MP2 PATHOPHYSIOLOGY AND METABOLIC PHENOTYPE OF LOW BODY MASS INDEX DIABETES

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Purpose of Study Millions of individuals with low body mass index (BMI) globally have diabetes of unclear etiology. These include patients with Fibrocalculous Pancreatic Diabetes (FCPD) and Lean Diabetes (LD), defined by the presence or absence of pancreatic calcifications on ultrasound. We present the first studies using gold-standard methodologies to assess their metabolic phenotype.

Methods Used Stepped euglycemic-hyperinsulinemic (~30 and 80 mU/m²/min) clamp studies were performed in n=8 Indian males with LD (age 38±3 y, BMI 18.4±0.1 kg/m², HbA1c 11.0±0.8%) and n=22 with FCPD (age 30±1 y, BMI 19.7±0.6 kg/m², HbA1c 10.2±0.6%), compared with n=12 type 2 diabetes subjects (T2DM, BMI 25.7±0.3 kg/m², HbA1c 9.7±0.6%) and n=12 age and BMI matched non-diabetic (ND) subjects and n=16 with type 1 diabetes (T1DM, HbA1c 9.1±0.3%). Therapeutic regimens were intensified for two weeks to correct glucose toxicity in all groups. Lean body mass was determined for all subjects from percentage of total body fat as assessed by DXA.

Summary of Results Peripheral insulin sensitivity (Rd, mg/kg lean body weight/min), was markedly impaired in T2DM (2.3±0.6; p<0.01) compared to LD (9.2±1.6) and FCPD (5.8±0.7). Rd did not differ between T1DM (5.8±0.7), LD and FCPD groups (figure 1).

Peripheral insulin sensitivity of study groups, *p=0.05

Abstract MP2 Figure 1

Conclusions Thus, these comprehensive studies suggest patients with LD and FCPD are only mildly insulin resistant once hyperglycemia is corrected. This promotes a paradigm shift in our understanding of low body mass index diabetes and could have profound therapeutic implications for millions of people.