseminated disease and can occur in patients with COPD, non-cystic fibrosis (CF) bronchiectasis, and CF. Mitochondria are the powerhouse of the cell, but what role they play in the host response to NTM infection is unknown. Using electron microscopy, we have previously shown that mitochondrial morphology is altered upon infection with Mycobacterium avium complex (MAI). Thus, we hypothesize that mitochondrial damage causing changes in mitochondrial function and dynamics impairs macrophage response to infection with MAI and Mycobacterium abscessus (MAB).

**Methods used** We infected murine alveolar macrophages (MH-S cells) and bone marrow-derived macrophages (BMDMs) with clinical strains of MAI or MAB (MOI of 25) for 6 and 24 hours. Using RT-qPCR, we determined the expression of mitochondrial DNA fragments (mt79 and mt230) associated with mitochondrial DNA damage; we calculated the fold change of these fragments relative to GAPDH and computed a ratio. We then determined the expression of key mitochondrial quality control genes, including peroxisome proliferator activated receptor gamma coactivator (PGC)-1α, transcription factor A mitochondrial (TFAM), and mitofusin (MFN)-2, using RT-qPCR.

**Summary of results** In MH-S cells, the mt79:mt230 ratio was increased at 6 and 24 hours for MAI and MAB relative to controls, indicating an increase in mitochondrial DNA damage. Expression of genes involved in mitochondrial biogenesis, PGC-1α and TFAM, were decreased at 6 and 24 hours. MFN2, a gene involved in mitochondrial fusion, was also decreased at 6 and 24 hours for MAI and MAB. These data were consistent in BMDMs, with a more significant decrease in gene expression noted at 24 hours.

**Conclusions** The data suggest that there is an increase in mitochondrial damage when macrophages are infected with NTM. The infected macrophages exhibit decreased mitochondrial biogenesis and have impaired mitochondrial quality control, including mitochondrial fusion. The functional impact of these damaged mitochondria on host response to NTM infection needs to be further explored as there may be a role for pharmacologic agents, like PGC-1α activators, to augment bacterial killing in patients infected with NTM.

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**573**

**AEROBIC EXERCISE TRAINING REDUCES BLOOD PRESSURE AND IMPROVES ENDOTHELIAL FUNCTION IN CHRONIC KIDNEY DISEASE**

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10.1136/jim-2020-SRM.573

**Purpose of study** Chronic Kidney Disease (CKD) patients exhibit an exaggerated increase in blood pressure (BP) during exercise that is associated with cardiovascular mortality. Mechanisms contributing to this response are multifactorial, and include endothelial dysfunction and enhanced muscle mechano-reflex sensitivity. We hypothesized that 12 weeks of aerobic exercise training would reduce resting BP, improve endothelial function, and attenuate BP reactivity during muscle mechano-reflex activation.

**Methods used** Thirty-six participants with CKD stages III–IV were randomized to 12 weeks of aerobic cycling exercise (N=17) for 20–45 min at 80% of heart rate reserve, versus stretching (active control intervention, N=19), 3 days/week. Resting BP was measured in triplicate via oscillometry. Endothelial function was assessed via peripheral arterial tonometry and expressed as reactive hyperemia index (RHI). Beat-to-beat BP was measured via finger photoplethysmography during muscle mechano-reflex activation induced via 3-min of rhythmic handgrip (RHG) performed at 20% of maximal voluntary contraction. All data were analyzed via a 2-way repeated measures ANOVA followed by Tukey post-hoc tests.

**Summary of results** The exercise group had a reduction in mean arterial pressure (MAP; -4.7±1.6 mmHg, P=0.02) while the stretching group had no change in MAP (-0.3±2.0 mmHg, P=0.86). Similarly, RHI increased following exercise training only (Pre=1.68±0.07, Post=2.0±0.18, P=0.06). BP reactivity during RHG remained unchanged in both groups (P=0.38). In support of our hypothesis, 12 weeks of aerobic exercise training reduced resting BP and improved endothelial function in CKD. We observed no change in BP reactivity during RHG.

**Conclusions** These findings suggest that aerobic exercise training improves resting BP and endothelial function in CKD.

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**574**

**HOOP STRESS AND SHEAR STRESS IN THE REMAINING GLOMERULI IN DIABETES AND 5/6-NEPHRECTOMY**

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10.1136/jim-2020-SRM.574

**Purpose of study** In diabetes mellitus (DM) and reduction of renal mass there is increased glomerular blood flow and pressure. DM blunts the renal autoregulatory mechanisms through a confluence of numerous pathophysiological factors, and
reduction in renal mass leads to increases in flow and pressure in the remaining glomeruli. These altered hemodynamics result in increased shear stress on and strain of the glomerular capillary walls, however the actual magnitudes of these stresses have not been estimated. These magnitudes are of importance given the inflammatory reaction of endothelial cells and podocytes to excess shear stress and strain.

Methods used We developed an anatomically accurate mathematical model of the rat glomerulus which calculates blood flow and filtration on each segment of a rat glomerular capillary network. Hemodynamic parameters were taken from glomerular micropuncture studies of streptozotocin-induced Type I diabetic and 5/6-nephrectomized animals to simulate these disease states. Our 5/6-nephrectomy results were validated by comparison to a study which utilized intravital imaging to estimate glomerular capillary wall shear stress in vivo.

Summary of results The model demonstrates that most of the filtration occurs near the afferent arteriole. Hoop stress, an index of strain, is highest in the large diameter vessels branch- ing off the afferent arteriole, whereas shear stress was highest in the vessels closer to the efferent arteriole. In DM, the increased diameter of the vessels characteristic of hypertrophy in diabetic glomeruli is able to minimize the increase in shear stress. Conversely, despite a similar hypertrophic response in the 5/6-nephrectomy model, the shear stress is elevated by 55.0%. Hoop stress is elevated by 29.5% in DM and 38.2% in 5/6-nephrectomy.

Conclusions Through the use of an anatomically-accurate mathematical model of the rat glomerulus we calculated the significant increases of hoop and shear stresses in 5/6-nephrec- tomy, and demonstrated that capillary hypertrophy protects the glomerulus from increased shear stress in diabetes but does not prevent the increase in hoop stress. These results indicate that increased mechanical stress may play a significant role in the cause and/or progression of glomerular injury in these disease states.

575 EFFECT OF BORTEZOMIB ON PROXIMAL TUBULE CELLS EXPOSED WITH URINARY FREE LIGHT CHAINS ISOLATED FROM MULTIPLE MYELOMA PATIENTS

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Purpose of study Bortezomib (BTZ, also known as Velcade® and PS-341) is the first 20S proteasome inhibitor used as a drug for Multiple myeloma (MM) patients. Although BTZ has markedly improved the treatment outcome of MM patients, several adverse events including acute kidney injury (AKI) have been reported due to off-target effects of BTZ. Proximal tubule cells (PTCs) of kidneys, despite being the primary target of vast majority of nephrotoxic agents, have not been explored for the direct effect of BTZ in the presence of free light chains (FLCs) obtained from the urine of MM patients.

Methods used Human kidney PTCs cultures (RPTECs and HK2 cell line) were exposed to BTZ, k or λ FLCs. Cell proliferation, viability, cytotoxicity and apoptosis were evaluated using standard procedures. Immunofluorescence and western blotting were used to localize NFKβ translocation in subcellular fractions. Mitochondrial membrane potential was measured with TMRE (tetramethylrhodamine, ethyl ester) assay. Data were analyzed using one-way ANOVA with post hoc Tukey test and P values <0.05 were considered significant.

Summary of results We found that BTZ (50nM) changes cell morphology, significantly decreases proliferation and induces apoptosis in HK2 cells irrespective to FLCs exposure. Toxic effect of BTZ was also resulted in overexpression of LCN2, a known kidney injury marker, and significant upregulation of TLR9. In addition, NFKβ phosphorylation was evident in BTZ treated cells, which was further, supported by the increased phospho-IκBα expression and decreased expression of T-IκBα. Our results indicate BTZ nephrotoxicity in PTCs through probable ROS mediated mitochondrial injury resulting in activation of TLR9 and LCN2.

Conclusions Our results show a novel off-target mechanism of action of BTZ in human PTCs contributing in AKI.

576 SOLUBLE PRORENIN RECEPTOR (SPRR) IS ASSOCIATED WITH TYPE 2 DIABETES IN WOMEN

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Purpose of study Subjects with type 2 diabetes mellitus (T2DM) have inappropriate activation of the systemic renin-angiotensin system (RAS), with high levels of plasma prorenin associated with the onset of cardiovascular (CV) complications. The prorenin receptor (PRR) has two molecular forms: a membrane-bound form and a soluble (sPRR) form, that both fully activate prorenin and increase activity of renin. High plasma prorenin in subjects with T2DM raises the concern if increases in plasma sPRR contribute to CV complications.

Methods used We used ELISA to measure plasma sPRR concentrations and plasma renin activity (PRA) in 269 patients (mean age:48±1 years;42% men) with 173 controls (CT) and 96 T2DM patients.

Summary of results Plasma sPRR levels were significantly higher in T2DM patients (21.4±2.0 ng/mL compared to CT (16.5±0.4 ng/mL; P<0.0001). CT men exhibited significantly higher plasma sPRR levels compared to CT women (180±5.9 ng/mL vs. 15.5±0.4 ng/mL; P<0.05). Interestingly, plasma levels of sPRR differences between patients of same sex were greater in T2DM women compared to CT (19.6±0.1 ng/mL vs. 15.3±0.3 ng/mL; P<0.0001) patients, but did not differ among men (CT: 17.9±0.6 vs. T2DM:17.4±0.9 ng/mL; P=0.18).

PRA was significantly higher in T2DM patients as compared to CT: 3.3 ± 0.3 vs. T2DM: 12.9 ± 0.9 ng Ang I/mL/ hr; P<0.0001, including in men (CT:3.6 ± 0.5 vs. T2DM:9.8 ± 1.7 ng AngI/mL/hr;P<0.0001) and even greater in women (CT:3.1 ± 0.3 vs. T2DM:13.5 ± 1.1 ng AngI/mL/hr; P<0.0001). The interaction between sex and group was significant (p=0.036) suggesting that increases in plasma sPRR levels in T2DM patients is greater in women than men. Multiple regression analysis indicate a significant association between plasma sPRR levels and T2DM status in women (P<0.0001) but not in men.

Conclusions Our data indicate: 1. Plasma sPRR levels are associated with T2DM in women but not in men; 2. Increased PRA in patients with T2DM parallel with augmented plasma sPRR in women but not in men. Identification of novel CV
biomarkers of systemic RAS activation will allow better understanding of the association between T2DM and CV complications, particularly in women.

**577** SUCNATE EFFECTS ON BLOOD PRESSURE: INFLUENCE OF ACIDOSIS

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10.1136/jim-2020-SRM.577

**Purpose of study** Sucnate (Suc) is a Krebs cycle intermediate but extracellular Suc has been associated with a variety of pathologic processes. A distinct GPCR receptor for Suc (Sucnr1) was identified in the kidney and some (but not all) studies have documented that Suc infusions increase blood pressure (BP).

In the proximal tubule, luminal NaDC1 (Na+-dicarboxylate cotransporter) reabsorbs filtered citrate and Suc. Thus NaDC1 is not only important in preventing calcium nephrolithiasis (via controlling urinary citrate) but may also impact BP via changing luminal or systemic Suc. Our purpose was to explore the role of NaDC1, luminal Suc, and acidosis in BP regulation.

**Methods used** To address these issues, we used NaDC1 knockout mice (KO) compared to wild type (WT) on either standard diet or a 72 hr acid loading protocol diet. In initial clearance studies, KO mice had increased urinary Suc but no statistical difference in blood pressure (BP) even with the infusion of Suc. Acid loading reduced urinary Suc in WT but had no consistent effect on BP in either KO or WT. Since recent reports suggested that Suc may affect BP exclusively during more active periods (nocturnal in mice), we additionally examined BP using telemetry for 24 hour monitoring. During the night (8 PM–5 AM) average BP was significantly higher in KO than in WT. Acidosis appeared to lessen BP differences.

**Summary of results** To further understand the effects of Suc and whether receptor expression could be dampening the effect of luminal Suc (by changing in the opposite direction), droplet digital PCR (ddPCR, BioRad) was performed to determine receptor Sucnr1 gene expression. On normal diets, the Sucnr1 expression levels in KO were significantly increased from that in WT. On 72 hr acid diet, the expression of Sucnr1 in KO falls to the level found in WT fed either normal or acid diet. Thus changes in Sucnr1 expression are unlikely to explain the BP changes.

**Conclusions** In sum, luminal Suc variations caused by changes is reabsorption via NaDC1 do not appear to be a consistent and significant determinant of BP.

**578** LOW FRACTIONAL EXCRETION OF URINARY SODIUM IS A COMMON FINDING DURING ACUTE TUBULAR INJURY PRESENTING WITH ABUNDANT MUDDY BROWN GRANULAR CASTS

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10.1136/jim-2020-SRM.578

**Purpose of study** Fractional excretion of urinary sodium (FENa) remains a widely utilized diagnostic test for the evaluation of acute kidney injury (AKI). A low FENa (<1%) is considered consistent with prerenal azotemia and not due to acute tubular injury (ATI). Presence of muddy brown granular casts (MBGCs) during microscopic examination of the urinary sediment (MicrExUrSed) is indicative of ATI. We hypothesized lack of concordance between the 2 tests.

**Methods used** We conducted a prospective observational study of patients with AKI stage ≥2 (AKIN) seen in inpatient nephrology consultation over 1.5-yrs. On the day of consult, MicrExUrSed was performed to determine the percentage of low power fields (lpf) containing MBGCs. FENa was calculated on the same day for comparison. Outcome was ≥50% increase from baseline serum creatinine (sCr) at discharge.

**Summary of results** FENa and MBGCs abundance by MicrExUrSed were examined in 135 patients, 58 (42%) were female, median age was 56 (27–88). The median sCr at the time of AKI was 3.2 (2.5–4.6) mg/dL. The etiology of AKI was ischemic ATI (40%), toxic ATI (15%), ischemic/toxic ATI (19%) or other (27%). MBGCs were found in 71 patients (53%). Among them, 56 (42%) and 32 (24%) had >10% and ≥50% lpf with MBGCs, respectively. FENa was <1% in 24/56 (44%) and 13/32 (41%) of those with >10% and ≥50% lpf with MBGCs, respectively. Thus, concordance between FENa and MicrExUrSed for ATI diagnosis was poor (estimated kappa coefficient 0.302). In addition, >50% lpf with MBGCs was associated with greater risk for ≥50% increase from baseline sCr at discharge [relative risk (RR) 1.5, CI 1.1–2.0, p=0.012], whereas FENa >1% did not predict it [RR 1.1, CI 0.8–1.5, p=0.39].

**Conclusions** Close to half of the patients in our cohort who exhibited abundant MBGCs during MicrExUrSed presented with FENa <1%. ‘Sheets’ of MBGCs were associated with greater risk for more sustained elevation in sCr after AKI, whereas FENa >1% was not predictive. These data strongly suggest that sole reliance in low FENa to exclude ATI should be abandoned and MicrExUrSed should be pursued for AKI diagnosis.

**579** PARATHYROIDECTOMY POST KIDNEY TRANSPLANT: A SINGLE CENTER REPORT OF SHORT TERM OUTCOMES

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10.1136/jim-2020-SRM.579

**Purpose of study** Whether parathyroidectomy in ESRD patients should be performed before or after kidney transplant remains controversial. There is concern that post-transplant parathyroidectomy can adversely affect the renal allograft.

**Methods used** We performed a retrospective chart review of 41 patients who received a kidney transplant at UAB between 9/2016–2/2019 who had a parathyroidectomy either pre-transplant (n=10) or post-transplant (n=31).

**Summary of results** The patients who had a parathyroidectomy before transplant had a similar age at transplant (45.8 years (IQR 39.5–53.3) vs 52.1 (IQR 44.4–58.4) (p=0.14)), sex distribution, and dialysis vintage compared with patients who had surgery post-transplant. Median time on dialysis was 86.4 (IQR 45.8–92.2) months and 73.5 (IQR 55.6–110.4) months respectively (p=0.93). However these patients had lower iPTH, calcium, and phosphorous levels at time of transplant [median iPTH 115.5 pg/mL (IQR 23.2–154.5) vs 561.2 (IQR 284.9–1263.5) (p≤0.001), median calcium 8.74 mg/dL (IQR 7.8–9.0) vs 9.78 (IQR 9.5–10.3) (p=0.003), median
phosphorus 4.5 mg/dL (IQR 3.3–5.5) vs 5.45 (IQR 4.27–6.23) (p=0.06). For patients who had a parathyroidectomy post-transplant, surgery corrected hyperparathyroidism and improved calcium and phosphorous levels [iPTH 25.5 (IQR 140.9–421.5) vs 86.7 (IQR 46.25–133.5) (p≤0.001), calcium 10.72 (IQR 10.14–11.21) vs 9.78 (IQR 9.49–10.28) (p≤0.001), phos 2.4 (IQR 2.15–2.8) vs 3.01 (IQR 2.7–3.7) (p=0.002)]. Median creatinine was 1.5 mg/dL (IQR 1.18–1.7) pre parathyroidectomy and 30 day average creatinine post parathyroidectomy was 1.6 mg/dL (IQR 1.2–1.9) (p=0.29). 1 patient had acute rejection within 30 days post parathyroidectomy. No graft loss occurred within 1 year post parathyroidectomy. There were no reported surgical complications.

Conclusions Parathyroidectomy post-transplant in our limited case series improves CKD-MBD. Renal allograft function was not adversely affected in the short term although it was concerning that one patient had rejection shortly after parathyroidectomy.

Purpose of study Infectious etiologies cause a large portion of pediatric rhabdomyolysis. Among pediatric patients who develop rhabdomyolysis, it is unknown who will go on to develop acute kidney injury (AKI). We sought to determine the association between viral etiologies of rhabdomyolysis and AKI.

Methods used In this single-centered, retrospective, cohort study, pediatric patients admitted with acute rhabdomyolysis from May 1, 2010 through December 31, 2018 were studied. The primary outcome was the development of AKI. AKI was defined using the Kidney Disease: Improving Global Outcomes guidelines. As most of the patients did not have a recent serum creatinine available, the baseline serum creatinine was back-calculated with height derived estimated GFR equations. The primary predictor was identification of viral infection by laboratory testing or history of such on admission. Covariates included standard demographics, etiology of rhabdomyolysis, and exposure to non-steroidal anti-inflammatory drugs (NSAID). Routine statistics and multivariable logistic modeling was performed via SAS 9.4.

Summary of results 313 pediatric patients with rhabdomyolysis were included in this study. Mean age was 11.54 years (SD 5.3 years). Patients were predominately male (70.1%), non-Hispanic white (55.1%), and publicly insured (45.2%). There was a history of NSAID use in 54 children (16.8%). Overall, 45.1% of children admitted with rhabdomyolysis developed AKI. In unadjusted analysis, virus identification was not statistically significantly with the development of AKI. However, adjusting for age, sex, race, insurance type, and history of NSAID exposure prior to admission, those identified with a viral infection were significantly more likely to develop AKI (aOR 2.39, 95% CI 1.32–4.33, p<0.01).

Conclusions We discovered that patients with rhabdomyolysis who have a positive viral infection identified had a higher odds of AKI. Understanding whether this is a true causative association or whether this is due to unknown confounders, should be evaluated in larger cohorts.

Purpose of study Waxy casts (WxCs) can be identified during microscopic examination of the urinary sediment (MicrEx-UrSed) and they are classically linked to chronic kidney disease (CKD). It is less clear whether WxCs are a relevant finding in acute kidney injury (AKI). We hypothesized that identification of WxCs in AKI due to acute tubular injury (ATI) provides prognostic information.

Methods used We conducted a prospective observational study in patients seen in inpatient nephrology consultation with AKI stage ≥2 (AKIN) over 1.5-yr. On the day of consult, MicrEx-UrSed was performed to determine the percentage of low power fields (lpf) with WxCs and to assess a validated score for ATI based on granular casts and tubular epithelial cells per lpf [Perazella score (PS): score ≥2 consistent with ATI]. The outcome measure was need for dialysis at 30 days (RRT).

Summary of results Urine specimens from 167 patients [median age 58 (25–88), 42% women] were assessed. The etiology of AKI (pure de novo AKI 56%, AKI on CKD 44%) was ischemic ATI (41%), toxic ATI (14%), ischemic/toxic ATI (17%) and other (28%). WxCs were found in 47 patients (28%), 29 (62%) of which had pure de novo AKI. Median serum creatinine for those with WxCs was 3.7 (2.8–4.9) mg/dL compared to 3.1 (2.4–4.6) mg/dL for those without WxCs (p=0.087). Having >10% WxCs w/ ≥1 WxCs was associated with greater risk for RRT (relative risk (RR): 2.3, CI 1.4–3.5, p=0.0003). PS ≥2 was also associated with greater risk for RRT (RR: 2.6, CI 1.1–6.6, p=0.04). When WxCs were added to a PS ≥2, the RR for need for RRT became stronger (RR: 6.0, CI 2.9–12.5, p<0.0001). The greater the abundance of WxCs, the greater the need for RRT: need for RRT was 26% (31/120), 43% (20/47), 59% (13/22), and 60% (6/10) for those with none, >0%, >10% and >50% lpf w/ C21 WxCs, respectively (p=0.0003 for trend).

