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Original article

The impact of family members on weight loss after sleeve gastrectomy

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Abstract

Background: Weight loss after laparoscopic sleeve gastrectomy (LSG) is multifactorial. Postoperative compliance with appropriate dietary guidance may be affected by psychosocial factors and may influence the success of surgery.
Objective: To evaluate the effect of LSG in siblings compared to case-matched controls.
Setting: University hospital.
Methods: Siblings who had undergone LSG were compared with controls case-matched by age, sex, and body mass index. The percentage excess weight loss (%EWL) was calculated at 3, 6, and 12 months postoperatively.
Results: We had 32 siblings, of which 4 were lost to follow-up. Thus, 28 (87.5%) siblings completed 1 year of follow-up and were included in the study. In the family group, the %EWL was 72.7 ± 15.0% at 1 year while in the control group the mean %EWL was 62.1 ± 21.4%. Patients in the family group had significantly greater weight loss. Within the family group, the outcomes of family order had no statistically significant difference in weight loss between the first family member who had undergone LSG and subsequent family members. In addition, family members who had resided together in the same home had no advantage over those who resided separately.
Conclusion: Genetic and environmental factors may have great influence on outcomes after bariatric surgery. (Surg Obes Relat Dis 2016;∎:00–00.) © 2016 American Society for Metabolic and Bariatric Surgery. All rights reserved.

Keywords: Bariatric surgery; Sleeve gastrectomy; Excess weight loss; Family members; Siblings

Morbid obesity is an increasingly common condition with serious associated morbidity and decreased life expectancy. Bariatric surgery represents the only effective and enduring treatment for morbid obesity [1]. Laparoscopic sleeve gastrectomy (LSG) is currently one of the most popular bariatric procedures; this is because of promising results in terms of percentage of excess weight loss (%EWL) and the resolution of co-morbidities. In addition, its low long-term risk profile and simplicity make it even more appealing [2,3].

Weight loss after LSG is multifactorial. Age, sex, initial body mass index (BMI), psychological disorders, and technical factors of the procedure have all been cited as contributing to weight loss after LSG [4,5]. In addition, postoperative compliance with appropriate dietary guidance may be affected by psychosocial factors and may influence the success of surgery. Social support can have a great impact on weight loss success after bariatric surgery [1]. Being in a support group or having a family member who has undergone LSG may help the patient know what to expect perioperatively and motivate the patient to achieve the maximal possible weight loss. Genetic contributions may also play an important role in weight loss after bariatric surgery [6,7].

The aim of our study was to assess weight-loss differences in siblings undergoing LSG compared to unrelated patients.

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Methods

Study design

This was a single-center, single-surgeon, retrospective study of prospectively collected data of patients who underwent LSG at Jordan University Hospital from November 2011 to February 2014.

Patients

We retrospectively reviewed a prospective cohort of 300 patients who had undergone LSG at our institution between November 2011 and February 2014. We included all LSG patients with at least 1 sibling in the cohort who continued at least 1 year of follow-up.

The family group was matched 1:1 with another group of LSG patients (the control group) who had no relations and did not participate in any support group in the cohort of 300 patients. The control case-matching was done by age (±5 yr), sex, and preoperative BMI (±5 kg/m^2) from the remaining 300 nonfamily LSG records. Case matching was performed in chronologic order starting with the first family patient, who was case-matched to the earliest nonfamily patient in our records who matched age, sex, and BMI.

In all cases, the indication for bariatric surgery was validated in accordance with the 1991 National Institutes for Health consensus criteria for bariatric surgery [8]. All had a BMI of either >40 kg/m^2 or 35–40 kg/m^2 with a major co-morbidity.

Co-morbidities were considered if the patient was previously diagnosed and on therapeutic medications. Resolution of co-morbidities was considered if the patient stopped previous medications.

Surgical technique

All operations were performed in the French position, with the surgeon standing between the patient's legs. Four ports were used: a 10-mm trocar was placed in the midline above the umbilicus, a 15-mm trocar was placed in the right subcostal area, a 12-mm trocar was placed in the left subcostal area, and a 5-mm trocar was placed in the subxiphoid for the liver retractor. An additional 5-mm trocar was placed on the left side, lateral to the rectus sheath, to aid in retraction of the omentum when necessary.

The stomach was completely mobilized by dividing the greater omentum from the stomach using Ligasure (Covidien, Minneapolis, MN, USA), starting 1–2 cm from the pylorus and extending up to the angle of His. A 38-Fr calibration bougie was inserted by the anesthesiologist along the lesser curvature of the stomach. The resection began with the use of a 4.8-mm articulated green Endo GIA stapler (Covidien), starting 2–4 cm from the pylorus and continuing toward the angle of His using a 3.5-mm blue Endo GIA stapler (Covidien). The staple line was reinforced using seromuscular invaginating V-Loc sutures (Covidien).

Postoperative management

Patients were routinely started on a fluid diet on the second postoperative day and were discharged on the same day. They were seen in the outpatient clinic 1 week after discharge and at 1, 3, 6, 12, and 24 months postoperatively. Patients in the control group all self-reported not utilizing any groups for postoperative support.

Statistical analysis

The results are expressed as the mean ± standard deviation (for quantitative variables) or as the number and percentage (for qualitative variables). The differences in the distribution of parametric data were performed with a Student's *t* test, whereas comparisons of nonparametric data were performed using a χ^2 test or Fisher's exact test. The threshold for statistical significance was set at a *P* value of .05 or lower. All statistical analyses were performed with SPSS software version 21 (IBM Corp., Armonk, NY).

Results

We had 32 siblings, 4 of whom (2 sets of siblings from 2 different families) were lost to follow-up. Thus, 28 (87.5%) patients completed 1 year of follow-up and were included in the study. The family group (n = 28) contained 11 different families. One family had 5 members in the study, 3 families had 3 members, and 7 families had 2 members. The mean time between siblings undergoing surgery was 3.4 months (range 0–12 mo).

The preoperative patient demographic characteristics are listed in Table 1. Of the 56 patients, 22 females (78.6%) and 6 males were in each group. The differences between the family and the control groups in respect to age, baseline weight, and BMI were not statistically significant. Preoperatively, the differences between the 2 groups in respect to hypertension, diabetes, hyperlipidemia, and obstructive sleep apnea were not statistically significant.

Table 1
Patient demographic characteristics and perioperative data in the 2 groups

	Family group (n = 28)	Control group (n = 28)	*P* value
Age (yr)	30.8 ± 11.1	32.2 ± 9.6	.58
Sex (F)	22 (78.5%)	22 (78.5%)	1
Weight (kg)	134.2 ± 31.8	128.1 ± 26.4	.43
BMI (kg/m^2)	47.6 ± 9.5	46.9 ± 7.7	.71
Hypertension: n (%)	4 (14.3)	9 (32.1)	.11
Type 2 diabetes: n (%)	4 (14.3)	3 (10.7)	.69
Dyslipidemia: n (%)	13 (46.4)	20 (71.4)	.06
Obstructive sleep apnea: n (%)	4 (14.3)	12 (42.8)	.07

BMI = body mass index.