MP6 HOMOCYSTEINE LEVEL IN PFO RELATED STROKE PATIENTS WITH RESPECT TO MEDICAL THERAPY VS PFO CLOSURE

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Purpose of Study Homocysteine is an independent risk factor of ischemic stroke by promoting vascular endothelial dysfunction and thrombotic process through oxidative stress. We previously found that PFO closure may reduce total homocysteine level (tHcy) in plasma. Here, we compare the effect of PFO closure and medical treatment in reducing mild homocysteinemia in PFO-related stroke patients.

Methods Used 28 PFO-related stroke patients with mildly elevated tHcy ($>12 \mu\text{mol/l}$) were prospectively recruited in accordance with IRB. 14 received PFO closure and 14 were treated by medical therapy (antiplatelet/anticoagulant) alone. None of the patients were on folate or vitamin B

Abstract MP6 Figure 1

supplementation. Plasma was collected at baseline and 1 year follow-up after treatment. tHcy level was determined by selected reaction monitoring using mass spectrometry.

Summary of Results Compared to medical therapy, PFO closure resulted in a lower tHcy level during follow-up (PFO closure: $11.13 \pm 3.94 \mu\text{mol/L}$, medical therapy: $15.48 \pm 3.55 \mu\text{mol/L}$, $p=0.006$), with no difference at baseline (PFO closure: $17.77 \pm 4.39 \mu\text{mol/L}$, medical therapy: $16.47 \pm 7.50 \mu\text{mol/L}$, $p=0.575$). Mild hyperhomocysteinemia patients post PFO closure had a significant reduction of tHcy by 37.34% ($p=0.0005$), with 71.43% of the patients (10 of 14) having tHcy levels back to normal ($<12 \mu\text{mol/L}$), while most of medically treated patients (13 of 14) stayed abnormal ($p=0.4820$) (χ^2 -test, adjusted $p=0.002$).

Conclusions We found that compared with routine medical therapy, PFO closure reduced tHcy level in patients with mild hyperhomocysteinemia. Since PFO stroke patients tend to be younger, the life-time risk of even mildly elevated tHcy may be important for future thrombotic risk. Understanding the mechanism of PFO-related tHcy changes is important in optimizing medical treatment (e.g, folate replacement); studies are ongoing.