Conclusions WxCs can be found in about a third of patients with AKI, even among those without preexisting CKD. Among patients with ATI, the presence and abundance of WxCs are associated with a greater risk for need for RRT, suggesting that WxCs carry similar and potentially additive prognostic value to that of granular casts.
obesity and left middle cerebral artery (MCA) stroke with no residual neurologic deficits. She had no history of venous thromboembolism or cardiac disease. On exam she had weakness of right upper and lower extremities with dysarthria. MRI brain showed acute infarcts of left frontal and parietal lobes in the left MCA distribution. Transthoracic echocardiogram (TTE) showed left ventricular (LV) hypertrophy, and reduced LV ejection fraction 45%. Work-up for cryptogenic stroke (CS), including CT-angiography of the head/neck, telemetry, hypercoagulable labs, and lumbar puncture did not reveal cause. Subsequently, transesophageal echocardiogram (TEE) revealed a 0.4 cm × 0.7 cm atrial septal defect (ASD). A venous Doppler of the upper and lower extremities noted superficial thrombus in cephalic veins. Clopidogrel was added to her previous medication regimen of Aspirin and Atorvastatin.

CS affects those in younger age groups, less than 50 years old and is often cardioembolic. CS may occur with hypercoagulable disorder or vasculopathy. The unexpected discovery of an ASD in this case suggested paradoxical embolism as etiology. Closure of the ASD was considered given recurrent stroke on medical therapy. This case highlights importance of TEE for CS work-up when initial TTE results are unremarkable. The presence of a secundum ASD potentially allows for closure by Percutaneous approach. She was referred to a Congenital heart disease specialist for discussion of risks versus benefits of ASD closure.

**Abstract 582 Figure 1**

583 ACUTE CORONARY SYNDROME FOLLOWING THERAPEUTIC EPINEPHRINE FOR ANAPHYLAXIS

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10.1136/jim-2020-SRM.583

Case report A 35-year old woman with a significant history of daily tobacco use presented to an urgent care clinic with an urticarial rash that developed 30 minutes after taking amoxicillin/clavulanic acid. She subsequently developed weakness and shortness of breath. Her blood pressure was 90/63, pulse was 57 beats/min, respiratory rate was 28 breaths per min and oxygen saturation was 98% on room air. She received an intramuscular injection of epinephrine and intravenous methylprednisolone, diphenhydramine, famotidine, and a 1500 cc bolus of normal saline. While awaiting transfer to an emergency department, she complained of chest pain. An emergent EKG revealed ST elevations through the anterior lateral leads with reciprocal depression in the inferior leads. Patient was transferred to a facility of higher level care for acute coronary syndrome.

Discussion Two mechanisms have been elucidated to describe myocardial injury in the setting of anaphylaxis. Kounis Syndrome is defined as acute myocardial injury due to the anaphylactic response from mast cell and basophil mediated histamine release resulting in coronary vasospasm. Alpha receptor mediated vasospasm from therapeutic intramuscular epinephrine is suspected to result in myocardial injury as well. Our patient, having an allergic cutaneous manifestation along with respiratory and cardiovascular compromise, satisfied anaphylaxis criteria for epinephrine use. Case studies describe the temporal relationship of epinephrine treatment and chest pain with reported in as little as ten minutes after administration. Our patient developed chest pain shortly after epinephrine administration: This temporal relationship favors epinephrine induced vasospasm as the presumed mechanism of myocardial insult. Identification of patients most prone to this particular adverse effect of intramuscular epinephrine is a needed area of research and further exploration.

**Abstract 584**

584 A CASE OF SUCCESSFUL COMPLETION OF A CARDIAC DEVICE PROCEDURE DESPITE LOCAL ANESTHETIC SYSTEMIC TOXICITY OCCURRENCE

I Ifedili*, M Heckle, Y Levine. University of Tennessee Health Science Center, Memphis, TN

10.1136/jim-2020-SRM.584

Case report Local Anesthetic Systemic Toxicity (LAST) is an under recognized complication of anesthetic infiltration. We present a case of LAST in the electrophysiology lab that was promptly recognized and managed and the device procedure completed without adverse sequelae.

A 79-year-old female with a history of ischemic cardiomyopathy and a left ventricular ejection fraction of 20%, presented for a single chamber implantable cardioverter-defibrillator Implantation. Seven minutes after administration of subcutaneous lidocaine to the left subclavian area, her systolic blood pressure dropped from 100 mmHg to 70 mmHg, with an apical heart rate of 70 beats per minute. She became unresponsive. She subsequently had intravenous administration of a lipid emulsion with immediate improvement of her symptoms and hemodynamic state. The procedure was completed without any further complications. LAST was entertained due to her age and the amount of lidocaine, 60 mls of 1% lidocaine, given.

LAST primarily affects the cardiovascular (CVS) and the central nervous system (CNS) with the clinical effect varying with type of anesthetic agent used. In our patient, hypotension occurred together with unresponsiveness. Other CVS symptoms that may occur include hypertension, supraventricular and/or ventricular arrhythmias. CNS symptoms include
increased stimulation symptoms, such as visual changes and seizures, and CNS depression symptoms such as respiratory depression and coma. Knowledge of the anesthetic type and recommended threshold dose that may cause systemic toxicity, vascularity of site, metabolic disturbance, and premorbid organ impairment, facilitates early detection and management of LAST occurrence.

Our case was promptly identified and therapy per protocol was initiated, which not only reversed the patient’s clinical state but enabled us to complete our device implantation without any adverse sequelae.

LAST is a rare but under recognized complication of local lidocaine infiltration. Practitioners should be aware of patient’s maximum recommended dosages when administering local anesthetics, to reduce the possibility of LAST. Prompt recognition of LAST is key to its management.

**Learning Points**

Ondansetron use should be monitored with telemetry or electrocardiography for fear of acquired QTc prolongation.

Acquired QTc may precipitate monomorphic NSVT.

Hemodynamically stable NSVT can generate elevated troponin.

**Allergy, immunology, and rheumatology II**

**Concurrent session**

1:00 PM

**Saturday February 15, 2020**

**586 INTRACTABLE EPILEPTIC SEIZURES IN A CHILD WITH NEMO DELETED EXON 5 AUTOINFLAMMATORY SYNDROME**

F Saeg*, SL Nelson, J El-Dahr. Tulane University School of Medicine, New Orleans, LA

10.1136/jim-2020-SRM.586

**Case report** Pediatric autoinflammatory diseases result from inborn errors of innate immunity involving dysregulation of host defenses and inflammation. The nuclear factor kB (NF-kB) essential modulator (NEMO) is responsible for regulating transcription factors which modulate inflammatory and immune responses; mutations result in a broad spectrum of symptoms.

We present a 7-year-old male who developed refractory complex partial epilepsy secondary to NEMO Deleted exon 5 Autoinflammatory Syndrome (NDAS). NDAS is associated with loss of function mutations in the NEMO gene, IKBKG, on chromosome Xq28 and both immune deficiency and constitutive upregulation of TNF-α. At 6 weeks of age, he developed periodic fevers, nodular skin rash, and elevated liver enzymes; then sterile panniculitis, optic neuritis, and chorioretinitis. At age two, he developed hypogammaglobulinemia with normal B cells and reduced CD4+ and CD8+ T cells. Serum cytokines were elevated including IL-12 (p70), IFN-γ and IL-6, as well as IP-10, an interferon-responsive chemokine. Analysis of cerebrospinal fluid revealed elevated levels of immunoglobulin and cytokines. Papilledema developed and MRI confirmed inflammation of the optic nerve, retina, choroid and leptomeninges. At age 5, in the setting of a Rhino/Enterovirus upper respiratory infection, he presented with his first complex partial, right-sided tonic-clonic seizure and unilateral vision loss; EEG showed post-ictal slowing only. Despite anti-TNF agents, oral steroids, and IVIG and normalization of previously elevated CSF inflammatory markers, episodes of transient blury vision, migraines, and complex partial seizures continued to occur. At age 6, EEG revealed left frontotemporal spike waves. Multiple anticonvulsants were tried without success. Repeat MRI confirmed progressive atrophy of the left cerebral hemisphere most pronounced in the left medial temporal and occipital lobes; EEG worsened. Clobazam was then added with normalization of his EEG and resolution of his neurologic symptoms.

This is the first report of refractory epilepsy in a child with NDAS. Physicians need to recognize that patients with autoinflammatory disorders are at risk of developing intractable seizures and treat aggressively.
Introduction Inflammatory bowel disease (IBD) can present with a number of extraintestinal manifestations. The most common cutaneous manifestations of IBD are erythema nodosum and pyoderma gangrenosum. Here we present a case of leukocytoclastic vasculitis (LCV), a rare cutaneous manifestation of IBD, with positive perinuclear antineutrophil cytoplasmic antibodies (pANCA) in the setting of undiagnosed ulcerative colitis (UC).

Case Description A 19-year-old African American male presented with a worsening rash on his hands and feet which began three days prior and progressed proximally to the forearms and ankles within 24 hours. In addition, he reported abdominal pain, nausea, vomiting and diarrhea that started one week prior to presentation. Physical exam revealed palpable purpura on bilateral dorsal hands and feet extending proximally to the mid-forearms and ankles consistent with LCV. Work-up revealed leukocytosis, thrombocytopenia, microcytic anemia, elevated inflammatory markers, along with a high myeloperoxidase (MPO) antibody titer and pANCA. Urinalysis and serum creatinine were normal.

Additional history revealed six prior evaluations for diarrhea and abdominal cramping since age 13. Computed tomography (CT) of the abdomen 18 months prior showed diffuse thickening of the rectum and colon. Repeat CT abdomen during this admission revealed worsened diffuse colonic wall thickening. Colonoscopy revealed inflammation in a continuous pattern from ascending colon to anus consistent with UC. Treatment for UC was initiated with prednisone and mesalamine. At follow-up, hematologic abnormalities and inflammatory markers had normalized and he had resolution of gastrointestinal symptoms and palpable purpura.

Discussion A positive pANCA in UC is not uncommon; however, it does not typically react with MPO as seen in this patient who had no evidence of a systemic vasculitis. Treatment of active colitis usually leads to improvement of extraintestinal manifestations of IBD, including LCV; thus, recognition of this association is essential to initiation of appropriate therapy. UC should be kept in mind as a trigger for LCV along with medications, malignancies, infections and other autoimmune disorders.

Discussion Anti Interferon Gamma Autoantibody Syndrome is a rare disease seen in adulthood. Common pathogens for disseminated infections include nontuberculous mycobacterium, non typhoidal salmonella, and Varicella Zoster. Treatment consists of antimicrobial therapy and Rituximab. In summary, the presence of anti-interferon gamma autoantibodies. Patient was referred to Hematology/Oncology, and was started on Rituximab with symptomatic improvement. In the setting of autoantibodies and plaque like progression of the rash, Dermatology made a diagnosis of psoriasis. Patient was started on Otezla with improvement in the rash.

Discussion Anti Interferon Gamma Autoantibody Syndrome is a rare disease seen in adulthood. Common pathogens for disseminated infections include nontuberculous mycobacterium, non typhoidal salmonella, and Varicella Zoster. Treatment consists of antimicrobial therapy and Rituximab. In summary, the presence of anti-interferon gamma autoantibody syndrome is considered a clinical challenge and should be considered as an alternative diagnosis when encountering patient’s with a history of recurrent infections.

Introduction Multiple myeloma (MM) is a clonal plasma cell neoplasm with classic symptoms of hypercalcemia, renal disease, anemia, and bone disease. Many skin disorders have also been described with the development of M protein but bullous disorders are a rare association.

Case Report A 55-year-old female presented with a bullous eruption of her lower extremities and back pain. Physical examination showed large bulla with negative Nikolsky sign. Histopathological examination of her lesions showed a subepidermal split with superficial perivascular lymphohistiocytic inflammation. Direct immunofluorescence (DI) did not show deposition and indirect immunofluorescence was negative. CT chest showed osteosclerotic lesions of the lumbar spine. Serum protein electrophoresis and serum immunofixation revealed a monoclonal spike corresponding to an IgG lambda paraprotein. Pathology of the patient’s lumbar spine yielded 60–70% involvement of bone marrow by abnormal plasma cells consistent with multiple myeloma. The patient was started on topical steroids, methotrexate, bortezomib and bisphosphonate infusions with improvement in her lesions.

Discussion The relation with MM and unusual bullous disorders is rare. Our patient presented with a unique completion of therapy, there was resolution of the swelling. Six months after treatment, she presented to her physician with complaints of a mass in her left breast and axilla along with a diffuse, pruritic rash. Biopsy was performed and showed the breast mass to be a calcified cyst. The lymph node biopsy revealed reactive changes along with non caseating granulomas. Staining of the lymph node tissue revealed Mycobacterium flavenscens. Patient was restarted on triple antibiotic therapy. Prior to these infections, she denied having any recurrent infections in the past. Pertinent exam findings included a diffuse hyperpigmented rash with induration of the extremities. Laboratory investigations revealed eosinophilia of 700 with an otherwise unremarkable blood count. Her quantitative immunoglobulins were normal. Her vaccine titers were protective. Lymphocyte Subsets and Mitogen and Antigen proliferation studies revealed a slight decrease in T cell function. Testing also revealed the presence of anti-interferon gamma autoantibodies. Patient was referred to Hematology/Oncology, and was started on Rituximab with symptomatic improvement. In the setting of autoantibodies and plaque like progression of the rash, Dermatology made a diagnosis of psoriasis. Patient was started on Otezla with improvement in the rash.
dermatological manifestation of MM with histology that does
not meet criteria for known bullous disorders. This case
exemplifies the importance of thorough examination for
underlying monoclonal gammopathies in patients presenting
with bullous eruption or any other remarkable cutaneous
characteristics.

SALMONELLA ENTEROCOLITIS IN UNDIAGNOSED
SYSTEMIC LUPUS ERYTHEMATOSUS

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10.1136/jim-2020-SRM.590

Introduction Systemic lupus erythematosus is an autoimmune
inflammatory disease characterized by the presence of autoan-
tibodies and the ability of the disease to affect any organ
system. The initial diagnosis of SLE often presents significant
challenges for clinicians. The nature of the illness is such
that symptoms can cover a broad spectrum and elicit a vast
differential. On initial presentation, preoccupation with an
infectious etiology can sometimes delay an accurate diagnosis
of SLE. This is understandable as there can be a significant
overlap in symptoms and lab findings, and infections are
known to be both a trigger for the onset of lupus and the
result of immune dysfunction frequently occurring with
lupus. In addition, various infections and medications have
been known to induce transient autoimmunity, further com-
plicating diagnosis.

Case Our patient is a previously healthy 14-year-old boy
who presented initially to the ER with symptoms of fever,
abdominal pain, vomiting, mouth sores, and knee pain after
spending several weeks in West Africa. Lab work showed
hemolytic anemia and neutropenia but normal initial inflam-
matory markers. During admission he was diagnosed with
non-typhoid Salmonella bacteremia and showed clinical
improvement after finishing two weeks of antibiotics at
home. Shortly after completing antibiotics, symptoms
recurred and he was readmitted. The patient developed
acute pancreatitis, moderate ascites, and severe abdominal
lymphadenopathy. A broad secondary workup was negative
for infection but raised concern for autoimmunity with a
positive ANA titer, low complement levels, markedly ele-
vated ESR, and persistent pancytopenia. An autoantibody
panel positive for anti-DS DNA confirmed a diagnosis of
SLE.

Conclusions Research shows that up to 20% of patients with
Salmonella bacteremia have an underlying diagnosis of SLE,
but the majority of these are prior diagnoses already on
immune-suppressive therapy. Only a few cases describe Salmo-
nella occurring simultaneously with the initial diagnosis of
lupus. In our patient, Salmonella caused a particular challenge
because of the wide variety of pathology that could be attrib-
uted to it. This in conjunction with equivocal early lab find-
ings and a clinical response to antibiotics contributed to a
delayed diagnosis.
noted on the patient’s knee. Pulmonary auscultation revealed decreased air movement bilaterally. Diagnostic workup for limited cutaneous systemic sclerosis was significant for the presence of anti-centromere antibody, anti-nuclear antibody. Echocardiography did not demonstrate pulmonary hypertension. Unfortunately, our patient failed to show for pulmonary function testing.

Discussion This patient’s physical exam findings of esophageal pathologies, sclerodactyly, and calcinosis cutis, were indicative of a transition to a secondary disease consistent with limited cutaneous systemic sclerosis. Although onset of Raynaud’s is unknown, the average time to transition to secondary disease is 10.4 years. Early recognition, diagnosis, and treatment of lcSSc is paramount to limit widespread involvement and organ dysfunction.

**592 ROUTINE CHRONIC RHINOSINUSITIS WITH NASAL POLYPOSIS OR SOMETHING ELSE? A CASE REPORT**
RA Greer*, S LeBlanc, University of Mississippi Medical Center, Jackson, MS
10.1136/jim-2020-SRM.592

Introduction Extranasal Natural killer/T-cell lymphoma (ENKTL) is a rare but aggressive form of non-Hodgkin lymphoma that can occur outside the lymphatic system. It develops from two different types of cells, natural killer cells and cytotoxic T cells. It is usually diagnosed in the fifth generation of life, more common in males, and strongly linked to infections with Epstein-Barr Virus (EBV). Symptoms often include chronic rhinitis, sinusitis or a nasal mass.

Case description A 57 year-old white male presented with a two year history of persistent nasal congestion, occasional rhinorrhea, post-nasal drip with rare crusting and nose bleeds. Past medical history included hypertension, sleep apnea, and colon cancer. Standard medical therapy failed and he had three surgeries for his bilateral nasal mass over the preceding fifteen months. Pathology showed sinonasal mucosa with a dense lymphocytic infiltrate. CD3 and CD20 immunohistochemical stains reacted positively with aggregates of lymphocytes and T-cells moderately outnumbered B-cells, but the marked lymphoplasmacytic infiltrate resulted in the infiltrate were classified as reactive and thus did not represent a lymphoproliferative disorder. Two subsequent biopsies were consistent with chronic sinusitis. No morphologic evidence of lymphoma was visualized and no evidence of carcinoma or any other malignancy was identified. Several weeks later he developed new symptoms of swelling to the maxilla near the upper gumline with gingival lesions and necrotic tissue. A biopsy of the new gingival lesions was performed and revealed atypical cells that expressed CD43 and were positive for EBV, consistent with NK/T-cell lymphoma, nasal type. The patient was referred to hematology/oncology and subsequently started on chemotherapy.

Discussion ENKTL can mask itself amongst a broad differential including chronic rhinosinusitis with nasal polyposis, invasive fungal sinusitis, sarcoid, and vasculitis among others. Given the aggressive nature of this malignancy it must be kept on the differential for patients that fit the appropriate illness script to ensure that this rare diagnosis is not missed.

**593 A RARE CASE OF HENOCH-SCHÖNLEIN PURPURA IN ADULT PATIENT**
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10.1136/jim-2020-SRM.593

Introduction Henoch-Schönlein purpura (HSP) is a systemic vasculitis involving deposition of IgA immune complexes in small blood vessels. The disease is more common in children than in adults. Clinical manifestations include palpable purpura, arthralgia, abdominal pain, bleeding and renal disease. We here report a case of HSP in an adult patient.

Case presentation A 54-year-old ex-smoker male with history of type 2 diabetes mellitus, chronic foot ulcer, hypertension, Cushing’s disease, and nonalcoholic liver cirrhosis presented to the ER with diffuse purpuric rash that started on his right leg. Mother had systemic sclerosis. His diffuse palpable purpura involved the upper and lower extremities and lower abdomen, but spared the face, back, palms and soles. CRP was 35.6 mg/L and serum albumin was 3.1 g/L. CBC, coagulation and BMP were normal. Skin biopsy showed acute cellulitis with dermal hemorrhage and epidermal spongiosis without vasculitis. He was discharged on doxycycline. One month later he returned with worsening of rash after initial improvement and new painful ulceration of the lower extremities. One month later he returned with worsening of rash after initial improvement and new painful ulceration of the lower extremities. Total IgA and CRP were elevated with normal C3 and C4. He had new onset proteinuria of 3 g in 24hour urine. Urinalysis revealed RBCs but casts were not reported. Anti-dsDNA, anti-Smith, ANCA, hepatitis C and B were all negative. A renal biopsy revealed IgA deposition of the mesangium confirming the diagnosis of HSP. Intravenous meprednisolone 1000 mg pulse therapy and Azathioprine resulted in rapid improvement of rash and proteinuria.

Discussion The clinical presentation in adults and children are similar with a few clinical differences. Adult onset HSP cases more commonly involve the kidneys than the GI tract. Severe renal involvement including progression to ESRD is commonly seen in adults. In our case the diagnosis was missed on skin biopsy which did not show any features of vasculitis, rather it was made on kidney biopsy.

Conclusion Although the diagnosis of HSP is primarily seen in the pediatric population, it may be under recognized in adults. It is a diagnosis that must be considered in adult patients presenting with purpuric skin rash with renal involvement. A kidney biopsy is required to establish the diagnosis.

**594 LUNG LESIONS WITH EOSINOPHILIC GRANULOMATOUS POLYANGIITIS**
M Amavalo*, A Ismail, D Sotello, K Nugent, Texas Tech University Health Sciences Center
10.1136/jim-2020-SRM.594

Introduction Eosinophilic granulomatous polyangiitis (EGPA) is a multisystem disorder, first described in 1951, where multiple organs are affected to variable degrees, with necrotizing vasculitis and extravascular granulomatous nodules.

Case A 30-year-old patient was transferred to our facility for evaluation of cavitary lesions on a chest x-ray. He complained of progressive fatigue and generalized body aches for 2 months. He had a painless purpuric rash on his lower extremities. His labs showed anemia, neutrophilic predominant leukocytosis and eosinophil count of 630 cells/μL. Chest CT...
showed masses in the right upper and lower lobes and thick-walled cavitary masses in the left upper and lower lobes (see figure 1). Sputum induction for gram stain and acid-fast bacilli was negative.

Biopsy of his purpuric lesions showed necrotizing vasculitis of medium-sized vessels with neutrophilic predominant infiltration and few eosinophils. He had a bronchoscopy with endobronchial ultrasound biopsies. The pathology results showed necrotizing vasculitis and tissue eosinophilia. He was diagnosed with EGPA and started on intravenous methylprednisolone that was later transitioned to oral prednisone. The patient’s symptoms improved and he was discharged after rheumatology follow up was arranged.

