

OBESITY

Weight loss after Roux-en-Y gastric bypass is associated with SNPs in ghrelin receptor gene

Ghrelin is thought to be involved in the mechanism of how Roux-en-Y gastric bypass (RYGB) is effective in promoting weight loss. A recent study published in *Obesity Surgery* has identified single nucleotide polymorphisms (SNPs) in the ghrelin receptor gene—growth hormone secretagogue receptor type 1a (*GHSR*)—that are associated with different weight-loss outcomes after RYGB surgery.

“Although ghrelin had been implicated in both obesity and dietary weight loss, the

data following RYGB surgery have been inconsistent, thus we selected ghrelin as a lead candidate for investigation,” explains corresponding author Glenn Gerhard (Geisinger Clinic Obesity Institute, USA).

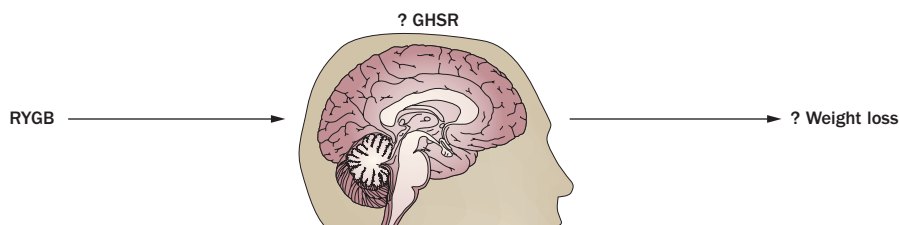
The researchers measured serum levels of ghrelin before and 6 months after RYGB in 37 obese patients. They also performed association analyses for the SNPs rs9819506 and rs490683 in the promoter region of *GHSR* in >650 obese patients undergoing RYGB. Linear mixed

regression models were used to assess the association with weight loss after surgery.

Serum levels of ghrelin increased after RYGB. The models showed that which SNP a patient had affected how much weight they lost; patients who were homozygous for the rs490683 CC genotype lost the most weight.

The authors speculate that other SNPs in *GHSR* could also alter weight loss after RYGB. “Future studies will include investigating mouse models of the ghrelin pathway to determine whether modulating ghrelin receptor levels in the brain could influence weight loss after bariatric surgery,” concludes Gerhard.

Claire Greenhill



The identification of ghrelin receptor promoter single nucleotide polymorphisms that are associated with differences in weight-loss outcomes following RYGB surgery suggests a potential mechanistic framework to investigate the role of the ghrelin pathway in postoperative weight loss. Image produced in consultation with G. S. Gerhard.

Original article Matzko, M. E. *et al.* Association of ghrelin receptor promoter polymorphisms with weight loss following Roux-en-Y gastric bypass surgery. *Obes. Surg.* doi:10.1007/s11695-012-0631-2