Ala55val Polymorphism on UCP2 Gene Predicts Greater Weight Loss in Morbidly Obese Patients Undergoing Gastric Banding

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摘要

Abstract

Background　Variability in weight loss has been observed from morbidly obese patients receiving bariatric operations. Genetic effects may play a crucial role in this variability.

Methods　304 morbidly obese patients (BMI ≥39) were recruited, 77 receiving laparoscopic adjustable gastric banding (LAGB) and 227 laparoscopic mini-gastric bypass (LMGB), and 304 matched non-obese controls (BMI ≤24). Initially, all subjects were genotyped for 4 SNPs (single nucleotide polymorphisms) on UCP2 gene in a case-control study. The SNPs significantly associated with morbid obesity ($P < 0.05$) were considered as candidate markers affecting weight change. Subsequently, effects on predicting weight loss of those candidate markers were explored in LAGB and LMGB, respectively.The peri-operative parameters were also compared between LAGB and LMGB.

Results　The rs660339 (Ala55Val), on exon 4, was associated with morbid obesity ($P = 0.049$). Morbidly obese patients with either TT or CT genotypes on rs660339 experienced greater weight loss compared to patients with CC after LAGB at 12 months (BMI loss 12.2 units vs 8.1 units) and 24 months (BMI loss 13.1 units vs 9.3 units). However, this phenomenon was not observed in patients after LMGB. Although greater weight loss was observed in patients receiving LMGB, this procedure had a higher operative complication rate than LAGB (7.5% vs 2.8%; $P < 0.05$).

Conclusion　Ala55Val may play a crucial role in obesity development and weight loss after LAGB. It may be considered as clinicians incorporate genetic susceptibility testing into weight loss prediction prior to bariatric operations.