Discussion EGPA is an eosinophil-rich and granulomatous inflammation involving the respiratory tract. Necrotizing vasculitis affects small to medium-sized vessels, and it is associated with asthma and eosinophilia. EGPA has three phases. The prodromal phase characterized by non-specific symptoms. Then the eosinophilic phase characterized by eosinophilic organ infiltration (lung and myocardium) and peripheral eosinophilia. Then the vasculitis phase (affecting skin, peripheral nerves, and kidneys). End organ damage is due to eosinophilic infiltration and vasculitis. Initial treatment is corticosteroids. Once remission is achieved, it is maintained with methotrexate, cyclosporine, or azathioprine.
Correct attribution of neuropsychiatric manifestations in SLE remains a challenge. Diagnosis relies on characteristic clinical manifestations, SLE disease activity, antibody measurements, cerebrospinal fluid findings, specific neuroimaging findings, and exclusion of alternative etiologies. Current treatment encompasses the identification and management of the inciting event, symptomatic treatment, and anticoagulation or immunosuppression.

Endocrinology and metabolism
Concurrent session
1:00 PM
Saturday February 15, 2020

Background Pseudo hypoparathyroidism (PHP) is a disorder that results from the target organ not responding to parathyroid hormone (PTH). This results in hypocalcemia and hyperphosphatemia. Frailty fracture is an uncommon clinical presentation of PHP. We report a patient who initially presented with a fragility fracture and was later diagnosed with PHP.

Case report A 47 years old gentleman sustained a right femur fracture after missing his step and falling down two steps. His past medical history is significant for hypertension, morbid obesity (body mass index of 45 kg/m²), bilateral peripheral neuropathy of both legs. Physical examination was positive for tenderness right leg, bilateral loss of sensation to monofilament test and vibration and negative for short stature, short neck, brachydactyly, shortened metacarpals, subcutaneous ossifications and reduced intelligence. X ray of right femur showed comminuted spiral fracture of the right proximal femur without dislocation and normal bilateral hand x-rays (no brachydactyly and shortened metacarpals).

Preoperative work up showed serum calcium- 5.7 mg/dl, albumin- 3.4 g/dl, ionized calcium- 0.79 mmol/L, phosphorus- 4.9 mg/dl, intact PTH- 1130, 25-hydroxy vitamin D- 26 ng/dl, magnesium- 1.2 mg/dl with normal serum creatinine and 1,25-dihydroxyvitamin D levels. Initially ionized calcium continued to be low and intact PTH remained elevated even after intravenous calcium gluconate and adequate magnesium repletion. After the patient had open reduction with internal fixation of right femur, hypocalcemia was treated with 10 grams of Calcium Carbonate over 24 hours and a dose of Ergocalciferol 50,000 units. His corrected calcium improved to 8.2. He was discharged on oral calcium carbonate 500 mg three times daily, cholecalciferol 2000 units daily.

Conclusion Pseudo hypoparathyroidism caused by resistance to PTH was the most likely diagnosis in this patient with hypocalcemia, high normal serum phosphorus, elevated PTH and normal vitamin D metabolites. His lack of characteristic somatic phenotype; Albright hereditary osteodystrophy(AHO) makes PHP type 1A unlikely. Treatment with calcium gluconate, vitamin D and later calcium carbonate is a cost-effective way to treat hypocalcemia in a patient with PTH resistance.
Jaundice in ELBW infants fed breast milk vs formula

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Purpose of study Breast milk (BM) is a known risk factor for neonatal hyperbilirubinemia (NJ) in term infants. The American Academy of Pediatrics recognized BM feeding as a risk factor for NJ and potentially for kernicterus. More extremely low birth weight (ELBW) infants are now being fed expressed human milk (EBM) or donor expressed breast milk (DEBM) to take advantage of the immunologic benefits that may be inherent in human milk. We were interested in evaluating NJ in ELBW infants exclusively fed EBM/DEBM.

Methods used In this retrospective observational cohort study, we included 121 infants with birth weight ≤1500 grams and gestation ≤30 weeks. Infants with possible ABO incompatibility, DAT positive, known chromosomal or congenital anomalies, NEC, spherocytosis, enzyme deficiency that may lead to NJ were excluded from the study. Group A - infants were fed exclusively EBM/DEBM (01/01/2014 - 12/31/2016) and Group B – were exclusively formula fed infants (01/01/2010 - 12/31/2012). Maternal, delivery and post-natal clinical data was collected from electronic medical records.

Summary of results We included 121 infants. Group A (N=65) and group B (N=56). There was no difference in gestation (28.4±1.7 versus 28.3±2.8 weeks) or birth weight (1147±206.7 grams vs 1119±395.5 grams) between the two groups. The mean ± sd serum bilirubin on day 7 was not significantly different for Group A (5.2±2.1) versus Group B (5.4±2.1) nor at day 14 (5.5±1.9 versus 5.2±1.5). However, babies in Group A (EBM/DEBM fed) reached significantly more feed volume on day 7 (60.8±36.4 versus 39.6±36.5 p<0.001) and on the 14th day (120±42.3 versus 85.4±53.6 p<0.001). The duration of TPN was also significantly shorter for the EBM/DEBM group (12.9±10.8 days versus 16.6±14.3 days).

Conclusions There was no difference in NJ in EBM/DEBM versus formula fed ELBW infants. BM fed infants reached greater intake volume on day 7 and day 14 and had shorter durations of TPN.
Increased Viral Markers Correlate with Decreased Insulin Secretion

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Purpose of study Type 1 diabetes (T1D) is an autoimmune condition, thought to be enhanced or triggered by certain viral infections. In this study we isolated human islets expressing genes associated with viral infections. To gain insights into effects of viral infections we compared gene expression patterns in islets with or without these viral infection markers.

Methods used nPOD OCT slides were obtained from non-diabetic donors (control), autoantibody positive non-diabetic donors (AB+) and donors with T1D (T1D). Islets were categorized based on the presence of markers associated with viral infection (VIMs), HLA, Mx1, dsRNA, and PKR, identified via immunohistochemical staining. Laser capture was used to manually isolate islets. From each donor, islets were pooled based on the number of VIMs (0 VIMs, 1 VIMs or ≥2VIMs). After pooled islets were obtained, RNA was extracted, and microarray used to assess transcriptomes. We used GeneSpring software (version 13.0, Silicon Genetics, Redwood, CA) to generate a list of genes that showed differential expression between donors/VIMs. Using Webgestalt we identified pathways enriched in the lists of differentially expressed genes.

Summary of results A total of 85 genes with a fold change of ≥2.1 and p-value=0.001 were differentially expressed between islets with 0 VIMs and islets with ≥1 VIMs. Pathway analysis showed strongest enrichment for the insulin secretion pathway (enrichment ratio of 6.9 and a P-value of 5.7E-7). Closer analysis of this gene list indicated decreased expression of genes involved in insulin secretion in islets with 1 or more VIMs. Two genes of particular interest, KCNJ11 and ABCG8, had significantly lower expression in the islets with ≥1VIMs compared to islets with 0 VIMs (p=0.01). This general pattern was maintained within all clinical groups.

Conclusions Islets with high expression of genes associated with viral infection had decreased expression of genes important for insulin secretion, including KCNJ11 and ABCG8(SUR1) - the genes responsible for the K-ATP channel necessary for insulin release in response to glucose. This may suggest a pattern of dedifferentiation and/or functional impairment of beta cells in the setting of viral infections.

Type 2 Diabetes Mellitus with Glucose-6-Phosphate Dehydrogenase Deficiency: A Harbinger of Complications

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Background There have been reports of increased hemolytic crisis in patients with Glucose-6-phosphate dehydrogenase (G6PD) deficiency and type 2 diabetes during periods of poorly controlled diabetes. We report a patient with G6PD deficiency associated with recurrent hemolytic anemia who presented with diabetic complications out of proportion to his glycemic burden.

Case report A 52 years old male was first seen by endocrinology while on admission for right diabetic foot ulcer in 2018. Past medical history was significant for diet controlled type 2 diabetes mellitus, G6PD deficiency and chronic kidney disease stage 3. Physical examination was significant for only right foot ulcer. Laboratory testing showed serum blood glucose of 106–213 mg/dl, hemoglobin A1c of 4.7% (greater or equal to 6.5% in diabetes), hemoglobin and hematocrit of 8.6 g/dl and 26.6% respectively, Haptoglobin less than 8.0 mg/dl (30–200 mg/dl). Because of anemia and multiple blood transfusions, his A1C was noted to be unreliable. He was treated with Sitagliptin and followed up as outpatient in the endocrinology clinic.

Regarding type 2 diabetes, he was diagnosed at an outside hospital in 2005 and was treated initially with insulin. He experienced unintentional weight loss (from 127 kg to 87.5kg) and was able to control blood glucose with diet for 5 years. His last diabetic eye exam was in 2016.

Patient had blood work showing hemolysis and undetectable Haptoglobin back in 2007, had multiple work up and blood transfusions before being diagnosed with G6PD deficiency.

At follow up, Fructosamine was elevated at 291 umol/l (up to 285 for non-diabetic patient). He had amputation of two toes on the right foot. Diabetic retinopathy screening done also showed advanced diabetic retinopathy. At subsequent follow up, he had developed left diabetic foot ulcer. His Fructosamine remained elevated at 314 and he continues to experience recurrent hemolytic anemia.

Conclusion Patients with both diabetes mellitus and G6PD deficiency are at increased risk of worsening disease state of both conditions. In such situations, A1C may not be reliable in monitoring the severity of diabetes. Physicians should be aware of this and consider early and aggressive treatment of diabetes in these patients.

ESTROGEN INDUCED HYPERTRIGLYCERIDEMIC PANCREATITIS WITH HYPOBICARBONATREMIA IN A MTF TRANSITION

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Introduction Estrogen induced hypertriglyceridemia causing pancreatitis in a Male to Female (MfF) transition via hormonal therapy is rare. To date, there are only two case reports of such an occurrence.

Case A 43 year-old natal male who had undergone transition to female via hormone therapy presented to the Emergency Department with epigastric pain that gradually worsened over three days. The patient had no history of alcohol abuse or cholelithiasis. Right upper quadrant tenderness was absent. The patient’s blood was lipemic and subsequently requires transport to outside facility for lab processing. Serum studies demonstrated that she was hypobicarbonatemic (<5 mmol/L and 118 mmol/L, respectively) with a triglyceride level exceeding 3,600 mg/dl and lipase of 985 U/L.

Discussion The association between estrogen and hypertriglyceridemia is well-established in addition to
hypertriglyceridemia as an etiology for acute pancreatitis. However, estrogen induced hypertriglyceridemia precipitating pancreatitis in a transgender female (a male who identifies as female) is a very new clinical scenario; after a thorough literature search there currently appears to be only two such previous cases reported. Hormone therapy for transition and maintenance with estrogen transition requires supra-physiologic dosages of estrogen for prolonged duration. The mechanism of estrogen induced hypertriglyceridemia has been described: Estrogen increases the secretion of VLDL and decreases hepatic triglyceride lipase resulting in an increase of triglycerides. Patients undergoing MtF transition via hormone therapy with estrogen should have their lipid panel monitored.

**605** METASTATIC ADRENOCORTICAL CARCINOMA IN AN ADULT WITH 21-HYDROXYLASE DEFICIENCY

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10.1136/jim-2020-SRM.605

**Introduction** 21-hydroxylase deficiency is a rare enzyme defect in the cortisol synthesis pathway. When left untreated, chronic elevations of adrenocorticotropic hormone induce adrenal cortex hyperplasia and may result in the formation of adrenal gland tumors. Benign tumors, such as myelolipomas and testicular adrenal rest tumors (TART) are commonly seen, but adrenocortical carcinomas are considered to be extremely rare and have a poor prognosis. This case is presented for its rarity, suspected hereditary contribution, and particularly aggressive clinical course.

**Case description** We present the case of a 34-year old Caucasian man with untreated 21-hydroxylase deficiency. Incidental computed tomography (CT) imaging for hip pain and subsequent cancer work up identified primary adrenocortical carcinoma with metastasis to the liver, lungs, bones, testicles and contralateral adrenal gland. His family history was significant for a father with liver and pancreatic cancer, and a brother with colon cancer and 21-hydroxylase deficiency. Throughout admission, the patient remained clinically stable with the exception of moderate hip pain, dyspnea at rest, and gradually upwarding liver function enzymes. On the eighth day of admission, he acutely presented with altered mental status, scleral icterus, a diffusely tender abdomen, pedal edema, and severe hypotension. Repeat CT imaging revealed drastic enlargement of multiple metastatic tumors and hemorrhage of both adrenal tumors. The patient expired one day later.

**Discussion** Adrenocortical carcinoma is associated with hereditary cancer syndromes including Multiple Endocrine Neoplasia 1 ( MEN-1), Lynch Syndrome, and Familial Adenomatous Polyposis (FAP). The association of MEN-1, Lynch and FAP with 21-hydroxylase deficiency is well documented. However, this case not only emphasizes compliance with steroid treatment in those with 21-hydroxylase deficiency, but also highlights the importance of early genetic testing in individuals with known 21-hydroxylase deficiency and concomitant family history of cancer.

**606** ECTOPIC CUSHING’S SYNDROME IN METASTATIC SMALL CELL CARCINOMA

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10.1136/jim-2020-SRM.606

**Case report** A 60-year-old male presented with hypokalemia, hypotension, and hyperglycemia. His hypokalemia was initially attributed to diarrhea and IV diuresis for respiratory failure secondary to pulmonary edema. Due to refractory hypokalemia, he underwent further testing and was found to have elevated cortisol (89.3 mcg/dL) and ACTH (344 pg/mL). Endocrinology was consulted due to concern for Cushing’s syndrome, and per their recommendation high dose dexamethasone suppression test was conducted. Testing revealed a non-suppressible cortisol level following high dose dexamethasone, thus confirming the presence of ectopic ACTH production. CT head was unremarkable for pituitary pathology. CT chest/abdomen/pelvis revealed large mediastinal and left hilar lymphadenopathy, mass in right adrenal gland, and multiple liver masses. EBUS with transbronchial biopsy of mediastinal lymph node confirmed the presence of small cell lung carcinoma contributing to a paraneoplastic Cushing syndrome. Patient and family deferred treatment with systemic chemotherapy, steroidogenesis inhibitors, or glucocorticoid receptor antagonists. He was discharged to hospice care.

This case illustrates the atypical presentation of patient’s with ECS in SCLC and the importance of early diagnosis. Patients with ECS have a very poor prognosis due to their advanced stage at time of diagnosis, poor response to chemotherapy, increased susceptibility to severe infections, and high incidence of thromboembolic phenomenon. The life expectancy of these patients is generally 3–6 months. Opportunistic infections due to organisms such as Pneumocystis carinii and mycoses are the most common cause of death. It is important to consider ECS in SCLC in a patient presenting with new onset/worsening hyperglycemia, severe hypokalemia, and muscle weakness. Treatment includes systemic chemotherapy with steroidogenesis inhibitors or glucocorticoid receptor antagonists. Medical therapy with ketoconazole, metyrapone, mitotane, or other steroid synthesis blocking agents are the most effective method for managing hypercortisolism secondary to ectopic ACTH production.

**607** POSTERIOR REVERSIBLE ENCEPHALOPATHY SYNDROME ELUCIDATING DIAGNOSIS OF PHEOCHROMOCYTOMA

H Patel*, P Shelley, U Wardan, J Lung. UF Health Jacksonville, Jacksonville, FL

10.1136/jim-2020-SRM.607

**Case report** A 63 year old female with hypertension and hypertrophic cardiomyopathy presented with hypertensive emergency with systolic blood pressures (BPs) up to 190s and chest x-ray with pulmonary vascular congestion. She was managed with non-invasive positive pressure ventilation, nitroglycerin infusion, and diuresis with furosemide. An echocardiogram showed a newly reduced left ventricular ejection fraction. She underwent heart catheterization during which she had an acute rise in her blood pressure with systolic BPs of 220s. Subsequently she was noted to be unresponsive. Computed tomography (CT) head was negative for stroke and electroencephalogram was negative for seizures.
Magnetic resonance imaging (MRI) showed findings that were consistent with atypical posterior reversible encephalopathy syndrome (PRES). Considering the repeat episode of hypertensive emergency during anesthesia, a work up for pheochromocytoma was pursued. 24 hour urine nor-/metanephrines and serum epinephrine, norepinephrine, and dopamine were significantly elevated. A CT abdomen localized an adrenal tumor. She followed up with surgery for resection, and pathology confirmed the diagnosis.

Discussion This case highlights a unique presentation and discovery of the underlying disorder. Only a few cases of PRES and pheochromocytoma have been documented. Pheochromocytomas are neuro-endocrine tumors from adrenal chromaffin cells or sympathetic ganglia. The incidence is estimated to be less than 1 in 100,000. The classic triad is considered to be headache, sweating, and tachycardia however, it isn’t commonly seen. Patients can have paroxysmal or persistent hypertension. Many times there is a delay in diagnoses and an estimated 25% of cases are not diagnosed. Therefore, a clinician needs to always be aware of this diagnosis especially in patients with episodic hypertension and typical symptoms. The incidence of PRES is also low, however it hasn’t been quantified. Incidence has been increasing likely due to availability of MRI, as it’s an imaging based diagnosis. The most popular theory of its pathophysiology is attributed to dysfunctional cerebral blood flow autoregulation. This patient had two paroxysms of hypertensive emergency, one which caused PRES, and lead to the final diagnosis.

Abstracts

609 DECREASING ANTIBIOTIC USAGE AND STANDARDIZING THE EVALUATION AND TREATMENT OF CHILDREN WITH SUSPECTED URINARY TRACT INFECTIONS: A QUALITY IMPROVEMENT PROJECT

L. Thai*, S. Goslings, S. Tengsupakul. University of South Alabama, Mobile, AL

Purpose of study A lack of consensus and standardization among physicians on management of children with suspected urinary tract infections (UTI) can lead to different empiric antibiotic coverage, duration, and prolonged hospital length of stay. A collaborative antibiotic stewardship team created a guidance algorithm with the aim to decrease the antibiotic utilization rate (AUR) for children with suspected UTI by 10% and to decrease the hospital length of stay by 10%. This would be achieved with <10% readmission rate and to have at least 75% adherence to the developed algorithm.

Methods used Our team consisted of residents, infectious disease specialists, hospitalists, nursing staff, and pharmacy staff to implement our quality improvement project. An evidenced-based algorithm was created to focus on clarifying the empiric antibiotic of choice, imaging criteria, and discharge criteria. Baseline data, including empiric antibiotic initiation, AUR, and length of stay were collected via retrospective chart review from October 2017 to April 2018. Patients who were 2 months to 2 years old with specific diagnosis codes of UTI were included into our study; patients outside the age range or admitted to the PICU were excluded. Multiple Plan-Do-Study-Act cycles were implemented from May 2018 to March 2019, with the objective to decrease the antibiotic utilization rate by 10%. The processing measure was a minimum of 75% adherence to the algorithm. The balancing measure was to have less than 10% of patients readmitted to the hospital within 30 days.

Summary of results After implementation of the guidance algorithms, the AUR decreased from 35.97 to 23.96 (25.68%) antibiotic days per 1,000 hospital days. The median length of stay decreased from 5.4 days to 4.4 days (p<0.05). The
overall adherence to the algorithm was 91.4%. The readmission rate was ~3%.

Conclusions By implementing a standardized guidance algorithm, we were able to safely decrease the utilization rate of antibiotics and the average length of stay for children with a suspected UTI. Continued education for culture change is required to sustain the reduction in antibiotic utilization rates.

Purpose of study Most newborns make the cardiopulmonary transition to extraterrestrial life without intervention; however, some need help. The resuscitation team should always be prepared for these events. The Neonatal Resuscitation Program (NRP) 7th edition placed emphasis on communication—in particular, four pre-birth questions, pre-delivery team briefing, the assignment of roles and a complete equipment check. The adherence to NRP requirements about communication at our neonatal intensive care unit (NICU) has been variable. The objective for this quality improvement initiative is to improve the NICU delivery team adherence to NRP 7th recommendations to 100%.

Methods used We conducted two Plan-Do-Study-Act (PDSA) cycles. In cycle 1, a delivery room tool was created for the labor and delivery nurses to address the four pre-birth questions to allow pre-briefing for deliveries. The NICU and labor and delivery staff received a presentation focusing on the 7th edition updates. NRP algorithms and electrocardiographic monitors were placed in all delivery rooms. In PDSA cycle two a ‘call before you code’ was implemented, assigning a designated phone number for the delivery team. The communication tool was revised, and an equipment checklist was created and placed on all carts. Delivery room (DR) cart stocking and restocking processes were standardized. Stethoscopes were supplied in each delivery room. Educational sessions were provided to all DR team members.

Summary of results There has been a steady improvement in the L&D team communication of the four pre-birth questions from 27% to >75%. Time for the DR team to assemble has improved from 5.1 minutes to 4.2 minutes. Complete equipment check has improved to 72% and team briefing/communication has improved from <50% to 65%.

Conclusions The initiative has resulted in a more effective and efficient DR team. Cycle 3 is working to improve multidisciplinary participation. Future directions for the initiative include improvement of communication during and after DR resuscitations and DR documentation improvement.

Purpose of study The purpose of this study was to assess the acceptability and impact of a quality improvement (QI) initiative of the American Academy of Pediatrics (AAP) Chapter Quality Network (CQN) network on vaccination rates at selected practices in Oklahoma. Through academic detailing and monthly meetings we seek to identify missed opportunities for vaccination and train clinics to employ new methods and improved techniques that could increase immunization rates.

