

A modified laparoscopic sleeve gastrectomy for the treatment of diabetes mellitus type 2 and metabolic syndrome in obesity

Eduardo Pirolla

University of Sao Paulo Medical School, Brazil

Background: Ghrelin is a gastrointestinal peptide hormone (a 28 –amino acid peptide) produced primarily by X/A cells in the oxyntic glands of the stomach fundus and cells lining the duodenum cavern. It suppresses insulin secretion and action and commands a significant role in regulating food intake. The aim of the present study was to show that modified laparoscopic sleeve gastrectomy (MLSG), in which a significant part of the gastric fundus and body of the stomach is removed up to 1 inch from the pylorus vein, may contribute to decreasing circulating ghrelin levels.

Methods: A study population consisting of 150 individuals was monitored after undergoing a MLSG, with individuals chosen based on a documented history of diabetes mellitus type 2 and metabolic syndrome, clinical results determining a body mass index (BMI) of 35 to 60 kg/m², peptide C level greater than 1, negative anti-GAD, negative anti-insulin, and confirmed stability of drug/insulin treatment and glycosylated hemoglobin greater than 6.5% for at least 24 and 3 months, respectively, before enrollment.

Results: Twenty-four months after surgery, 150 patients (86.6%) presented with normal glycemic levels between 77 and 99 mg/dL. All patients improved average serum insulin levels by 9 mU/L and average glycosylated hemoglobin levels by 5.1% (normal range, 4%– 6%). All patients tested negative for *Helicobacter pylori* and stopped using insulin, with 3 patients prescribed twice-daily use of an oral hypoglycemic. In 14% of cases, patients experienced partial hair loss with low serum zinc levels and were prescribed oral zinc reposition and topical hair stimulants. The average weight loss recorded was 44.6% for patients with a BMI less than 45 kg/m² and 58% for patients with a BMI greater than 50 kg/m².

Conclusions: The MLSG is a safe procedure with a low morbidity rate (2.7%) (4 cases of fistula and 2 of bleeding) and no surgical mortality. This surgery can promote control of diabetes mellitus type 2 and aid the treatment of exogenous overweight and morbidly obese individuals. The results of this study show that only through resection of the ghrelin-producing gastric area can most obesity cases and diabetes type II conditions be reverted to nonobese and controlled diabetes

eduardopirolla@gmail.com