

00164 **Comprehensive Assessment of Glucose, Lipid and Amino Acid Metabolism in Asian Individuals With Morbid Obesity Following Sleeve Gastrectomy**

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Aims: Obesity-induced insulin resistance leads to abnormalities in glucose, lipid and amino acid metabolism. Our study examines the differences in insulin-mediated glucose, amino acid and lipid metabolism between morbidly obese subjects with non-obese controls and the associated changes following sleeve gastrectomy (SG).

Methodology: Eleven morbidly obese non-diabetic subjects scheduled for SG and 9 non-obese controls were recruited. Metabolic assessments were performed for all subjects at baseline and at 6-months after SG. The hyperinsulinemic-euglycemic clamp technique together with comprehensive metabolomic profiling was used to quantify insulin-mediated glucose, amino acid and lipid metabolism.

Result: Compared to controls, obese subjects had significantly lower glucose uptake (4.4 ± 0.6 vs 17.3 ± 2.4 mg/kg FFM/min per $\mu\text{U}/\text{mL} \cdot 100$) and higher concentration of branched-chain amino acids (BCAA, 332.5 ± 26.8 vs 235.3 ± 11.0 μM), non-esterified amino acid (52.9 ± 9.9 vs 25.6 ± 6.7 μM) and lipid-related

acylcarnitines (intermediate-chain 389.8 ± 32.5 vs 285.9 ± 20.5 ; long-chain 301.7 ± 22.1 vs 236.0 ± 13.3 nM) during insulin clamp. Body weight significantly reduced at 6-months after bariatric surgery (92.5 ± 6.3 vs 115.2 ± 6.9 kg), together with improvements in insulin-mediated glucose uptake, and suppression of BCAAs, non-esterified fatty acids and lipid-related metabolites.

Conclusion: We found that morbid obesity in Asian individuals is associated with impairment in the regulatory action of insulin on glucose, amino acid and lipid metabolism and this obesity-induced regulatory dysfunction improves significantly after SG.