Methods used Surveys were given prior to the beginning of the project. Immunization and missed opportunity data was collected monthly in RedCap database. Missed opportunities were categorized as opportunities to vaccinate in which the patient did not receive the vaccine for which they were due. Each practice utilized academic detailers and initiated Plan, Do, Study, Act (PDSAs) cycles targeted at their individual clinic processes to make positive process changes to improve vaccination rates in their office. Change in missed opportunities was examined for significance using non-overlapping confidence intervals.

Summary of results Pre-surveys were given before project completion. 28 practices (25 Pediatrics and 3 Family Medicine) participated. While nearly 68% of the practices had previously participated in any QI project, only 38% had partaken in a vaccine QI project with 30% of these involved in a previous CQN AAP project. 25% felt unsure of their QI methodology. All practices vaccinated at well visits but only 60% gave vaccines at other visits while 57% checked immunizations when scheduling patients and 30% routinely measured coverage levels. Over 80% of practices documented immunization refusal. Only 39% of practices had standard reminders or recall processes for vaccines. Almost 50% did not have any automated reminders in their EMR. Missed opportunities decreased from April 86.4% (95% CI: 79.0–93.9) to August 49.4% (95% CI: 38.3–60.4).

Conclusions By understanding the services of academic detailing, identifying problems and areas for improvement with PDSAs, and being aware of patterns of missed vaccines, the practices are decreasing their missed opportunities for vaccines. QI initiatives are acceptable to practice networks to initiate change in office vaccination practices. Preliminary results show a steady decreased in missed vaccination opportunities across the network.
Conclusions The number of follow-up appointments both scheduled and attended increased throughout the study, suggesting that the QI measures implemented were effective. Further interventions will focus on patient and system barriers to appointment attendance.

**Abstract 613** QUALITY CARE ANALYSIS OF THE APPROPRIATENESS OF VETERANS AFFAIRS CARDIOLOGY CLINIC VISITS - A FOLLOW UP OF INTERVENTIONS

VE Gadad*, A Motwani, M Cassidy, AK Irmpen, Tulane University, New Orleans, LA

10.1136/jim-2020-SRM.613

**Purpose of study** After the New Orleans VA Cardiology Clinic in 2016 was cited with the highest number of clinic visits per unit time across all specialties and VA practices nationally, we performed an analysis which showed a significant number of inappropriate visits in terms of time to follow up. We then tested an algorithm detailing appropriateness and standardized time to followup.

**Methods used** A team of 2 fellows, a clinic nurse, and a supervising physician was formed. We identified 195 patient encounters in the VA cardiology clinic during a one-week period from April 15–19, 2019 and stratified by visit type and sub-specialty. Final chart review was done on 106 general cardiology visits, identifying the time of previous and subsequent cardiology visits (1, 2, 3, 6, 9, 12, 24 months, >24 months or discharge from clinic) and the reason for the follow up. This data was compared to our 2016 and 2018 data in regards to appropriateness and timing of followup after reinforcement of discharge criteria.

**Summary of results** Both scheduling and attending follow-up appointments increased from baseline (p<0.001). Clinic follow-up was lower for patients with chronic illnesses but did improve from cycle 1 to cycle 3. The percentage of appointments scheduled for weekend discharges was not different from weekday discharges, and increased from baseline. (See results table 1)

**Abstract 612 Table 1** Primary care clinic follow-up

<table>
<thead>
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<th>Baseline (n=63)</th>
<th>Cycle 1 (n=25)</th>
<th>Cycle 2 (n=69)</th>
<th>Cycle 3 (n=81)</th>
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<td><strong>Appointments Scheduled (%)</strong></td>
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<td>Overall</td>
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<td><strong>Appointments attended (%)</strong></td>
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<td>Overall</td>
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<td>Chronic Illness</td>
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<td>No Chronic Illness</td>
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**Abstract 613 Figure 1**

**Abstract 614** IMPROVING PREOPERATIVE ADMINISTRATION OF AZITHROMYCIN IN INDICATED CESAREAN SECTIONS

A Nakahara*, K Handley, V Gillispie. Ochsner Medical Center, New Orleans, LA

10.1136/jim-2020-SRM.614

**Purpose of study** Despite routine prophylaxis with cephalosporins, post-operative surgical site infection rates are approximately 12%. The multicenter randomized control trial, Cesarean Section Optimal Antibiotic Prophylaxis (C/SOAP), demonstrated that addition of azithromycin to standard prophylaxis regimens prior to unscheduled cesarean section (CS) significantly reduced post-operative infection rates. The aim of this study was to determine whether various interventions could increase compliance with azithromycin administration in all unscheduled CS, with a goal of 90%.

**Methods used** A three phase quality improvement study was conducted from October 2017 to April 2018. Unscheduled CS were defined per the C/SOAP trial. Compliance rates were assessed for four months prior to intervention cycles. The three cycles included Cycle 1: modified timeout prior to CS (whether azithromycin was indicated and whether medication was administered), Cycle 2: update of admission order sets to include azithromycin and Cycle 3: addition of azithromycin to medication dispensing system. The primary outcome was percent compliance with azithromycin administration in unscheduled CS. Statistical analysis was performed using Chi square test analysis when appropriate. Six-month administration rates

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*Abstracts*
were later assessed to determine whether compliance was continued after intervention cycles.

Summary of results 259 patients were eligible for pre-operative azithromycin administration. After all intervention phases, the administration rate increased from 74 to 90%. Patients with ruptured membranes were significantly more likely than unruptured patients to receive pre-operative azithromycin (82.2% versus 43.8%, p<0.0001). Patients who were diagnosed with failure to progress were most likely to receive azithromycin (84.5%). Percentage of azithromycin administration rate increased from 46 to 67% in emergent CS and from 75% to 94% in non-emergent CS. Review of intervention compliance six months after the completion of the study showed the relative risk of receiving azithromycin after the intervention to be 1.07 with a 95% CI (0.95 to 1.21).

Conclusions Our data suggest that continued education for azithromycin indications and easier accessibility is necessary for the addition of this medication to standard antibiotic prophylaxis in unscheduled CS.

615 SHARED MEDICAL APPOINTMENT CLINIC AND WELLNESS GUIDE FOR CANCER SURVIVORS

J Singh*, R Mahadevan, C Arnold, T Davis. LSUHSC, Shreveport, LA

Purpose of study Assess feasibility of a Shared Medical Appointment (SMA) clinic for cancer survivors and develop a patient-centered wellness guide.

Methods used University cancer center patients who completed active treatment were referred by oncologists to survivor clinic, staffed by two physicians and a survivorship nurse. 5–10 patients attended clinics in a group. Education and multidisciplinary services were provided at each visit. Patients completed surveys after visits. We also conducted four survivor focus groups to elicit input on the Program and creation of Wellness Guide with sections on nutrition, exercise, stress, sleep, smoking, and side effects. Iterative drafts were created to ensure accuracy, ease of reading, action plans and acceptability. Reading level was assessed and Patient Education Materials Assessment Tool (PEMAT) was used to score understandability and actionability.

Summary of results Of 63 patient visits to date 78% were female; 40% African American; 55% white; age range 37 to 76 years. 60 completed survey: 95% stated would return to the SMA and recommend to a cancer survivor. 100% reported their doctor cared about them and spoke in a manner that was easy to understand. Qualitative results indicated patients liked the group visits, benefited from group support and sense of community motivation for health behavior change; appreciated one-stop-shop for healthcare. Regarding the Wellness Guide, survivor input facilitated patient-centeredness with suggestions of pictures of actual patients over mock-ups. Reading level was assessed and PEMAT indicated 88% understandability and 80% actionability.

Conclusions SMA’s and literacy and culturally appropriate guides are a feasible model for guiding cancer survivors to adopt behaviors that decrease risk of recurrence and improve quality of life. Collaboration of a multidisciplinary team including cancer survivors ensured that emerging survivorship program and wellness guide were acceptable. Further research is needed to assess behavioral and biometric outcomes.

616 TIME FOR A HOLIDAY: DE-ESCALATION OF HIGH FLOW OXYGENATION IN BRONCHIOLITIS


Purpose of study Bronchiolitis is the most common cause of hospitalization in infants less than 12 months old. Use of high flow oxygen therapy has emerged as a non-invasive method to provide positive airway pressure. However, existing guidelines lack recommendations for weaning high flow supplemental oxygen. We sought to decrease duration of high flow oxygen supplementation and length of stay in patients admitted with bronchiolitis through standardization of high flow weaning.

Methods used In this single-center quality improvement project, patients aged 1–24 months hospitalized with bronchiolitis from February through September 2019 were included; patients with chronic lung disease, anatomic airway disorder, cyanotic cardiac disease, or home oxygen use were excluded. An interdisciplinary group implemented a standardized care process for de-escalating respiratory support. Rapid PDSA cycles were conducted and included: creation of a decision tool weaning high flow supplemental oxygen (‘high flow holiday’), inclusion into hospital policy, and modification of the computerized physician order entry system. Data was collected for primary outcomes of length of stay and duration of time on supplemental oxygen. Balancing measures included transfer to the PICU and 7-/30-day readmissions.

Summary of results After 3 PDSA cycles, 208 patients with bronchiolitis were included, of which 107 required high flow supplemental oxygen. Interventions led to decreases in mean length of stay (61.02 vs 39.45 hours; p<0.01), time on high flow oxygen (52.26 vs 21.34 hours; p<0.01), and total time on supplemental oxygen (53.40 vs 22.12 hours; p<0.01). Balancing measures remained stable with no significant change in PICU transfer or readmission rates.

Conclusions Implementation of a standardized care process for weaning and discontinuing high flow supplemental oxygen resulted in decreased length of stay and duration of supplemental oxygen therapy for patients hospitalized with bronchiolitis. This project demonstrated the potential for safely minimizing resource utilization in bronchiolitis, which may be explored at other institutions to determine if effects persist.

617 REDUCTION OF UNPLANNED EXTUBATIONS IN THE NEONATAL INTENSIVE CARE UNIT (NICU)

S Hari Gopal*, Y Kalra. University of Tennessee College of Medicine at Chattanooga, Chattanooga, TN

Purpose of study Unplanned extubation (UE) is the fourth most common adverse event in the NICU. We implemented a
quality initiative in our NICU to reduce the rate of UE to meet national standards.

Methods used
Pre-intervention data was analyzed from June 2018–Jan 2019. Standard elements of the Solutions for Patient Safety (SPS) UE prevention bundle were implemented through four Plan-do-study-analyze cycles. Rate of UE/100 ventilator days and etiological factors were measured. Post-intervention data was analyzed from Feb–June 2019.

Summary of results
Our cohort had average gestational age of 28 weeks, birth weight of 1130 g and post menstrual age of 33 weeks. 65% of the UE were re-intubated; 30% had continuous sedation and no patients required CPR after the UE. Pareto analysis showed UE due to patient movement (50%), procedures (30%), loose taping (10%) and kangaroo care (10%). Number of UE reduced by 73%, the UE rate dropped from 4.3 to 2.4/100 ventilator days and average UE events reduced from 10 to 4.4 (figures 1 and 2).

Conclusions
The project helped reduce patient harm due to UE and helped strengthen multidisciplinary partnerships in the NICU.

Hematology and oncology II
Concurrent session
1:00 PM
Saturday February 15, 2020

619 CENTRAL NERVOUS SYSTEM PROPHYLAXIS IN PRIMARY ADRENAL/RENAL DIFFUSE LARGE B-CELL LYMPHOMA

Purpose of study
Controversy exists regarding breastfeeding support policies, the need for formula supplementation, and the use of dextrose gel to promote exclusive breastfeeding and decrease hypoglycemia related complications including NICU admission. Our aim was to implement supplemental feeding based neonatal hypoglycemia guidelines incorporating donor breastmilk and assess effects on NICU admission and breastfeeding success.

Methods used
Utilizing the IHI Model for Improvement, our single center implemented use of shelf stable donor breastmilk and modification of an existing neonatal hypoglycemia for newborns greater than and equal to 35-weeks gestation. Specific guidelines for donor milk utilization were created for candidacy and duration. Median values for January 2017 through December 2018 were utilized for baseline utilizing an algorithm driven by dextrose gel rescue.

SMART aim assessments included
Reduce total NICU admissions for asymptomatic hypoglycemia to 5% and to 10% in high risk screened patients from 7% and 14% over 6 months
Improve exclusive breastfeeding rate at discharge for all infants 5% and high-risk infants by 10% from 60% and 31% over 6 months

Summary of results
Upon implementation of donor breastmilk in January 2019 and modification of hypoglycemia algorithm in February 2019, data was collected monthly. Median NICU admission rates for hypoglycemia were reduced to 6% and 8% for high-risk infants. Median exclusive breastfeeding rates were increased to 65% and 43% for high-risk infants. The median cost of donor breastmilk utilization was $30.68 per patient utilized and $3.60 per patient delivered. 14% of infants delivered utilized donor milk since implementation with an average volume of 46.2 ml/infant.

Conclusions
Implementation of donor milk in a neonatal hypoglycemia algorithm and in general on a newborn service bundle is a cost-effective way to reduce NICU admission for hypoglycemia and support mothers in achieving their breastfeeding goals. Future PDCA targets will identify optimal patients for supplementation and reducing cost of utilization.

619 FED IS BEST: CAN DONOR BREASTMILK AND SUPPLEMENTATION-BASED HYPOGLYCEMIA GUIDELINES REDUCE NICU ADMISSION?

Purpose of study
Primary adrenal lymphoma (PAL) and primary renal lymphoma (PRL) are rare extranodal lymphomas, predominantly of diffuse large B-cell lymphoma (DLBCL) subtype. Guidelines regarding CNS prophylaxis in early stage PAL/PRL (Ann Arbor IE and IIE) and optimal route of administration have not been clearly elucidated. Here we provide an analysis of over 400 cases of PAL/PRL, the largest collection...
Abstract 619 Figure 1

Abstract 620 EFFECT OF SICKLE CELL DISEASE SEVERITY ON ACADEMIC GOALS

1E Varney*, 2J Valluri, 1P Claudio, 1CM Howard. 1University of Mississippi Medical Center, Jackson, MS; 2University of Texas- McGovern Medical School, Houston, TX; 3University of Texas- McGovern Medical School, Houston, TX; 4UT Physicians Comprehensive Sickle Cell Center, Houston, TX

Purpose of study The aim of this study is to examine the correlation between the severity of sickle cell disease (SCD) and academic goals that patients set for themselves.

Methods used This was a cross-sectional questionnaire-based study of SCD patients at UT Physicians Comprehensive Sickle Cell Center, Houston Texas, from January 2012 to July 2019. Patients received questionnaires during their routine clinic visits. There were questions regarding patients’ academic goals and on the effect of SCD on attainment of these goals. In addition, patients were asked to report the number of hospitalizations they had in the previous 12 months that was due to SCD vaso-occlusive crisis (VOC). Total number of hospitalizations due to SCD VOC was used as a measure of SCD severity. We reviewed clinical data in the electronic medical record system. Descriptive analysis was performed with frequency distributions. Univariate logistic regression was conducted to investigate the association between the number of hospitalization and achievement of academic goals.

Summary of results A cohort of 111 SCD patients completed questionnaires about their academic goals and hospitalization history. Of the patients, 63 patients (56.8%) were satisfied with their academic achievement and performance. 90 patients (81.1%) indicated an academic goal to finish college. More than half of patients (58 patients) answered that they felt that they were unable to reach their academic goal due to SCD.

89 patients (90.20%) were hospitalized for VOC, at least once, in the previous year. SCD patients who had more than 3 hospitalizations for VOC, in the previous year, were significantly more likely to feel they could not achieve the academic goal compared with SCD patients with no hospitalizations in the previous year (Odds Ratio 8.840, 95% CI; 2.767–28.238).

Conclusions This study emphasizes the negative impact of SCD VOC on academic goal achievement. Patients who had more than three SCD VOC related hospitalizations in the past year were more likely to self-report that SCD was preventing them from achieving their goals. Continuation of this study will gather more data to support accommodations for patients with SCD, so they may better accomplish their goals.
622 GOT POLIO? A QI PROJECT IMPROVING VACCINATIONS RATES IN OFF-THERAPY CANCER PATIENTS AT ARKANSAS CHILDREN’S HOSPITAL

1KK Mason*, 1D Bector, 1JM Madh. 1University of Arkansas for Medical Sciences, Little Rock, AR; 2Arkansas Children’s Hospital, Little Rock, AR

10.1136/jim-2020-SRM.622

Purpose of study Children with cancer receiving chemotherapy are immunocompromised, and, therefore, unable to receive certain vaccines. However, once they complete chemotherapy, it is extremely important to get them up-to-date on their vaccinations in order to decrease vaccine preventable diseases. This can lead to decreased herd immunity and increased occurrence of vaccine preventable diseases.

Methods used We performed an institutional IRB exempt chart review. Pediatric oncology patients greater than 6 months from the completion of chemotherapy were identified. Their vaccine records were obtained. Exclusion criteria included all patients less than 6 months from the completion of chemotherapy, IVIG or monoclonal antibodies received in the last 6 months, history of bone marrow transplant, or currently in treatment. Only patients in Tuesday clinics were provided with an intervention of either education for the need of vaccines (vaccine records and a letter to primary care physician) or administration of needed vaccines. Tuesday clinic results were then compared to all other clinics for the rate of improvement of vaccines or education of the need for vaccines.

Summary of results After 3 months of chart reviews of all eligible patients, it was noted that 70% of eligible off-therapy patients were not up to date on vaccines. Intervention of either education or administration of vaccines was 100% on all Tuesday clinic patients who met criteria. All other clinic vaccine rates or education for the need of vaccines remained between 30–40%.

Conclusions More than half of off therapy pediatric oncology patients seen at our institution are behind on vaccines, thus decreasing herd immunity and increasing the probability of vaccine preventable diseases. More education and collaboration with primary care providers is necessary to provide adequate care to off therapy pediatric oncology patients.

623 THE CORRELATION BETWEEN OBESITY AND KIDNEY CANCER AS COMPARED TO THE CORRELATION BETWEEN SMOKING AND LUNG CANCER IN MISSISSIPPI COUNTIES

SM Jeong*, JC Henagan. University of Mississippi Medical Center, Jackson, MS

10.1136/jim-2020-SRM.624

Purpose of study Cohort studies have established obesity as a risk factor for renal cell carcinoma (RCC). Whether this relationship is still detected in other types of population studies is unknown. This study aims to clarify the relationship between obesity and RCC by asking if there is a correlation between a Mississippi county’s rank of obesity prevalence and RCC incidence. If a correlation is detected, it will be compared to the correlation between a Mississippi county’s rank in smoking prevalence and lung cancer incidence.

Methods used Data regarding RCC and lung cancer incidence in Mississippi from the years 2012–2016 were downloaded from the website: https://statelungcancerprofiles.cancer.gov. Data regarding the prevalence of obesity and smoking in Mississippi counties in 2012 were downloaded from www.countyhealthrankings.org. An online Spearman’s Rank (rs) Calculator was used to evaluate for a correlation between the county rankings for RCC incidence and obesity prevalence, as well as the county rankings for lung cancer incidence and smoking prevalence. A two-sided p-value of <0.05 was felt to be statistically significant. Counties without cancer incidence or obesity/smoking prevalence data were excluded from the analysis of that missing data but not the entire analysis.

Summary of results Data regarding obesity prevalence and RCC incidence (n=65 counties) showed a statistically significant correlation between the two lists of ranks (rs=0.26, p=0.0332). Data regarding smoking prevalence and lung cancer incidence (n=78) showed a statistically significant
correlation between the two lists (rs=0.41, p (2-tailed) = 0.0002).

Conclusions Our data shows that the Spearman’s rho coefficient between the rank of obesity prevalence and RCC incidence in Mississippi counties is statistically significant, as is the correlation between the county rank of smoking prevalence and lung cancer incidence. Rs for kidney cancer and obesity prevalence is less than that for lung cancer and smoking prevalence implying a weaker correlation. Given this weaker correlation, while population changes in smoking prevalence heralded corollary changes in lung cancer incidence, it is unclear if population changes over time in the prevalence of obesity would demonstrably impact RCC incidence.

Infectious diseases II
Concurrent session
1:00 PM
Saturday February 15, 2020

625 UPDATED TRENDS OF HERPES ZOSTER INCIDENCE AND VACCINATION AMONG VETERANS

A Muniz Hernandez1, A Moanna. Emory University School of Medicine, Atlanta, GA; Emory University, Atlanta, GA

Purpose of study To update and assess patterns in herpes zoster (HZ) incidence and HZ vaccine use among Veterans from 2012 to 2018.

Methods used Data from the VA Managerial Cost Accounting System were used to determine HZ incidence and vaccine usage for 2012–2018.

The number of diagnosed HZ cases for individual Veterans was obtained for each year. Incidence per 1000 was calculated for total number of Veterans receiving care each year and for age groups.

The numbers of live vaccine doses given were assessed for 2007–2018, and recombinant vaccine doses for fiscal years 2018 and 2019.

Mean annual incidence rate was calculated for 2012–2015 and 2016–2018. Two sample t-test was used to assess the difference between the two periods.

Summary of results During 2012–2018, the average number of Veterans served annually was 6.5 million, of whom those aged >60 years accounted for 61%.

From 2012–2018, total diagnosed cases of HZ decreased 41% (from 39,660 to 23,424) and rates decreased 48% (from 6.5 to 3.4 per 1000). Among those aged ≥60 years, the decline in incidence was 49% (from 8.7 to 4.4 per 1000).

Two sample t-test showed a significant difference between mean annual incidence rate before and after 2016 (p<0.001). Administered doses of live vaccine increased from 1,049 in 2007, to 51,905 in 2013, then decreased each year to 6,576 in 2018. Administered doses of recombinant vaccine increased from 16,066 in FY 2018 to 24,882 in FY 2019.

