Chirurgia (Bucur). 2013;108(5):659-665

Laparoscopic Sleeve Gastrectomy Reduces the Predicted Coronary Heart Disease Risk and the Vascular Age in Obese Subjects

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Abstract

Background: Obesity is associated with high prevalence of coronary heart disease (CHD) and long term increased cardiovascular morbi-mortality. There are no data regarding the effect of laparoscopic sleeve gastrectomy (LSG) on long-term CHD - risk. It is known that "a man is as old as his arteries" and this concept is illustrated by Framingham coronary risk score, which can predict vascular age.

Purpose: To assess the 10-year CHD risk in patients with obesity, preoperatively, and 6 and 12 months after LSG.

Methods: 47 consecutive obese subjects (44.7% males, mean age 39.8 years) scheduled for LSG were prospectively studied before and 6 and 12 months after surgery. The 10 years CHD risk and corresponding vascular age were calculated using Framingham risk score.

Results: The body mass index (BMI) decreased from 44.6 ± 10.6 kg/m^2 preoperatively to 32.2 ± 6.9 kg/m^2 and to 29.4 ± 5.4 kg/m^2 at 6 and 12 months follow-up (both $p < 0.05$). Mean excessive weight loss (EWL) was 67.3 ± 23.7% and 78.3 ± 23.4% at 6 and 12 months postoperatively. At 6 and 12 months after LSG, there was a marked improvment of lipid profile (decrease of total cholesterol, LDL-cholesterol, triglycerides and increase of HDL-cholesterol) and a significant decrease in prevalence of diabetes mellitus, systemic hypertension and smoking. The 10-year CHD risk reduced from 10.1% pre-operatively to 3.5% and to 2.2% at 6 and 12 months after surgery (both $p<0.05$). Patients' mean vascular age was 65.6 years preoperatively and decreased to 45.8 years 6 months postoperatively ($p<0.05$) and to 40.7 years one year after LSG ($p<0.05$ vs. 6 months postoperatively, p=NS vs. chronological age).

Conclusions: In obese subjects, CHD risk is significantly reduced early, beginning with 6 months after LSG and is diminished with 80% one year postoperatively. Despite the fact that not all patients had achieved the ideal weight yet, mean vascular age is similar to their chronological age one year after surgery.

Key words: obesity, laparoscopic sleeve gastrectomy, bariatric surgery, weight loss, coronary heart disease risk, vascular age

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