Conclusions This study provides updated information on the epidemiology of HZ and administration of HZ vaccine to Veterans. After years of increase, the incidence of HZ among Veterans has significantly decreased. HZ vaccine continues to be underutilized, but we hypothesize that its increased utilization played a role in the decrease of HZ incidence.
Purpose of study Carbenapen-resistant Enterobacteriaceae (CRE) are a major public health threat. In 2016, the phenotypic definition of CRE expanded to include ertapenem resistance. We investigated the epidemiology and resistance mechanisms of CRE resistant to ertapenem only among carbapenem (CRE-EO) compared to CRE resistant to ≥1 other carbapenem (CRE-O).

Methods used The Georgia Emerging Infections Program performs active laboratory and population-based CRE surveillance in metropolitan Atlanta. CRE cases were any E. coli, Klebsiella spp., or Enterobacter spp. resistant to ≥1 carbapenem and isolated from urine or a sterile site from 2016–2018. Data were extracted from retrospective chart review and 90-day mortality from Georgia vital statistics for 2016–2018. Polymerase-chain reaction testing for carbapenemase, 81 (33%) were positive (6% CRE-EO and 90-day mortality from Georgia vital statistics for 2016–2018. Data were extracted from retrospective chart review and 90-day mortality from Georgia vital statistics for 2016–2018. Polymerase-chain reaction testing for carbapenemase was performed on a convenience sample of isolates. We compared demographic, outcome, and genotypic characteristics of CRE-EO cases to CRE-O cases. Variables were compared by $\chi^2$ test or t-test.

Summary of results Of 927 CRE isolates, 553 (60%) were CRE-EO. Compared to CRE-O, CRE-EO were more frequently E. cloacae (33% vs. 11%) or E. coli (41% vs. 24%) and less frequently K. pneumoniae (21% vs. 58%) (all p<0.01). CRE-EO were more commonly isolated from urine (89% vs. 85%, p=0.04) and less commonly from blood (5% vs.12%, p=0.01). CRE-EO cases were more often female (65% vs. 50%, p<0.01), had lower Charlson Comorbidity Indices (mean ± standard deviation 2.4±2.3 vs. 3.0±2.6, p<0.01), and were less commonly at a long-term care facility (24% vs. 31%) or hospital (15% vs. 21%) (p<0.01) 4 days prior to index culture. CRE-EO cases had lower 90-day mortality (13% vs. 21%, p<0.01). Of 247 (27%) isolates with carbapenemase testing, 81 (33%) were positive (6% CRE-EO vs. 61% CRE-O, p<0.01). Of carbapenemase-positive isolates, 76 (94%) were blaKPC.

Conclusions CRE-EO is epidemiologically distinct from CRE-O and less likely to have a carbapenemase. CRE-EO may require less intensive infection prevention interventions and have more therapeutic options.

Purpose of study Hypogonadism occurs more commonly and at earlier ages in HIV-infected men compared to HIV-uninfected men. Currently, testosterone replacement therapy (TRT) is standard of care but has been associated with an increased frequency of adverse events. Clomid is an estrogen modulator that increases endogenous testosterone production. Here, we aim to compare the efficacy, safety and tolerability of TRT vs. Clomid in HIV-infected hypogonadal men.

Methods used This retrospective analysis evaluated HIV-infected men with laboratory confirmed hypogonadism defined as a serum testosterone level below 319 ng/dL seen at the Orlando Immunology Center between 01/2017–12/2017. Eligible patients were treated with TRT or Clomid and had a minimum follow-up of 1 year. The primary objective was to compare the efficacy of TRT vs. Clomid in the HIV-infected population. Secondary objectives were to compare the safety and side-effect profiles to determine which drug has more favorable outcomes.

Summary of results Of 505 hypogonadal HIV-infected males, 107 met inclusion criteria. Median age was 53 years, 31% tropical spastic paresis (HAM/TSP) and/or Adult T-cell Leukemia/Lymphoma (ATLL).

Case A 22-year-old Honduran woman with a 5-year history of worsening lower extremity weakness affecting ambulation and urinary retention requiring self-catheterization presented with fever, chills and productive cough for two weeks. Of note, her mother had similar symptoms and passed away in Honduras due to complications from infected pressure ulcers. Furthermore, the patient stated her father had been sexually abusing her. Physical exam demonstrated weakness with movement against gravity, decreased vibratory sensation and sustained clonus in bilateral lower extremities. Chest imaging and lab-work up were consistent with acute bacterial pneumonia for which she was treated. CSF studies for bacterial and fungal growth were negative. HIV/AIDS, HCV and syphilis tests were negative. HTLV-1 Antibodies were positive, MRI images of the brain and spine were nonspecific except for the incidental finding of a renal abscess that was drained of sterile fluids and did not reveal any malignant cells. Her myelopathy was treated with methylprednisolone for 5 days and her lower extremity weakness and urinary retention improved.

Discussion HTLV/TSP and ATLL are progressive, life-threatening complications from HTLV-1 infection. HTLV-1 infection also places patients at risk for opportunistic infections. Although this patient initially presented with signs and symptoms of pneumonia, her unexplained chronically progressive lower extremity weakness with urinary retention, recent emigration from Honduras, pertinent neurological exam findings, and maternal history was concerning for HTLV-1 infection. In the correct context, HTLV-1 should be considered for a patient with unexplained lower extremity weakness and urinary retention.

Introduction Human T-cell Lymphocytic Virus Type I (HTLV-1) is a human retrovirus endemic to the Caribbean, Central and South America, Africa and Japan. HTLV-1 is most commonly transmitted via sexual contact or from mother-to-child through breast feeding. Although most carriers are asymptomatic, patients can develop HTLV-associated myelopathy/
were non-White, 45 (42%) started Clomid and 62 (58%) started TRT. At 1 year, both Clomid and TRT patients had significant increases in mean total testosterone of 371 ng/dL and 322 ng/dL respectively, however there was no significant difference between treatment groups, p=0.59. Clomid patients were significantly more likely to report symptomatic improvement, odds ratio (OR) 4.6, 95% CI [2.0, 10.9], whereas TRT patients were significantly more likely to experience TRT-related side effects, OR 8.7, 95% CI [2.2, 58.1]. Grade 1–4 lab abnormalities occurred in 18/45 (40%) Clomid patients vs. 35/62 (56%) TRT patients, p=0.1.

Conclusions In our cohort of HIV-infected hypogonadal patients, both Clomid and TRT resulted in significantly increased total serum testosterone over 48 weeks, however, Clomid patients were significantly more likely to report symptomatic improvement and less likely to experience therapy-related side effects. This data suggests that Clomid may be a viable alternative to TRT in this population however, further research is needed to validate this therapeutic strategy.

630 CARDIOVIRIOLOGY CLINIC FOR PRIMARY PREVENTION IN HIV PATIENTS: A QUALITY IMPROVEMENT ASSESSMENT

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10.1136/jim-2020-SRM.630

Purpose of study With HAART, many patients living with HIV now enjoy life expectancies approaching those of uninfected individuals, but with an increased prevalence of non-communicable comorbidities. HIV imparts a 1.5–2 -fold greater incidence of major adverse cardiovascular events (MACE) from atherosclerotic cardiovascular disease (ASCVD). Our HIV/AIDS center established a Cardiovirology Clinic (CvC) to provide 1st and 2nd preventive cardiovascular care to its patients. We sought to define the initial performance of this care model for 1st prevention, identifying factors most strongly associated with reduced risk.

Methods used We identified unique CvC patients receiving HAART without established ASCVD seen over a 2 year period (1st prevention patients [N=64]) with at least 1 additional visit. We collected data on ASCVD risk factors (smoking, diabetes, hypertension, dyslipidemia, drug/alcohol use, exercise, and family history of premature ASCVD), BMI and systolic blood pressure, as well as CD4 count and viral load, estimated glomerular filtration rate, total cholesterol (TC), triglycerides (TG), and high (HDLc) and low (LDLc) density lipoprotein cholesterol. We calculated 5-year risk estimates of a composite endpoint (cardiovascular death, non-fatal myocardial infarction or stroke, or need for major revascularization) using the D:A:D equations (https://chip.dk/). Using de-identified data, we performed two-tailed, paired T-testing for each variable, comparing initial to most recent values. A p-value <0.05 was significant.

Summary of results Reductions in mean D:A:D risk (RRR 33.36%, ADR 1.62%, p<1.1) were seen, and associated with lower mean TC (20.3%, 36.1, p<1.1), TG (18.7%, 36.1, p<0.05), LDLc (32.8%, 32.6, p<1.1), SBP (9.2%, 12.3, p<1.1) and DBP (7.3%, 6.1, p<5.7). Other changes were not significant.

Conclusions CvC patients receiving HAART enjoyed meaningful reductions in MACE risk that associated lower TC, TG, LDLc, SBP and DBP during care in a dedicated CvC. Study limitations include a small patient population and short follow-up (≤2 yrs). With future increased data points, multivariate analyses will allow us to identify which risk factor interventions impart the greatest MACE reductions, focusing further CvC quality of care improvements.

631 PREDICTORS OF IVIG RESISTANCE IN PATIENTS WITH KAWASAKI DISEASE: ARE THEY APPLICABLE AT A SOUTHEASTERN CHILDREN’S HOSPITAL?

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10.1136/jim-2020-SRM.631

Purpose of study Kawasaki Disease (KD) is treated with intravenous immune globulin (IVIG); however, some patients are resistant to IVIG (IVIGR). Steroids with initial IVIG may reduce the risk of IVIGR. Published risk scores using clinical and laboratory findings are used in Asia to predict IVIGR. Our hypothesis was that patients with KD at Le Bonheur Children’s Hospital (LBCH) in Memphis, TN (predominantly African American (AA) population), could be stratified for risk of IVIGR to determine who would benefit from early steroids.

Methods used We reviewed the charts of patients admitted to LBCH with a discharge diagnosis of KD for the years 2009 to 2017. We collected demographic, clinical, and laboratory data. Association of individual risk factors and four published risk stratification scores with IVIG resistance were assessed using chi-square for categorical and non-parametric tests for continuous variables. The sensitivity and specificity of three published risk scores were calculated in our patient population. Multivariable logistic regression was used to determine independent predictors of IVIGR using p<0.1 as a cutoff for inclusion in the model.

Summary of results 255 of 282 KD patients were treated on or before day 10 of illness; 50 (20%) had IVIGR; 203 had complete and 52 incomplete KD. Our cohort was 62% AA. There were 38 with coronary artery abnormalities (CAA). The only differences found between IVIGR patients and treatment successes were that IVIGR patients were more likely to have lymphopenopathy (72% vs 53%, p=0.03) and ALT ≥80 (32% vs 18%, p=0.03). Sensitivity and specificity of published scores to predict IVIGR in these patients ranged from 20–36% and 68–84% respectively. Among the variables included in the model (lymphopenopathy, conjunctivitis, ALT≥80, albumin and total bilirubin pre-IVIG, only albumin was independently associated with IVIGR (OR 0.55, 95% confidence interval 0.32–0.96).

Conclusions There are no clinical useful demographic, clinical, or laboratory findings that predict IVIGR our predominantly AA population. In addition, published risk scores failed to risk stratify patients at our institution. Alternative strategies are needed to determine how to identify patients at risk for IVIGR.
Case report  A 70-year-old Caucasian female with a past medical history of severe cystic bronchiectasis and prior respiratory infections with Pseudomonas, Methicillin sensitive Staphylococcus Aureus, Achromobacter. Patient presented with persistent cough, inability to expectorate, and continued unintentional weight loss and poor appetite. Patient received frequent bronchoscopies, which showed tremendous amounts of purulence and cultures grew the bacteria mentioned above. Patient once again presented with shortness of breath and cough and bronchoscopy was performed. Bronchoscopy once again revealed large amount of purulence. Contrary to prior cultures, bronchoalveolar lavage revealed suspected multi-drug resistant Achromobacter species not noted in prior bronchoalveolar lavage. Patient was placed on intravenous tigecycline and inhaled colistin for a period of four to six weeks followed by inhaled colistin. It was planned for patient to be admitted to receive peripherally inserted central catheter and to initiate antibiotics with tigecycline as well as inhaled colistin, which was planned for one week, no significant improvement was noted. Patient's clinical status worsened for a time requiring intubation as well as central catheter for vasopressors. Nearly two weeks into the patient's admission, Cefiderocol was approved for compassionate use in treating patient's multi-drug resistant Achromobacter species respiratory infection. Patient tolerated the medications well for a time. The patient was stable enough to be weaned off vasopressors. Repeat bronchoscopy revealed lungs that showed incredible improvement from prior. There was considerably less purulence noted as opposed to all prior bronchoscopies patient had undergone. This great improvement in patient's clinical status showed promise and suggests that Cefiderocol is a viable option for those experiencing sepsis secondary to multi-drug resistant Achromobacter. Upon further investigation, the sample that was taken was speciated and it actually showed that our patient was infected with Achromobacter.

Purpose of study Influenza (Flu) interim vaccine effectiveness (VE) for 2018–19 was estimated by CDC at 24% (95% CI -15% to 51%) in adults ≥50 years of age admitted with acute respiratory tract infections (ARI) and adults of any age with COPD or CHF-related admissions. Adults were eligible if they were residents of 8 counties around Atlanta, GA. Those with symptoms >14 days were excluded. Nasopharyngeal and oropharyngeal swabs were tested for Flu using BioFire® FilmArray® respiratory panel and standard of care molecular results (when available). Flu vaccination history was determined from Georgia vaccine registry and medical records. We compared the demographic features and co-morbidities of Flu+/Flu- and vaccinated/unvaccinated patients. We used a test-negative case-controlled design to determine Flu VE by comparing the odds that the Flu+ group received vaccine to the odds that the Flu- group received vaccine. We controlled for confounders by multivariate logistic regression.

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632 INVESTIGATIONAL CEFIDEROCOL USE IN TREATMENT OF MULTI-DRUG RESISTANT ACHROMOBACTER SPP
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10.1136/jim-2020-SRM.632

633 INFLUENZA VACCINE EFFECTIVENESS AMONG HOSPITALIZED ADULTS AGE ≥50 WITH ACUTE RESPIRATORY TRACT INFECTIONS OR WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE OR CONGESTIVE HEART FAILURE EXACERBATIONS OF ANY AGE ≥18 YEARS
1M Kelly*, 1Y Yildirim, 1A Tippett, 1L Hussaini, 1L Bristow, 1T Gibson, 1MB Hart, 1R Deovic, 1K Stephens, 2DL Sewardlow, 2R Hubler, 2Y Agost, 2C Rostad, 2CM Kao, 2LJ Anderson, 1N Roupheal, 1EJ Anderson, 1Emory University, Atlanta, GA; 1Pfizer, Collegeville, PA
10.1136/jim-2020-SRM.633

634 REVIEW OF UNUSUAL PATHOGENS IN THE NEONATAL INTENSIVE CARE UNIT
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10.1136/jim-2020-SRM.634

Purpose of study From 2008–2018 2,544 blood cultures were obtained in the USA Children’s and Women’s NICU. Of these cultures 1,488 (58%) were positive. Most of the positive cultures were due to well-known organisms, however in the neonatal population it is observed that typically benign organisms can become pathogenic. The purpose of this study is to observe the pathogenicity and presentation of infections caused by uncommon organism in the neonatal period.

Methods used We reviewed cultures from the USA NICU from 2008–2018 for pathogens composing <10% of positive cultures. Duplicate cultures (drawn from different sites on the same day with the same result) were reduced to one data point. This totaled 69 cultures from 56 patients. Of these 34 patients have clinical data available. A retrospective chart review was conducted.

Summary of results Of 28 patients 88% were preterm (24 preterm, 3 term, range 22±6 to 40±3 wks). Most cases (70%) represent late onset sepsis occurring more than 3 days after birth. The most common symptoms were respiratory distress (50%) and increasing apnea-bradycardia (9%), followed by lethargy, reduced urine output, jitteriness, hypoglycemia, hyperglycemia, hypothermia, and metabolic acidosis (0.3% each). The most common risk factors were the presence of central line (63%), mechanical ventilation (40%) and
A RARE CASE OF DISSEMINATED COCCIDIOIDOMYCOSIS AS A RENAL MASS MIMICKING CARCINOMA

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Case report Coccidioidomycosis is fungal infection endemic to the southwestern United States and Latin America. The majority of cases are asymptomatic or present as a self-limited respiratory infection. Symptomatic extra-pulmonary disease is present in <1% of cases and genitourinary dissemination is rare. We describe an unusual case of genitourinary coccidioidomycosis presenting as a renal mass in an immunocompetent patient with history of bladder cancer.

A 75 year-old Caucasian West Texas resident presented with a two-month history of night sweats, fatigue and 40 lb. weight loss accompanied by urinary symptoms. Urinalysis was positive for microscopic hematuria. He was referred to urology who diagnosed him with low grade superficially invasive papillary urothelial cell carcinoma via cystoscopy and biopsy. CT scan revealed a small tubular prostatic abscess, a periurethral abscess and a heterogeneous left kidney mass. Needle core biopsy of left kidney mass showed necrotizing granulomatosus nephritis, negative for malignancy. Granulomas with 4–5 spherules containing refractive capsules were observed. Subsequent workup showed no evidence of pulmonary disease.

Patient was started on oral fluconazole and posteriorly hospitalized for IV antifungal treatment. On admission antibodies to TP and F antigens were positive. Coccidioides complement fixation titer was positive at 1:512. A repeat CT scan demonstrated an infiltrative heterogeneous 5.8 cm mass within the left kidney with extension into proximal left renal vein and proximal left ureter. A repeat left renal biopsy showed chronic inflammation only. Given concern for malignancy, patient underwent a robotic left radical nephrectomy without complications. Renal tissue cultures grew fungus and coccidioidomycosis was confirmed by pathology. Patient completed 14 days of IV amphotericin B treatment and was transitioned to oral fluconazole.

Coccidioidomycosis of the male genitourinary tract frequently presents with indolent non-specific symptoms and initially patients are evaluated for concern of malignancy. The incidence of renal cocci has been determined only in autopsy studies. To our knowledge this is the first case report describing renal coccidioidomycosis manifesting as an invasive renal mass.

Medical education/medical ethics/advocacy Concurrent session
1:00 PM
Saturday February 15, 2020

636 CLINICIAN EXPERIENCES WITH REACH OUT AND READ

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Purpose of study Enhanced emergent literacy, child language scores, and school readiness as a result of Reach Out and Read (ROR) are well described. Less is known about clinicians’ subjective experience of implementing the intervention. The purpose of this study was to better understand what clinicians find meaningful about ROR.

Methods used This study was a collaboration between ROR and Continuity Research Network (CORNET). Faculty and residents at participating CORNET sites completed an online survey. Participants were asked What has been the most meaningful experience you have encountered with using ROR? and Is there anything else you would like to add? Responses were randomly assigned to 1 of 3 groups, each group of responses was coded by 2 researchers, who came to consensus through discussion; then all coding was discussed by all 6 coders until consensus was reached.

Summary of results Qualitative responses were provided by >500 faculty members and residents from 42 institutions. Four themes emerged 1) Child/Family Impact: Seeing a child read for the first time and Better interaction and understanding about the importance of reading from the parents. 2) Physician Impact: It is my favorite part of the WCC. ‘I have been able to use the books provided as a way to connect with patients and their families.’ 3) Impact on clinic practice: ‘I enjoy modeling for parents and use the books to assess my patients’ development and ‘helping a child who is verbally delayed catch up through ROR.’ 4) Social Determinants of Health: ‘The books provided are an invaluable resource to our underserved population. At times there are no books in the home besides the ones we provide the family during clinic visits.’

Conclusions Clinicians who implement ROR find that it has a positive impact on their pediatric patients and families, an impact on their own satisfaction, and on the way they practice. In addition, clinicians value the fact that the program addresses social determinants of health and facilitates developmental surveillance. Further study is needed to better understand how clinician’s perspectives affect, and are affected by, their practice experiences.
637 REACH OUT AND READ AND DEVELOPMENTAL SCREENING: A NOVEL HEALTH SERVICES INITIATIVE

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Purpose of study Reach Out and Read (ROR), the University of Oklahoma, and the Oklahoma Health Care Authority (OHCA) collaborated to provide the first Health Services Initiative (HSI) through the Children’s Health Insurance Program partnering ROR and developmental screening to expand ROR and improve the quality of well child visits (EPSDT) across the state. ROR utilizes a book in the exam room to assess development and parent-child interaction, however, little is known about the relationship between this training and using a formal developmental screening tool. The purpose of this study is to see if leveraging federal funding can facilitate ROR expansion, improve developmental screening rates, and EPSDT compliance in Oklahoma (OK).

Methods used A list of all ROR providers in OK was compiled. Providers that do not bill Medicaid were excluded. Billing data for state fiscal year (SFY) 2018 and 2019 was analyzed. Standard statistical methods were used to analyze the data descriptively to determine the proportion of developmental screenings performed and EPSDT visits. Comparisons were made between ROR and non-ROR sites. For Federally Qualified Health Centers (FQHC) sites that received bundled payments developmental screening could not be identified. Rates were calculated with FQHCs sites and without.

Summary of results 9 new ROR sites were added with 26 new providers/staff trained in ROR and 130 providers/staff trained at existing sites. 984 out of 282 ROR providers billing data was analyzed by the OHCA. In SFY 2018 the developmental screening rate at non-ROR sites was 33% vs. 47% at ROR sites (p<0.0001) and when excluding FQHC sites was 59%. In SFY 2019 non-ROR sites were 36% vs. 48% at ROR sites (p<0.0001) and 61% excluding FQHC. The EPSDT visit rate in SFY 2018 was 50% at non-ROR sites vs. 69% at ROR sites and in SFY 2019 was 51% at non-ROR sites vs. 72% at ROR sites.

Conclusions HSI are an effective way to fund ROR leveraging federal funds. Additional funding allowed for increased ROR sites and more provider and staff training on ROR. ROR sites performed significantly better in developmental screening rates than non-ROR sites in the state. EPSDT well child visit rates were also higher at ROR sites.

638 IMPLEMENTATION OF POSTPARTUM DEPRESSION SCREENING AT THE OUHSC OUTPATIENT PEDIATRICS CLINICS: A QI PROJECT

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Purpose of study It has been recommended by both the United States Preventative Service Task Force (USPSTF) and the American Academy of Pediatrics (AAP) to screen new mothers for postpartum depression (PPD). In the Sooner Pediatrics and Super Niños Pediatrics clinics, prior to the implementation of this project, there was no formal screening process for PPD. Therefore, the purposes of this project were to increase provider awareness and knowledge of PPD and to implement screening of new mothers for PPD in these clinics through a quality improvement project.

Methods used All providers at the clinics were given a pre-test to assess their screening habits and baseline knowledge of PPD. Afterwards, they were given a short training module on PPD, a new process for screening, and information on community resources available for mothers who screened positive for PPD. Over the next nine months, mothers of all patients presenting for a well-child visit between 1 day and 2 months old were given a patient health questionnaire (PHQ-9). If a mother screened positive, the provider discussed her diagnosis with her and then provided community resources for treatment. The pre-test was then repeated and called the post-test.

Summary of results When questioned on their knowledge of PPD prior to and after the education session and implementation of screening, residents and NPs/faculty (providers) reported that they knew more about PPD afterwards. On a 10 point scale with 10 being extremely important, provider knowledge increased from a mean response of 4.0 on the pre-test compared to 5.8 on the posttest (p<0.0001). When asked how important they felt it was for pediatricians to be screening for PPD they responded 8.2 on the pretest and 9.1 posttest (p<0.0001). Rates of screening among providers in these clinics also improved with 26.3% screening before vs 73.7% after (p<0.0001). Additionally, 36.5% of providers felt that they had appropriate resources for mothers who screened positive prior to implementation of this project, and 63.5% after (p<0.0001). These results are based on an average of 55 provider’s pre-test responses and of these, 44 post-test responses.

Conclusions This project showed significant increase in provider awareness, knowledge of, and screening rates for PPD.

639 ASSESSMENT OF PEDIATRIC RESIDENTS’ ATTITUDES IN DELIVERING BAD NEWS

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Purpose of study The purpose of this study is to evaluate the effect of a ‘difficult communication’ workshop on first year pediatric residents’ attitudes on communication skills in giving bad news.

Methods used Pre- and Post-Workshop surveys were given to first year pediatric residents participating in the Difficult Communication Workshop at a medium to large academic institution. Initial surveys measured: demographic information including if the participant has had any prior formal training in breaking bad news and how many experiences they have had in breaking bad news, their level of preparedness in breaking bad news, their level of comfort in difficult conversations, their level of confidence in their difficult communication abilities, and an open ended question about the barriers residents face for delivering bad news. The workshop consisted of two standardized patient encounters that focused on breaking bad news. Residents completed a post-workshop survey that focuses on their level of comfort and self-perceived
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IS THERE A MAGIC NUMBER: NOON CONFERENCE ATTENDANCE AND STANDARDIZED TESTING SCORES?

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Purpose of study Many pediatric residency programs utilize noon conference (NC) didactic lectures to fulfill the educational requirements of residency training. However, little data exists as to the effectiveness of this type of lecture format in relation to knowledge acquisition and scores on subsequent standardized tests. Limited research in family practice residency and internal medicine show small increases in short term knowledge retention, but no improvement in test scores for those who attend a higher number of conferences. We hypothesized that NC attendance would not be predictive of performance on American Board of Pediatrics (ABP) Certifying Exam scores in our pediatric residency training program.

Methods used Records of NC attendance and ABP Certifying Exam scores from 2016–2018 were obtained and analyzed. 56 residents were included in the final analysis and divided into two groups based on their three-year average NC attendance, either above or below 60%, which is the minimum yearly required attendance.

Summary of results Each group had 28 residents. An unpaired t-test was run to compare the board scores for each group. Residents attending less than 60% of NC had a mean ABP exam score of 195, while those attending greater than 60% of NC had a mean score of 202.5 (p value=0.1326).

Conclusions Our results confirm our hypothesis, demonstrating that greater conference attendance did not correlate with improved ABP board scores. NC is still an important platform to protect resident educational time and deliver knowledge, however additional curricula are needed to equip residents to score higher on boards. We have since implemented a board study curriculum to supplement the NC and better prepare residents for ABP Boards.

ASSESSING RESIDENT PHYSICIANS’ KNOWLEDGE AND ATTITUDES TOWARDS LESBIAN, GAY, BISEXUAL, TRANSGENDER, QUEER/QUESTIONING, INTERSEXUAL, AND ASEXUAL HEALTH AND HEALTHCARE DISPARITIES

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Purpose of study LGBTQIA individuals face health care disparities such as increased risk of mental health illness and STDS, along with physician discomfort and bias. Increasing cultural competency has only been reported in undergraduate medical education. We sought to evaluate post graduate physician trainees’ knowledge of LGBTQIA health care disparities and their experience and comfort with LGBTQIA patients.

Methods used We developed an anonymous online survey on current attitudes, perceptions and knowledge of healthcare disparities affecting LGBTQIA persons. All graduate medical trainees in various specialties at USA COM were asked to voluntarily complete the survey (Survey Monkey). Questions consisted of ‘yes’ or ‘no’ answers and a Likert scale focusing on demographics, attitudes, knowledge gaps of risk factors. The survey was reviewed by three unbiased faculty members prior to uploading a link allowing all graduate trainees to have access to the survey. This project was approved by the IRB.

Summary of results 240 links to the survey were sent. 85 residents responded. 78% felt comfortable handling sexual histories on transgender patients. 67% of residents are willing to prescribe PrEP to a patient but only 63% of residents routinely assess for patients’ risk factors for HIV exposure. Residents scored 84% and 91% on comfort level of queer physicians and patients respectively. 45% of residents heard bias regarding patients’ sexuality or gender preferences. 96% of residents know of health issues of LGBTQIA individuals. 35% of the responders received sensitivity training before residency yet 58% of residents do not feel adequately educated about LGBTQIA healthcare disparities.

Conclusions The increasing acceptance of queer individuals within society is evident in residents’ comfort with sexual minorities as patients and professionals. Knowledge gaps persist, from inadequate cultural competency training in undergraduate and graduate medical education, as well as physician bias and homophobia. Trainees are knowledgeable of barriers facing queer patients, yet bias still exists. Trainees do not feel sufficiently prepared to provide care to LGBTQIA patients, supporting the need for increasing cultural competency in graduate medical education.

LECTURE FEEDBACK GENERATED BY QR CODE VS PAPER ASSESSMENTS

1 HD Kelley*, 2 P McBurney, 3 C Jump. 1 Medical University of South Carolina, Mount Pleasant, SC; 2 Medical University of South Carolina, Charleston, SC

Purpose of study Feedback is an important part of education that can enhance learning, promote skill acquisition, and drive professional growth and development. Quick Response (QR) codes are a newer form of technology used in the medical field and elsewhere. QR codes have been studied in resident’s evaluation of skills following surgical procedures,
administration of inpatient surveys, and to more efficiently access clinical guidelines and policies. To our knowledge, there have been no studies demonstrating the effectiveness of QR codes in obtaining feedback during didactic sessions.

**Methods used** During lectures at the Medical University of South Carolina’s academic half-day, attendees were asked to fill out lecture feedback forms. Attached to the feedback form is a three-question assessment of the feedback format (QR accessed vs. paper form). For half the lectures, we distribute feedback forms on paper. For the other half, we provide a QR code linked to the feedback form that is completed on a smartphone. The QR code generated feedback uploads to a REDCap database.

For lecture assessment formats (QR vs. paper), we assess differences in perceived anonymity, efficiency, and ease of use. Responses are graded on a Likert scale from strongly disagree (1) to strongly agree (5).

**Summary of results** Preliminary results are available while the study is ongoing. To date, 73 feedback assessments were completed (54 paper feedback assessments from 2 lectures, 19 QR generated feedback assessments from 1 lecture). Results indicate that there was no difference in perceived anonymity of the feedback between QR vs paper format [p=0.9203; QR median of 4 (4, 5 IQR), paper 4.5 (4, 5)]. There is no difference between feedback method efficiency [p=0.0836; QR 4 (4, 5), paper 4 (4, 4.5). Concerning ease of use, there is no difference between feedback formats [p=0.0801; QR 4 (4, 5), paper 4 (4, 5)].

**Conclusions** Preliminary results found no difference in anonymity between paper assessments and QR generated lecture feedback. While the same result is true for efficiency and ease of use, there appears to be a trend towards significance. As the study is ongoing, QR codes ultimately may be more efficient and easier to use. The study will conclude in December 2019.

**Purpose of study** To assess the improvement of pediatrics residents’ self-assessed competence in performing ACGME required procedures for residents through implementation of a workshop that utilizes instructor led, hands on practice in a simulation center.

**Methods used** The intervention group consisted of PGY-1 pediatric residents who underwent a procedure boot camp. Residents are separated into small groups and rotate between stations. Residents rate their self-assessed competence prior to, immediately following, and 12 months’ post-boot camp via survey that utilizes a 5-point Likert scale. Procedures consist of: bladder catheterization (cath) foreign body removal, IV placement, tracheostomy (trach) exchange, UAC/UVC placement, bag-mask ventilation (BMV) neonatal intubation, pediatric intubation, chest compressions, and code simulation.

**Summary of results** For the 2018–2019 year pre- and immediate post-boot camp mean responses from 26 residents demonstrated an increase in self-assessed competence in every skill. Skills with the highest mean score pre-boot camp were neonatal intubation (3) and BMV (3.9). Skills with the greatest increase in mean score included trach change (2.25), foreign body removal (1.7), and bladder cath (1.6). In the 2017–2018 year trach change (2.3) and bladder cath (1.6) were the two skills with the greatest increase. Skills with the greatest mean score post-boot camp were consistent over the years, trach change (4), bladder cath (4), and foreign body removal (4).

**Conclusions** For three years PGY-1 residents consistently report an increase in self-assessed competence of each skill after participating in a procedure boot camp. Our theory for the large improvement in bladder cath, trach change, and foreign body removal is that these skills residents are not frequently exposed to. In addition, PGY-1 residents spend significant time in the neonatal ICU and it is theorized that this explains higher mean scores pre-boot camp in neonatal intubation and BMV. This data illustrates the crucial role of a procedure boot camp to improve competence in skills that residents may not have opportunities to perform during training. A 12-month post-boot camp survey was distributed and data interpretation is still pending. Future endeavors consist of adding a lumbar puncture station and a 6-month survey.

**Purpose of study** Volunteering in a clinic environment during medical school can improve patient interaction skills and career development of future physicians. Reach Out and Read (JOR) is an evidence based program promoting early literacy. Part of the JOR model is to provide ‘literacy-rich waiting rooms’ and ‘volunteer readers’ to the pediatric population within clinic spaces. A student group at the University of Oklahoma College of Medicine was created to fulfill both of these goals. Volunteers are trained on modeling shared-reading to children, interacting with families, and creating a stimulating environment within the pediatric waiting rooms. Despite the known effectiveness of the program, little is known of the program’s impact on those who participate as volunteer readers. This study examines the impact of volunteering with the JOR program on students. Measurements of clinical experience with patients and families, early literacy knowledge, and career goals will be analyzed.

**Methods used** Current medical students, both volunteers and non-volunteers of Reach Out and Read, will complete a survey at the beginning of the academic year. After one academic semester, students will complete the same survey evaluating patient interaction skills, pursuit of pediatrics as a specialty, and meaningful experiences in the program. Pre and post survey data will be analyzed.

**Summary of results** Pre-survey data revealed that 100% of students involved with JOR reported that volunteering impacted their academic career in medical school. 67% of students...
involved with ROR reported that volunteering impacted their future career goals. Comments from volunteers reflected their most meaningful experiences such as ‘Witnessing kids loving to read and learn.’ 96% of all students completely agreed on the importance of reading aloud to children. Data from this study is currently being collected.

Conclusions Involvement in ROR impacts the academic career and future goals of medical students. Post survey data may reveal volunteers with increased exposure to pediatric patients and families and improved patient/family interaction skills. Increasing opportunities such as this program could improve medical student experiences and clinical skills during their education.

EARLY LITERACY TRAINING AMONG MEDICAL STUDENTS
B Walker*, M Dunlap, C Garbe, A Caldwell. Oklahoma University Health Science Center, Oklahoma City, OK
10.1136/jim-2020-SRM.645

Purpose of study The American Academy of Pediatrics regards literacy promotion, using programs such as Reach Out and Read (ROR) as ‘essential.’ However, no literature has described medical student training, experiences, and attitudes toward early literacy. The purpose of this study is to describe medical student training, experiences, understanding and attitudes toward early literacy and ROR.

Methods used An anonymous online survey was sent to all medical students at a medical school in the Midwest with two campuses. Data were analyzed using descriptive statistics.

Summary of results We received data from 275 medical students. Most medical students (≥80%) understood the importance of emphasizing early literacy at well child visits, and 23% reported observing ROR. However, only 8 students (2.9%) reported receiving any training in Reach Out and Read. Early literacy, and 59% expressed a desire for more ROR training. Broken down by year 81.8% 1st Year Medical Students, 71.7% MS2, 71.1% MS3, and 50% MS4 wanted to learn more about early literacy, and 9% expressed a desire for more ROR training. When asked which training modality they would be interested in, most respondents chose learning from residents and faculty in clinic followed by online training. In addition, 81% of respondents agreed that advising parents to read daily to their children is as important as advice about car seats, bike helmets, and back to sleep, and 85% agreed that discussing sharing books with children can be effective. 47% agreed that it was the job of medical students to assess and encourage reading.

Conclusions Medical students understand the importance of early literacy and emphasizing this during clinical encounters, and most are eager to learn more about early literacy promotion and ROR. This interest seems to decrease in their third and fourth year so targeting the first two years of medical school might be an important strategy. Providing formal literacy promotion training and education for medical students should be implemented.

HYBRIDIZED PEDAGOGY: A NOVEL APPROACH TO TEACHING GLOBAL HEALTH AND TROPICAL MEDICINE
1F Smith, 2F Levent*, 1M Lacy, 1Texas Tech University Health Sciences Center School of Medicine, Lubbock, TX, 2Texas Tech Health Sciences Center, Lubbock, TX; 3AdventHealth for Children, Orlando, FL
10.1136/jim-2020-SRM.646

Purpose of study Global health educational opportunities are limited in many medical schools. If they do exist, they may lack structure and oversight with a comprehensive, bedside focus. Following a four week medical student elective in Tropical Disease and Clinical Parasitology, composed of both a didactic (at Texas Tech University Health Sciences Center, School of Medicine) and clinical component (at the King George’s Medical University in Lucknow, India) an evaluation of course alumni was conducted. Data was collected using an anonymous survey among seventeen 4th year medical student alumni of the course.

Methods used Anonymous survey of course participants

Summary of results Combined input from 2018 and 2019 alumni indicated unanimous consensus regarding the educational and personal benefit of this approach particularly in an expanded knowledge of tropical diseases rarely seen in the United States, increased awareness of global health challenges, familiarization of practice within a resource-scarce environment, and enhanced cultural knowledge and sensitivity.

Conclusions Lack of formative training in cross-culture education and tropical medicine may dissuade medical graduates from developing expertise for service in areas with underserved and international patient populations. This approach utilizing didactic, laboratory and bedside teaching is a model which may help prepare physicians for future practice internationally.

Perinatal medicine II
Concurrent medicine II
1:00 PM
Saturday February 15, 2020

THE SKIN MICROBIOME DIVERSITY OF PREMATURE INFANTS
1F Levent*, 1F Smith, 2Hung, 1Texas Tech University Health Sciences Center School of Medicine, Lubbock, TX; 2Texas Tech Health Sciences Center, Lubbock, TX
10.1136/jim-2020-SRM.647

Purpose of study The purpose of this study was to evaluate bacterial diversity and antibiotic use. For two preterm birth weight neonates and to evaluate bacterial diversity changes related to chronological age and antibiotic use.

Methods used To characterize the preterm infant skin microbiota at the level of species and strain, we performed a prospective, longitudinal metagenomic study. For two preterm infants in the neonatal intensive care unit, five skin sites
Abstract 647 Figure 1 Changes in bacterial diversity (Simpson's Index) at various skin sites with antibiotic usage during first 8 weeks for extremely low birth weight neonates

(Axillary vault, inguinal crease, nares, chest, and periumbili-cal) were sampled biweekly for two months. Samples were treated with propidium monoazide to eliminate extracellular DNA, and whole-genome sequencing was done. Effects of short (<3 days) and long (>5 days) course antibiotic use on the diversity of skin microbiota were compared in this analysis.

Summary of results Out of 48 samples, 39 yielded adequate DNA for sequencing. A total of 113 microbial species, including 107 bacteria and 6 eukaryotes, were detected from 38 samples with a marker-based method. The nares, axillary vault, periumbilical cord, and upper chest skin sites were the least diverse (6.4–9.3 species, 0.210–0.345 Simpson Index), and the inguinal crease skin site was of intermediate diversity (15.6 species, 0.491 Simpson Index). Staphylococcus epidermidis was detected in most samples (n=35) and at all sites. Both neonates had decreased bacterial diversity following the first course of antibiotic usage. Bacterial diversity continued to increase following the second course of antibiotic usage. Both babies had the most diverse skin microbiome in the 8th week.

Conclusions Antibiotic usage and chronological age can potentially modify skin microbiome diversity. Continued study with additional data will be useful in confirming our findings.

648 PRENATAL EXPOSURE TO POLYCYCLIC AROMATIC HYDROCARBONS (PAHS) AUGMENTS NEONATAL HYPEROXIC LUNG INJURY AND ALTERS THE GUT MICROBIOME IN MICE: ROLE OF CYTOCHROME P450 (CYP)1A1, 1A2, AND 1B1

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10.1136/jim-2020-SRM.648

Purpose of study Pregnant women exposed to high levels of polycyclic aromatic hydrocarbons (PAHs) are at increased risk for premature delivery. Preterm infants often require supplemental oxygen that could lead to chronic lung disease. The molecular mechanisms by which hyperoxia causes lung injury are not understood, but cytochrome P450 (CYP) enzymes have been implicated. We hypothesize that prenatal administration of PAHs [i.e. benzo[a]pyrene (BP), or a mixture of BP and benzo(b)fluoranthene (BbF)] differentially exacerbates lung injury and alters the gut microbiome in neonatal mice following postnatal hyperoxia, and that this effect is altered in mice lacking the gene for cytochrome P450 (CYP)1A1, 1A2, or 1B1.

Methods used Dose response of prenatal PAH administration on postnatal hyperoxic lung injury was tested using BP doses of 7.5, 15, and 30 mg/kg. Timed pregnant WT (C57BL/6J), Cyp1a1-null, Cyp1a2-null, and Cyp1b1-null mice were treated orally with the vehicle corn oil (CO) or mixture of PAHs BP and BbF (7.5 mg/kg each) on gestational days 16–19. Offspring were exposed to hyperoxia or room air for 14 days. Mice were sacrificed on PND14, and lung injury was assessed by radial alveolar count (RAC). 16S rRNA gene sequencing was performed on intestinal samples to analyze the effect of PAH exposure on the gut microbiome.

Summary of results Hyperoxic lung injury is augmented by prenatal PAH exposure. This effect is differentially altered in Cyp1a1-null, Cyp1a2-null and Cyp1b1-null mice. Gut microbiome analysis revealed differences in Bray-Curtis beta diversity observed between PAH and CO groups in WT mice.

Conclusions Prenatal PAH exposure augments neonatal hyperoxic lung injury in a dose dependent manner, and this effect is differentially altered in mice lacking the genes for Cytochrome P450 (CYP)1A1, 1A2, and 1B1. PAH-induced alterations in the gut microbiome may play a role in augmentation of hyperoxic lung injury.

649 PRESENCE OF A LOW BIOMASS MICROBIOME SIGNATURE IN THE EARLY GESTATION HUMAN FETUS

CV Lal*. University of Alabama at Birmingham, Birmingham, AL

10.1136/jim-2020-SRM.649

Purpose of study A diverse microbiome is present in human body but the existence of both a placental and fetal microbiome remains in doubt. Here we present the first human paired microbiome analyses of these tissues, as early as 11-week gestation.

Methods used 27 de-identified human fetal tissue samples (17 lungs, 3 intestines, 10 placentas) from 11–20 week gestation were collected in USA following sterile, standardized procedures. Initial microbiome analysis was conducted by whole genome sequencing (WGS) metagenomic shotgun method. Next, targeted 16S analysis on the same samples were conducted in two independent labs, one at Singapore and second at Birmingham, USA. Both labs used different bacterial DNA extraction kits and microbiome analysis pipelines.

Summary of results WGS metagenomic data confirmed that being low biomass samples, bacteria were not detectable at average depth of 13 million reads per sample.

In the first 16S analysis conducted at Singapore, the lungs contained 48 unique taxa, placentas 11 unique taxa, while 24 taxa were shared (figure 1A). Data were adjusted for blanks, and decontam modules used (figure 1B). Paired analysis identified some distinct lung and placental microbiome profiles (permanova, p=0.053).

The 16S analysis conducted at USA on the same samples also identified microbiome DNA signature in all tissues. Maturational changes in the fetal lung microbiome with advancing gestational age was seen.

Conclusions Our analysis confirms the existence of a placental microbiome that overlaps but is distinct from fetal
microbiome. This observation provides the foundation for interpreting early life microbiome signatures, critical for priming host immune response leading to chronic disease.

**TACHYASTRÍA IS ASSOCIATED WITH EXPANSION OF ENTEROBACTERIÁCEAE AND PRECEDES NECRÓTIZING ENTEROCOLÍTIS**

Ortigoza*, Mansi, L. S. Brown, Cagle, C. C. Neu, Sanghavi, Mirpus. UT Southwestern Medical Center, Dallas, TX; Parkland Health and Hospital System, Dallas, TX; University of Florida, Gainesville, FL

**Purpose of study** Necrotizing enterocolitis (NEC) is a devastating complication of prematurity. Early detection is essential to prevent its progression. No method exists to predict NEC. Non-invasive electrogastrography (EGG) measures gastric myoelectrical activity. Normal gastric slow wave frequencies are 2–4 cycles per minute (cpm). Tachygastria at 4–9 cpm, is associated with gastrointestinal disorders. However, tachygastria is common in healthy neonates. We hypothesized that the presence of tachygastria could precede NEC.

**Methods used** In a longitudinal prospective cohort study, 59 preterm babies underwent weekly EGG and stool collection. Motion artifacts were removed, spectral analysis was performed, and tachygastria was calculated. The microbiome was characterized by qRT-PCR.

**Summary of results** Preterm babies had 30–50% tachygastria. Eight outliers had extreme tachygastria greater than 50%. 4 of 8 instances of extreme tachygastria belonged to 2 babies who developed surgical NEC. The other 4 instances were babies without NEC. The microbiome of babies with extreme tachygastria was analyzed. Babies with extreme tachygastria with or without NEC had a unique microbiome characterized by expansion of Enterobacteriaceae (Mann-Whitney, \( p = 0.036 \)). Infants with NEC had decreased abundance of Firmicutes (Mann-Whitney, \( p = 0.021 \)).

**Conclusions** Extreme tachygastria and altered microbiome may precede the diagnosis of NEC. EGG may be a potential tool for early detection of infants at risk of NEC and warrants further investigation.

**COMPOSITION OF THE GUT MICROBIOME AFTER EARLY PROGRESSION OF ENTERAL FEEDING VOLUMES IN EXTREMELY PRETERM INFANTS: A RANDOMIZED TRIAL**

Salas*, Yi, W. Van Der Pol, C. Mormon, Lefkowitz, Carlo, Lal. University of Alabama at Birmingham, Birmingham, AL

**Purpose of study** Early progression of enteral feeding volumes (i.e. within the first 96 hours after birth) reduces the duration of parenteral nutrition and the need for central venous access...
among extremely preterm infants. This early life dietary intervention could also influence the composition of the gut microbiome. The specific aim of this secondary study was to determine the effects of early progression of enteral feeding on the composition of the gut microbiome in extremely preterm infants.

**Methods used** Fecal samples from extremely preterm infants randomly assigned to receive either early (i.e., feeding day 2) or delayed (i.e., feeding day 3) progression of enteral feeding volumes were analyzed using 16S rRNA gene sequencing.

**Summary of results** A total of 137 fecal samples were analyzed. The median number of samples per subject was 3 (IQR: 1–5). The microbiome profile of 78 fecal samples obtained from 24 infants randomly assigned to receive early progression of feeding volumes (intervention group) was compared to the microbiome profile of 59 fecal samples obtained from 26 extremely preterm infants randomly assigned to delayed progression of feeding volumes (control group). The p values from these analyses indicated that there was no difference in the microbiome communities between groups. However, at approximately postnatal day 14, there were significant differences between intervention and control groups in the relative abundance of *Proteus* (1% vs 6%; p = 0.04), *Staphylococcus* (10% vs 18%; p = 0.04), and *Bacilli* (10% vs. 19%; p = 0.04). A marginally significant difference in Alpha-diversity between groups was also observed at postnatal day 14 (p = 0.05).

**Conclusions** Our results suggest that early life human milk diets during critical periods of development could promote maturation and prevent dysbiosis of the gut microbiome in extremely preterm infants.

**653 THE EFFECT OF LIPID EMULSIONS ON FREE FATTY ACIDS AND FREE BILIRUBIN IN PREMATURE NEWBORNS**

1M. Collins*, 2A. Kleinfield, 3C. Arnold. 1The University of Texas Health Science Center at Houston, Houston, TX; 2Fluorescope Sciences, San Diego, CA

10.1136/jim-2020-SRM.653

**Purpose of study** The primary purpose of this study is to test the hypothesis that premature newborns receiving Intralipid® (IL) will have lower mean concentration of Bf than patients receiving SMOF® at 3 g/kg/day. Free bilirubin (Bf) is hypothesized to be the toxic fraction of circulating total bilirubin in the very preterm neonate. The secondary purpose of this study is to determine the validity and reliability of a newly available method to measure Bf with a fluorescent probe with Fluorescope Sciences, as well as establish a threshold for Bf outcome measures and incidence of concerning Bf values in gestational age (GA) strata.

**Methods used** As part of our larger randomized controlled trial studying the effects of lipid emulsions on Bf and free fatty acids (FFA), we are performing reliability and validity testing on the fluorescent probe using a prospective cohort design. Measurements include Bf, bilirubin (TSB), albumin, FFA, bilirubin binding capacity and the saturation index (SI), an indirect measure of Bf, at lipid doses of 1, 2, and 3 g/kg/day. Bf is measured directly using a fluorescent probe. Reliability of Bf is evaluated by comparing within blood sample variation (test-retest) to variation between blood samples. It is reported as the intraclass correlation coefficient (ICC). Validity of Bf measurement is evaluated by testing agreement of Bf with independent predictors measured in the same blood samples, quantified as R² from linear regression. Bf thresholds for a categorical outcome were determined by correlating Bf values with previously reported SI thresholds. All analyses account for repeated measures within patients.

**Summary of results** We have enrolled 54 patients and completed 165 Bf measures from 43. The ICC for Bf was 0.99 (95% CI 0.991 to 0.996). There was good agreement between Bf and SI: R² = 0.62; adding TSB and albumin increases the R² to 0.72. SI values of ~5 corresponded to Bf values of ~40 nM. Comparing Bf in patients <28 (n=20) vs 28–32 weeks GA (n=23), mean Bf was 25.5 vs 25.6 (p = 0.97); the incidence of Bf ≥40 nM was 13.2% vs 18.0% (difference 4.8, 95% CI 11 to 21; p = .57).

**Conclusions** These data support the reliability and validity of Bf measured fluorescently. Bf values were similar in GA strata with concerning values observed in both GA strata.
**Abstracts**

**654** REPEATED DEVELOPMENTAL TESTING AT 3 YEARS OF AGE IN PREMATURE INFANTS: IS THERE VALUE?

RK Shukla*, A Schadler, R Goldstein. University of Kentucky, Lexington, K Y

10.1136/jim-2020-SRM.654

**Purpose of study** To assess the clinical utility of repeating formal developmental testing at 3 years of age in VLBW infants.

**Methods used** From 2012 to 2017, 139 VLBW infants (500–1500 grams) returned for a 3-year Bayley who had previously been tested at 18–24 months corrected age. Bayley scores are based on a mean +100 (SD ± 15). Mean difference in scores were compared at the ages by paired t-tests in the total cohort and also in birth-weight based cohorts (501–1000 gm and 1001–1500 gm). The composite scores were divided into 3 categories (No delay: >85, -1 SD: 70–84 and -2SD: <70) and then frequencies of changes in the degree of delay was determined.

**Summary of results** Overall, infants showed improvement in their scores. In the 500–1000 gm cohort, there was improvement in cognitive (p<0.0001) and language (p=0.007) scores at 3 years. The 1001–1500 gm cohort showed significantly improved cognitive scores only (p=0.02).

Most children either improved or stayed in the same developmental category in all 3 domains between the 24 month and the 3 year Bayley (figure 1). Despite overall stability and improvement in the mean scores, a small percentage declined in the cognitive and motor domains.

![Abstract 654 Figure 1 Percentage change in delay](image)

**Conclusions** Bayley III scores most often improve between the 24 month and 3 year assessments in VLBW premature infants. Repeating the Bayley III at 3 years of age may not be needed when infants undergo telemedicine was graded as Fair/Good/Excellent. Correlation of tele-ROP and conventional in vivo ROP exam completed either at a Level IV NICU or in outpatient setting was performed. Cost savings was calculated by multiplying Hospital Cost Differential between two NICU’s and Total Patient Hospital Days from back transfer. Descriptive statistics were computed for demographic and clinical variables.

**Summary of results** Over a 2-year period (July 2017–June 2019), telemedicine was used to screen 26 infants for ROP. A total of 372 fundus images were captured during this period. 96% of images were graded as Good/Excellent and 4% were graded as Fair. Strong correlation was noted between final imaging done via telemedicine and subsequent conventional exam via indirect ophthalmoscopy. No patient developed referral-warranted ROP. Overall our Tele-ROP program allowed 484 patient hospital days that family spent in lower level NICU closer to home. At a cost differential of $500 per day this small pilot resulted in nearly $250,000 of savings in inpatient care.

**Conclusions** Telemedicine for ROP evaluation is feasible, safe & cost effective in a Level II NICU, and allows more patients to receive intensive care closer to home.

**655** DIGITAL TOOL TO STOP NEWBORN PHOTOTHERAPY

DT Costakos*, M Zha, L Dahlen. Mayo Clinic, La Crosse, WI

10.1136/jim-2020-SRM.656

**Purpose of study** Phototherapy (photo) is an effective treatment for neonatal hyperbilirubinemia and it is important to estimate the risk of rebound hyperbilirubinemia if photo is discontinued. The use of the algorithm (Chang PW et al. Pediatrics 2017;139:e20162896) requires an intricate mathematical calculation. The purpose of this study is to evaluate the end user experience for effectiveness, efficiency, and satisfaction of a new mobile application (app) for phototherapy. The system can be safely used in a Level II NICU and allows more infants to receive intensive care closer to home.

**Methods used** This prospective, parallel study is IRB approved. Twenty six volunteer providers, (neonatologists, neonatal and family nurse practitioners, family physicians), with an average experience of 16.4 years, were asked to estimate the risk of rebound hyperbilirubinemia if photo is stopped for a published fictional newborn case (NeoReviews Plus December 2017, Question 8), where respondents answered correctly 14% of the time. All volunteer subjects read about the photo stop procedure before rating.
algorithm and viewed a brief video about the app. In this study, subjects were sequentially entered, with odd numbered subjects entering control Group 1, and even numbered subjects into Group 2. Only Group 2 used the app. The groups were compared for correct answers and time to correct answer. No subjects had previous experience with this app. Provider satisfaction was measured on a 1 (0%) to 7 (100%) Likert scale.

Summary of results The average work experience for Group 1: 18.7 years, versus Group 2: 12.2 years, (p=0.13, t-test). Group 1 had proportionally less correct answers: 38.5% versus 84.6% in Group 2, (p=0.04, Fisher exact). Time to correct answer was 6.7 minutes for Group 1, versus 4.9 minutes for Group 2 (p=0.55 t-test). The average satisfaction score for Group 1=2, versus Group 2=6.6 (p<0.001, t-test). The number to treat for benefit is 2.2.

Conclusions This app developed by providers is effective and has a high end user satisfaction. Every treatment has associated adverse effects and this app can help stop photos on a more timely basis. This study helps demonstrate that providers have an important role to transform medical care by leveraging digital tools and data.

Population health & precision medicine
Concurrent session
1:00 PM
Saturday February 15, 2020

Abstract 657 COMPARISON OF LOW CARDIAC OUTPUT SYNDROME AFTER TRANSCATHETER PDA CLOSURE AND SURGICAL PDA LIGATION IN EXTREMELY LOW BIRTH WEIGHT INFANTS

1SS Nair*, 2,3SK Sathanandam, 2,3EM Haney, 2,3SK Chikhalia, 2,3L Apalodimas, 2,3R Philip.
1Christian Brothers University, Memphis, TN; 2Lebonheur Children’s Hospital, Memphis, TN; 3UTHSC, Memphis, TN
10.1136/jim-2020-SRM.657

Purpose of study To compare the incidence of PLCS following transcatheter PDA closure (TCPC) versus surgical PDA ligation (SPL) in extremely low birth weight (ELBW) infants.

Methods used A single center, retrospective chart review was performed on infants born ≤27 weeks gestation, weighing ≤1 kg at birth, and exhibiting PDA size ≥2.5 mm who had been referred for either TCPC or SPL. A scoring system was developed based on 7 criteria measured in the first 24 hours post-procedure: peak inotrope score, decrease in systolic blood pressure from baseline, evidence of new-onset pulmonary venous congestion on chest X-ray, increase in respiratory severity score (RSS), decrease in ejection fraction (EF), absolute left ventricular output and decrease in tissue Doppler derived lateral and medial E’.

Abstract 657 Table 1 Outcomes comparison of patients undergoing TCPC vs. SPL

<table>
<thead>
<tr>
<th>Variable</th>
<th>TCPC (n=100)</th>
<th>SPL (n=50)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incidence of PLCS</td>
<td>4%</td>
<td>42%</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Inotropic support 24 hours post-procedure</td>
<td>0 (0%)</td>
<td>20 (40%)</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Increase in RSS from baseline</td>
<td>16% (2–48)</td>
<td>76% (33–200)</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Decrease in EF</td>
<td>8%</td>
<td>18%</td>
<td>0.20</td>
</tr>
</tbody>
</table>

*Note

Summary of results The study included 100 ELBW infants having undergone TCPC and 50 having undergone SPL (median age 33 v. 26 days, P=NS; median weight 1050 v. 940 grams, P=NS). The incidence of clinically significant PLCS as determined by the proposed scoring system was 42% for SPL and 4% for TCPC (P<0.001). At 24 hours post-procedure, inotropic support was required in 20 SPL versus 0 in the TCPC group (P<0.001). Median increase in RSS for SPL patients was 76% v. 16% in TCPC patients (P<0.001).

Conclusions PLCS is encountered less frequently following TCPC than SPL. The decrease in systolic function usually resolves within 24-hours following TCPC and does not necessitate inotropic support, this suggests that the mechanism of PLCS may be more than just a change in loading conditions following PDA closure in ELBW infants.

Abstract 658 PILL-PACKING INTERVENTION ON HEALTH OUTCOMES AMONG HIGH RISK PATIENTS

1GS Yeung*, 1Ochsner Clinical School, New Orleans, LA; 2University of Queensland, Brisbane, Australia
10.1136/jim-2020-SRM.658

Purpose of study Non-adherence to medications contributes to adverse treatment outcomes, higher morbidity, and additional hospitalizations. Pill packaging (PP) allows patients with polypharmacy to better self-monitor medication consumption, and limit the burden of making decisions about which medications to take at different times. A meta-analysis in 2014 on the benefit of pill packaging revealed adherence to medications increased from 63% to 71%. However, studies regarding changes to health outcomes after using pill packaging are limited. Our study aims to evaluate the impact of pill packing intervention on health outcomes among high risk patient population, by analyzing the specific changes in direct and indirect health markers. Direct health markers include blood pressure (BP), low-density lipoprotein (LDL), Hemoglobin A1c (HbA1c). Indirect health marker includes numbers of emergency department (ED) visits.

Methods used A retrospective cohort study was performed for patients aged 40 to 90 years at Ochsner MedVantage Clinic (MVC) from 2016 to 2018, with forty patients met inclusion criteria. We compared health markers from six (6) months prior to and following the PP intervention. Repeated measure ANOVA was used for statistical analysis

Summary of results The percentage of MVC patients with controlled blood pressure (BP ≤140/90) increased from 50% before PP to 83% after PP (p<0.001). The percentage of MVC patients with at least one (1) emergency department (ED) visit in 6 months decreased from 48% before PP to 28% after PP (p<0.005). Mean values and interquartile ranges of low-density lipoprotein (LDL), hemoglobin A1c (HbA1c), and body mass index (BMI) all decreased respectively (93 to 81 with p=0.053, 7.7 to 7.3 with p=0.109, 33.2 to 32.6 with p=0.179).
Conclusions: Pill-packing intervention improved health outcomes, especially BP control, among high-risk patients. With improvement in overall health, utilization of emergency health services is reduced.

**659 MANAGEMENT OF NEONATAL ACHONDROPLASIA: A GEOSOCIAL APPROACH IN ALABAMA**

C Gooch*, MH Halsey, J Blount, A Hurst. UAB, Birmingham, AL.

10.1136/jim-2020-SRM.659

**Purpose of study** Individuals with achondroplasia are known to be at higher risk for certain medical complications. Notably, foramen magnum stenosis leading to brain stem compression and central and obstructive sleep apnea.

**Methods used** All infants with achondroplasia born at UAB were admitted to the NICU and underwent a Brain/C-Spine MRI and polysomnography within the first week of life. These infants also had genetic counseling before they left the hospital.

**Summary of results** None of our patients who got NICU-based screenings needed emergent neurosurgical management. We had to admit numerous children with achondroplasia from their first visit at the UAB Genetics clinic to Childrens of Alabama for emergent Neurosurgery. Our patients had routine neurosurgical follow up after discharge and those who needed neurosurgery (50%) got it quickly due to close management.

**Conclusions** Neonates with achondroplasia are at high risk of sleep apnea. Beginning screenings early in life can lessen emergent interventions in children with achondroplasia.

<table>
<thead>
<tr>
<th>Results</th>
<th>Length of Time to See Genetics Pre-Protocol: 5 months</th>
<th>Length of Time to See Genetics Post-Protocol: 2–3 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time to Neuroimaging Pre-Protocol: 5.8 months*</td>
<td>Time to Neuroimaging Post-Protocol: 3.25 days</td>
<td></td>
</tr>
<tr>
<td>Time to Polysomnography Pre-Protocol: 7.7 months*</td>
<td>Time to Polysomnography Post-Protocol: 3 days</td>
<td></td>
</tr>
</tbody>
</table>

*not all patients were offered this screening

**660 BREAKING THE CYCLE OF CHILDHOOD ADVERSITY THROUGH PEDIATRIC PRIMARY CARE SCREENING AND INTERVENTIONS: A PILOT STUDY**

1. C Quiñónez, K Schetzina*, 1 Gill Jaishankar, 1 R Toliver, 1 D Thibeaut, 1 Gh Kwak, 1 O Fapo, 1 J Gibson, 1 K Duvall, 1 D Wood. 1 ETSU Pediatrics Program, Johnson City, TN; 2 ETSU, Johnson City, TN.

10.1136/jim-2020-SRM.660

**Purpose of study** Adverse Childhood Experiences (ACEs) are defined as traumatic experiences during childhood. These include any form of abuse, neglect, or household dysfunction, such as parental divorce or intra-parental violence. ACEs substantially contribute to serious health problems in later life, such as addictive behaviors, diabetes and other chronic conditions. Interventions that support parenting and address family, social, and economic stressors have been shown to mitigate the impact of ACEs on future health. We sought to develop a process for addressing ACEs in a pediatric primary care office with an existing integrated Behavioral Health and Resource Team. Our long-term goals are to identify effective feasible pediatric primary care approaches to addressing trauma, promoting resiliency, and breaking the cycle of trauma and health disparities.

**Methods used** We assessed baseline knowledge and perceptions of ACEs among a sample of our clinic providers and local parents/caregivers. Next, we developed, and pilot tested a screening, brief intervention, and referral protocol to provide parenting resources/supportive measures that would mitigate ACEs and promote resilience in both the caregivers and children. Finally, we surveyed parents/caregivers of patients to obtain their feedback on feasibility, acceptability, and appropriateness of ACEs screening.

**Summary of results** A total of 18 out of 29 parents/caregivers screened for ACEs during the project period completed a feedback survey (62%). The mean summary scores for acceptability, feasibility, and appropriateness were 4.80, 4.33, and 4.43, respectively on a 1 (Completely Disagree) to 5 (Completely Agree) scale.

**Conclusions** We were able to initiate an ACEs screening protocol for a pediatric primary care clinic, which enabled identification of at-risk families. ACEs screening was positively perceived by most parents/caregivers. It is imperative to continue to explore optimal approaches for primary care practices to integrate screening protocols to identify families at risk and to build partnerships with community organizations that can help support families, prevent ACEs, and break the cycle of trauma and health disparities.

**661 ATTITUDES OF DEAF INDIVIDUALS ON GENETIC TESTING OF GENES KNOWN TO CAUSE HEARING LOSS**

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**Purpose of study** Congenital deafness is one of the most common birth defects reported. Approximately 70% of congenital deafness is non-syndromic, and approximately 80% of non-syndromic hearing loss results from a genetic cause. Middleton et al’s 1998 study highlighted the negative attitudes of culturally Deaf individuals towards genetic testing for genes known to cause hearing loss. While studies concerning genetic testing...
for deafness genes reference Middleton’s study, to our knowledge a re-evaluation of the attitudes of Deaf individuals towards genetic testing has not been conducted recently. The purpose of this study is to re-establish attitudes of Deaf individuals towards genetic testing of genes known to cause hearing loss.

Methods used A computer-based questionnaire was distributed to members of the Deaf community. Responses of participants were recorded and analyzed. The primary investigator then attended Deaf community events and the 2015 Alabama Association of the Deaf (AAD) Conference, and recruited individuals interested in participating in the study. The surveys were distributed to these individuals and their anonymous responses were analyzed.

Summary of results Our results show there are more positive attitudes within the Deaf community towards genetic counseling, genetic testing, and prenatal testing of genes known to cause hearing loss than were previously documented. Additionally, our study shows that there is a desire among members of the Deaf community to learn more about these services.

Conclusions The demand for genetic testing of genes known to cause hearing loss is present within the Deaf community despite the fact that very few Deaf individuals are offered these services.

RADIOMICS ALGORITHM PREDICTS METASTATIC RENAL CELL CARCINOMA RESPONSE TO ANTI-ANGIOGENIC THERAPY

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Purpose of study To quantify CT radiomics features to predict progression-free survival (PFS) in metastatic renal cell carcinoma (RCC) treated with anti-angiogenic (AAG) therapy.

Methods used For this retrospective post-hoc secondary analysis of a multi-institutional prospective phase III trial, adults with metastatic RCC initially treated with sunitinib were included (N=275). Bi-dimensional contours were performed in up to 5 target lesions on CT scan at baseline and first line therapy using eMASS software, to determine the change in tumor length and vascular tumor burden (VTB). 250 radiomics features were extracted from each freeform region of interest using quantitative in-house algorithms. Inter-observer agreement of length, area, VTB, and 250 radiomics across 11 readers in the sub-cohort (n=20) was performed. The metrics with high inter-observer agreement (ICC >0.60) were averaged over all directions and evaluated using univariate Kaplan Meier survival analysis and Cox-proportional hazards ratio as predictors of PFS in the full patient cohort (N=275).

Summary of results The following parameters predicted PFS in the final CT radiomics algorithm: changes in the sum of target lesion length, change in the sum of tumor area, gray level non-uniformity, and run length non-uniformity. CT radiomics algorithm non-responders (N=133) on the initial post-therapy CT exam were 2.6 times more likely to progress than responders (N=140; HR=2.6, p<0.001). The median PFS of 0.7 years for non-responders was significantly lower than that of 1.6 years for responders (p<0.001). Kaplan Meier curves and statistics for responders vs. non-responders for the four predictors of PFS were performed. A decrease in tumor length (>10%), tumor area (>30%) and, any reduction in the above parameters based on Youden indices identified responders. A risk variable combined the four predictor statuses was constructed clustering the full cohort in different groups (scores from 0–4) associated to PFS. The median PFS of the cohort was 1.15 years. C-statistics (C=0.7) was calculated as an estimate of accuracy.

Conclusions Quantitative changes in CT radiomics features on initial post-therapy CT images were predictive of PFS in patients with metastatic RCC treated with AAG therapy.

COLORIZED COMPUTED TOMOGRAPHY IMAGES OF THE ABDOMEN AND THEIR USE AS A RAPID BONE DENSITY SCREENING METHOD IN A PROSPECTIVE COHORT

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Purpose of study To prospectively validate an opportunistic screening method utilizing color to detect abnormal bone density on abdominal CT images to improve osteoporosis screening efforts.

Methods used For this IRB-approved HIPAA-compliant study, 200 asymptomatic women >50 years of age presenting for screening mammograms were recruited. Patients underwent nonenhanced CT imaging of the abdomen. The CT images were processed with software designed to color the vertebral bodies green if bone density was normal and red if abnormal. Four radiologists were timed as they interpreted L1/L2 bone density using various methods: quantitative CT (QCT), visual assessment of grayscale (Grayscale) and colorized (Color) images and measurement of vertebral attenuation (Attenuation). The mean bone density values at L1/L2 using QCT served as the reference standard. The average accuracy, sensitivity, and specificity were calculated. Inter-observer agreement was assessed using intraclass correlation coefficient (ICC).

Summary of results Mean attenuation at L1/L2 was highly correlated with mean bone density (r=0.96, p<0.001). The optimal mean attenuation cut point for differentiating normal from abnormal bone density was 145 HU. The average accuracy, sensitivity, and specificity were higher with the Color method (Accuracy:91, Sensitivity:92, Specificity:93) than with the Attenuation (Accuracy:88, Sensitivity:89, Specificity:89) or Grayscale method (Accuracy:68, Sensitivity:69, Specificity:64). Mean time of assessment of 2.1 seconds using the Color method was significantly faster than 6.0 seconds for the Grayscale method or 15.2 seconds for the Attenuation method (p<0.001). Finally, inter-observer agreement was higher with the Color method (ICC:0.90) than with the QCT method (ICC:0.82), Attenuation method (ICC:0.73), or Grayscale method (ICC:0.31).

Conclusions Detection of low spinal bone density using colorized abdominal CT images was highly accurate and reproducible.
Purpose of study With the global tobacco epidemic accounting for 6 million premature deaths each year, there is ongoing urgency to reduce smoking. When e-cigarettes were introduced, unsubstantiated claims were made that they facilitated smoking cessation and harm reduction, which led to multiple research investigations since 2011. Although there is a paucity of high-quality evidence, systematic reviews have been published at a rapid rate. Given the $86 billion potential market value by 2025, the weight of evidence for e-cigarettes in smoking cessation is critical.

Methods used We searched several databases from inception up to August 2018 with key terms related to e-cigarettes and smoking cessation, filtering for systematic reviews/meta-analyses. Each included review was classified and ranked by study design using a validated instrument called the AMSTAR tool.

Summary of results The original search yielded 522 unique studies, of which 11 met inclusion criteria, and 7 of which also included summary estimates from a meta-analysis. All except 2 studies received a ‘Low’ or ‘Critically Low’ AMSTAR quality score. The number of studies, as well as methodology, cited by each review varied widely from 4 to 19, of which only two studies were RCTs. The estimated relative risk of successful smoking cessation in e-cigarette users compared to non-users ranges from 0.61 to 2.29 in the seven meta-analyses, a range with qualitatively different implications at its extremes. Furthermore, The authors of the studies provided conclusions that varied widely, but nearly all agreed that the evidence was ‘limited.’

Conclusions Two findings from our analysis are striking: (1) the 11 systematic reviews covered substantially different primary studies, even for those with overlapping timespans for literature identification.; and (2) the reviews reached different conclusions even if considering the same evidence. With inclusion of anywhere from 8% to 52% of available articles, none of the systematic reviews presented a comprehensive analysis of the literature. Our review shows that those making policy and patient care decisions need to approach the literature cautiously. For such a critical public health topic, we propose that new, carefully documented systematic reviews will be needed.

Purpose of study Children without health insurance may have unmet health needs. Over 45% of Hispanic children are overweight and at increased risk for chronic health problems. Many obesity prevention efforts occur in pediatric clinics, community settings, or schools. Clinics where parents and children receive health care could be ideal venues for fitness programs. No studies have implemented obesity prevention programs in clinics that use the Volunteer in Medicine (VIM) model. This project assessed the feasibility of developing and implementing a family-centered fitness and nutrition program in a VIM clinic.

Methods used English or Spanish-speaking families with at least one child who received primary care at the VIM clinic were recruited. After obtaining informed consent from adults and assent from children, physical exams and surveys were completed. Twelve didactics and 12 activities on were offered over 24 weeks. Goal setting and behavior change theory were utilized in program design. Families received home fitness equipment, a YMCA membership, and a $10 gas card for each session attended. Three nutrition sessions had a post-sessions knowledge assessment. The final session included a Healthy Food Potluck, and final weight-in and post-intervention survey.

Summary of results Four families (8 adults, 8 children) enrolled. Three families participated in nutrition and fitness education classes, Zumba, cooking classes, group walks, and a farmer’s market trip. At least 2 families participated in each session, with fathers attending when able. In the final session, families indicated the project was worthwhile.

Conclusions Families will engage in lifestyle programs in a VIM clinic. Uninsured families may be less willing or able to engage in community or school based programs due to transportation, immigration status or work schedules. Parents, especially fathers, may be more likely to participate in programs in their medical home. Challenges included identifying a champion in the clinic, scheduling conflicts, child engagement, and sustaining fathers’ involvement. Successes included increased family social connections, provider trust and expansion of the chronic disease management program. More research is needed on fitness program implementation in VIM clinics.
Elevated Granzyme B expression in CD8+ T cells of the RJ group

HLA-G dimer inhibits Granzyme B on CD8+ T cells via LILRB1

HLA-G dimer inhibits allorecognition in humanized mouse

Conclusions We discover a novel mechanism by which HLA-G dimer inhibits cytotoxic capabilities of CD8+ T cells by downstream regulation of Granzyme B expression via its inhibitory receptor LILRB1. HLA-G with its specific inhibitory axis is an effective therapeutic target for prolonging graft survival in transplant patients.

Supported by Carols and Marguerite Mason Trust
SEX-DEPENDENT PROTECTIVE INFLUENCE ON THE INTRARENAL RENIN-ANGIOTENSIN SYSTEM (RAS) AND BLOOD PRESSURE IN UNILATERAL RENAL ARTERY STENOSIS

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10.1136/jim-2020-SRM.670

Purpose of study Amplification of intrarenal angiotensinogen (AGT) in AngII-dependent hypertension has been characterized in previous studies of male but not female rats. The present study examined potential sex differences in blood pressure (BP), urinary AGT (uAGT) levels, and renal function responses to renovascular hypertension using 2-kidney-1-clip hypertensive rats.

Methods used Female (n=8) and male (n=6) rats underwent placement of a 0.2 mm silver clip on the left renal artery to simulate unilateral renal artery stenosis. BP was measured by tail-cuff plethysmography, and 24-hour urine volume and water intake were monitored via metabolic cages over 21 days. After this period, renal clearance studies were conducted in anesthetized rats, and urine was collected from each kidney separately over 30 minute intervals. Urine protein concentration was determined by pyrogallol red method, and uAGT was measured by ELISA as an index of intrarenal RAS activity, Inulin and PAH concentrations were measured by spectrophotometry for calculation of glomerular filtration rate (GFR) and renal plasma flow (RPF).

Summary of results Three weeks after renal artery clipping, systolic BP had risen to 176±8 mmHg from a baseline pressure of 120±1 mmHg, and urinary protein excretion increased to 20±5 mg/day in females. uAGT excretion was significantly increased from the baseline of 13 ng/day to 74 ng/day (p=0.127% increase). The nonclipped kidney showed 90±29% higher uAGT excretion compared to the clipped kidney, consistent with our previous findings in males. GFR and RPF were higher in nonclipped kidneys than in clipped kidneys but were greater than in corresponding measurements in males. Male rats showed significantly higher increases in uAGT, BP and protein excretion.

Conclusions The present study demonstrates that BP, uAGT, and urinary protein excretion increase after renal artery clipping in females, but the magnitude of the changes is markedly lower than in males. Additionally, the nonclipped kidney showed higher uAGT excretion compared to the clipped kidney. These results demonstrated that female rats may be protected against AngII-mediated renal injury and hypertension due to reduced augmentation of intrarenal RAS.

Abstracts

669 PSEUDOHYPOBICARBONATEMIA INDUCED BY SEVERE HYPERTRIGLYCERIDEMIA

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10.1136/jim-2020-SRM.669

Purpose of study Reports of falsely low serum carbon dioxide (sCO2) concentration, pseudohypobicarbonatemia (PHB), in patients with severe hypertriglyceridemia (hyperTG) have emerged. This phenomenon results from lipid interference in some spectrophotometric analyzers. Our aim was to assess the magnitude and implications of PHB in a tertiary care hospital.

Methods used We searched for cases of serum triglycerides (TG) >1000 mg/dL with a concomitant (<24 hrs apart) sCO2 in 2015–2018. We extracted those with sCO2 ≤12 mEq/L to focus on the more clinically relevant cases. Each measured sCO2 was compared with the calculated bicarbonate (HCO3-) from an arterial blood gas (ABG) within 6 hrs of the venous blood draw. PHB was defined as: erroneous HCO3- (eHCO3) gap = (calculated HCO3- - measured sCO2) >5 mEq/L.

Summary of results We identified 2630 events (1251 patients) of TG >1000 mg/dL and a sCO2 measured on the same day. TG inversely correlated with sCO2 (R=-0.38, p=0.00001). We found 273 events (93 patients) with sCO2 <12 mEq/L. In 144 of those, an ABG was either not available or performed >6 hrs apart from the venous blood draw. The remaining 129 events included 51 instances (11 patients) of true hypobicarbonatemia and 78 instances (39 patients) of PHB. Among those with PHB, the median values of sCO2, calculated HCO3-, and eHCO3- gap were 8 (<5 – 12), 21 (10–31), and 13 (5–23) mEq/L, respectively, whereas the median pH was 7.37 (7.1–7.56). True metabolic acidosis was either absent (46%) or spuriously magnified (54%). TG directly correlated with the eHCO3- gap (R=0.59, p=0.00004). Acute pancreatitis (54%) and diabetic ketoacidosis (30%) were common concomitant disorders but they did not drive the eHCO3- gap. Unnecessary HCO3- therapy was initiated in 29% and serum lactate was measured in 73% of the PHB events (lactate was normal in 72%). As a change of practice implementation, an ISTAT sCO2 was obtained in 5 consecutive cases with PHB and the eHCO3- gap range was 10–17 with true normal sCO2 in all 5 cases.

Conclusions Severe hyperTG can lead to spuriously low sCO2. The degree of hyperTG correlates with the magnitude of PHB. Clinicians should be aware of this phenomenon to prevent incorrect acid-base interpretation, medical mismanagement, and consider obtaining ISTAT sCO2 when PHB is suspected.

671 PLATELET-LEUKOCYTE AXIS IN CKD PATIENTS

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10.1136/jim-2020-SRM.671

Purpose of study Chronic kidney disease (CKD) is a global health crisis and affects, in the US alone, a conservative estimate of 37 million adults. Cardiovascular (CV) events are the leading cause of mortality in CKD patients and are an independent risk factor for developing CV disease. Our study characterized circulating blood platelets to understand their contributions in the progression of CKD. Indeed, platelets are well known in hemostasis and thrombosis, but recent data has revealed a platelet role in altering leukocyte phenotypes via direct platelet-leukocyte interactions. Thus, the platelet contributes to CV disease not only at the level of bleeding and thrombosis, but also in the progression of inflammatory disease.

Methods used Whole blood samples collected from 20 non-dialysis CKD patients were compared to 10 control or healthy volunteers using the Wilcoxon rank sum test. Focusing on four key platelet membrane receptors, we evaluated surface expression by flow cytometry for the platelet adhesion
receptor (CD42a), the platelet fibrinogen receptor (αIIb3), the platelet purinergic receptor (P2Y12), and P-selectin (CD62P, a marker of platelet activation).

**Summary of results** Flow cytometry did not reveal any significant quantitative differences among any of the four membrane proteins comparing CKD and control cohorts. Next, we analyzed platelet-leukocyte interactions in whole blood to examine platelet-dependent changes to circulating neutrophil and monocyte populations. Flow cytometry revealed an increased number of monocytes with bound platelets in controls versus non-dialysis CKD patients ($p<0.05$). No statistically significant differences were found in the number of neutrophils with bound platelets comparing the two cohorts.

**Conclusions** The results highlight platelet-dependent differences in circulating monocytes of CKD patients. The monocyte, as a major contributor to inflammation, requires more indepth analysis in the CKD population. Specifically, studies will need to examine the ability of the platelet to alter monocyte subpopulations or phenotype and/or the ability of the monocyte to alter platelet phenotypes. Understanding the dynamic interactions between platelets and leukocytes will guide future platelet-centric therapeutics and aid in the clinical management of CKD.

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**672 DIFFERENCES IN CLINICAL PHENOTYPE AND OUTCOMES IN HEMODIALYSIS-DEPENDENT PATIENTS IN THE STAPHYLOCOCCUS AUREUS BACTEREMIA GROUP PROSPECTIVE COHORT STUDY (SABG-PCS)**

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**Purpose of study** *Staphylococcus aureus* bacteremia (SAB) is a serious, common infection among hemodialysis dependent (HD) patients. The purpose of this study was to identify changes in the clinical characteristics and outcomes of HD patients with SAB over a two decade period.

**Methods used** SABG-PCS has prospectively enrolled all eligible adult, hospitalized, non-neutropenic patients with monomicrobial SAB at DUMC from Jan 1, 1995 to December 31, 2015. Demographic, clinical, and outcome data were collected. Differences in demographic, clinical, and outcome data between HD patients and non-HD patients were estimated using medians/quartiles or counts/percentages. Statistical significance was evaluated with Mann-Whitney-U or Fisher’s Exact test. The proportion of participants experiencing each outcome was calculated overall and by calendar year. Secular trends in proportions were estimated with linear regression in the subset of participants admitted during the study period, 495 (21.1%) were HD-dependent. Compared to the non-HD patients, HD patients were younger (median 57 years, IQR 47,67 vs 60 yrs, IQR 47, 71; $p=0.0019$) and more likely to be African-American (74.6% vs 26% $p<0.0001$), diabetic (56.2% vs 33.8% $p<0.0001$), and female (48.1% vs 42.1% $p=0.0188$).

**Summary of results** Among 2,347 unique SABG-PCS participants admitted during the study period, 495 (21.1%) were HD-dependent. Compared to the non-HD patients, HD patients were younger (median 57 years, IQR 47,67 vs 60 yrs, IQR 47, 71; $p=0.0019$) and more likely to be African-American (74.6% vs 26% $p<0.0001$), diabetic (56.2% vs 33.8% $p<0.0001$), and female (48.1% vs 42.1% $p=0.0188$). Although the overall mortality did not differ significantly among patients with and without HD (35.2% vs 34.9%; $p=0.093$), HD patients experienced significant annual increases in the rates of SAB-specific mortality (0.5% per year $p=0.0345$) and metastatic infections (0.8% per year $p=0.0218$), including abscesses (0.6% per year $p=0.0005$) and persistent bacteremia (0.6% per year $p=0.0427$).

**Conclusions** SAB is a serious infection. Clinical characteristics differ significantly between HD patients and non-HD patients with SAB. Although mortality did not differ between HD and non-HD patients hospitalized with SAB, rates of metastatic infection and *S. aureus*-attributable mortality increased significantly among HD patients during the study period. Future research should investigate potential causes for these worrisome trends, including changes in vascular access and antibiotic use.

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**673 A CASE OF SEVERE UNEXPLAINED HYPERKALEMIA IN A HEALTHY UNITED STATES SERVICE MEMBER**

J Kokoski*, I Rivera. Dwight David Eisenhower Army Medical Center, Grovetown, GA. 10.1136/jim-2020-SRM.673

**Case report** Hyperkalemia in those with preserved renal function is rarely observed given normal potassium clearance. Etiologies for hyperkalemia in otherwise normal subjects include various causes for transcellular potassium release or reduced urinary potassium excretion from impaired mineralocorticoid function. Rare causes of hyperkalemia include genetic mutations manifesting as aldosterone resistance. Presented here is an unusual case of presumptive pseudohypoaldosteronism (PHA) manifesting as severe, sustained, asymptomatic hyperkalemia in an otherwise healthy male with normal renal function. Case A 22 y/o asymptomatic healthy male presented for screening during a routine military health exam. He was incidentally discovered to have a serum potassium >7 mEq/L associated with markedly elevated T-waves on ECG. He received emergent volume expansion with subsequent serum potassium of 6.2 mEq/L and an unexplained return to ~7 mEq/L the next day. He required multiple courses of Kayexelate to treat his recalcitrant hyperkalemia which averaged >6 mEq/L. Nephrology was consulted for further assistance. He had appropriate adrenal function supported by normal AM cortisol levels, appropriate response to cosyntropin stimulation, and evidence of profoundly elevated serum aldosterone levels with suppressed plasma renin activity. His aldosterone-to-renin ratios were significantly elevated (~80; normal ~30) inconsistent with hyperaldosteronism. His clinical presentation was most consistent with an aldosterone-resistant variant suggestive of PHA type I. However, confirmatory genetic testing revealed a PHA type II genotype.

**Discussion** After ruling out the most common etiologies of renal potassium wasting in a healthy patient with normal renal function, aldosterone resistance was the leading empiric diagnosis given significantly elevated serum aldosterone and suppressed plasma renin activity. PHA presents as either a renal-limited loss of function mutation of the mineralocorticoid receptor or as a mutation resulting in increased expression of thiazide-sensitive NaCl cotransporters in the distal nephron. Types I and II respectively. Our patient presents unusually given he has isolated hyperkalemia in the absence of other hallmark symptoms of PHA. This unusual case contributes to the paucity of literature describing PHA.
Purpose of study Lactated Ringer’s (LR) solution is a balanced crystalloid containing 4 mEq/L of potassium. Its use is restricted in hyperkalemia and in those with advanced kidney disease given potential concerns of exacerbating hyperkalemia. We assessed the effect of LR on serum potassium levels in patients with advanced kidney disease.

Methods used Retrospective evaluation of 58 patients with advanced kidney disease [defined by estimated glomerular filtration rate (eGFR) of <30 ml/min/1.73 m² - including patients with acute kidney injury (AKI), chronic kidney disease (CKD), AKI on CKD, and end stage kidney disease (ESRD) either on dialysis or post renal-transplantation] admitted at The University of Alabama at Birmingham Hospital between 9/1/2017 to 9/1/2018 who received LR for resuscitation and its effect on serum potassium levels. We stratified patients based on renal function; accounted for concomitant medication use that frequently potentiate hyperkalemia, use of potassium [K] supplements, blood transfusions immediately prior to LR use, presence of sepsis, and those on tube feeds.

Summary of results Average age of patients was 60 years. 6 patients had AKI, 23 patients had AKI on CKD, 11 patients had known CKD, and 18 had ESRD (including 4 who had renal transplantation). Average LR use was 1.91L per patient. Hyperkalemia [defined by serum potassium >5.2 mEq/L] was seen in 5 patients (8.6% of the study population). All 5 of them had average K 5.7 mEq/L prior to LR use. 4 among them were managed with medications alone and 1 patient needed dialysis. Average and highest K levels among all patients within 24-hour post LR use were 4.1 mEq/L and 4.3 mEq/L respectively. 37 patients had sepsis. There were no deaths attributable to hyperkalemia.

Conclusions Only 5 out of 58 patients (8.6%) with advanced kidney disease in our cohort had hyperkalemia within 24 hours post-LR administration, and all 5 had known hyperkalemia prior to LR use. Our study demonstrates that LR use is not independently associated with hyperkalemia in advanced kidney disease, a population subset who frequently cannot renally excrete potassium adequately. Further large scale clinical studies are warranted to confirm our findings.
Correction: 2020 Southern Regional Meeting


Since the publication of this abstract it has been noted that the author list for this abstract omitted JR Keys from the initial publication. The author list should therefore have been JR Keys, MH Roy.

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