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Original article

Medium to long-term outcomes of bariatric surgery in older adults with super obesity

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Abstract

Background: Indications and outcomes of bariatric surgery in older adults suffering from morbid obesity remain controversial. We aimed to evaluate safety and medium to long-term outcomes of bariatric procedures in this patient population.

Setting: University Hospital, Canada.

Methods: This is a single-center retrospective study of a prospectively collected database. We included patients aged ≥ 60 years who underwent sleeve gastrectomy, Roux-en-Y gastric bypass, or biliopancreatic diversion with duodenal switch between January 2006 and December 2014 and had at least 2 years of follow-up.

Results: Of patients, 115 underwent bariatric surgeries (11 patients had 2 procedures). There were 66 were super-obese patients (body mass index > 50 kg/m²). Of patients, 74% had sleeve gastrectomy, 16% Roux-en-Y gastric bypass, and 8% underwent biliopancreatic diversion with duodenal switch. Mean age and body mass index were 63.3 ± 2.6 years and 51.7 ± 8.1 kg/m², respectively. Average follow-up time was 42 ± 19 months. At baseline, 78% had hypertension, 60% had type 2 diabetes, and 30% had obstructive sleep apnea. There was no 30-day mortality. Complication rate was 14% (n = 16): 2 leaks post-Roux-en-Y gastric bypass, 1 leak post-biliopancreatic diversion with duodenal switch, 1 obstruction post-sleeve gastrectomy, 1 bleeding requiring transfusion, 1 liver injury with bile leak, 2 port-site hernias, 1 myocardial infarction, 2 gastrojejunal strictures, 1 wound infection, 1 urinary tract infection, and 3 gastric reflux exacerbations. Mean percent excess weight loss at 2 years was 52.2 ± 23.8 . Remission rates of hypertension, type-2 diabetes, and obstructive sleep apnea were 26%, 44%, and 38%, respectively.

Conclusion: Bariatric surgery is safe and effective in improving obesity-related co-morbidities in older patients suffering from morbid obesity. Age alone should not preclude older patients from getting the best bariatric procedure for obesity and related co-morbidities. (Surg Obes Relat Dis 2017;■:00–00.) © 2017 American Society for Metabolic and Bariatric Surgery. All rights reserved.

Keywords:

Elderly; Obesity; Super-obesity; Bariatric surgery; Gastric bypass; Sleeve gastrectomy; Biliopancreatic diversion with duodenal switch

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Obesity is an epidemic that has spared no age groups [1,2]. By 2050, it is projected that older adults will represent 22% of the population in the United States. The rapid growth of the senior population has had a significant economic impact because of their unique medical requirements [3]. Obesity is known to decrease the quality of life

as well as life expectancy [4]. Bariatric surgery is the most effective treatment for weight loss and obesity-related comorbidities, such as type-2 diabetes (T2D), hypertension (HTN), dyslipidemia, and obstructive sleep apnea (OSA) in morbidly obese individuals [5].

The geriatric population is considered a high-risk group and shown to have higher postoperative adverse outcomes including mortality as well as decreased percentage excess weight loss (%EWL) after bariatric surgery compared with younger adults [6]. Moreover, super-obese (SO) patients (body mass index [BMI] >50 kg/m²) are considered to have increased operative morbidity and mortality compared with morbidly obese patients with BMI <50 kg/m² [7]. However, as minimally invasive techniques and multidisciplinary care evolve, there is growing evidence that older adults are benefiting from bariatric surgery with acceptable safety. Over the past decade, metabolic surgery in older adults has increased by 3-fold and comprises 10% of the total bariatric procedures performed annually [8]. As a result, more older SO patients have undergone bariatric surgery to attenuate the burden of their metabolic disease [9].

However, controversy still remains regarding the indications, age cut-off, outcomes, and type of bariatric surgery offered to older patients especially those suffering from SO. This is in part due to limited literature on the safety and long-term outcomes of various bariatric procedures in this population. Most published studies report the results of restrictive procedures only, such as adjustable gastric banding [10] and sleeve gastrectomy (SG) [11,12]. Only a few studies evaluate Roux-en-Y gastric bypass (RYGB), and even fewer assess biliopancreatic diversion with duodenal switch (BPD/DS) outcomes in obese and older SO adults [13,14]. Thus, we aimed to evaluate the medium to long-term safety and outcomes of a cohort of morbidly obese or older SO patients (aged ≥ 60 years), who underwent various bariatric procedures including SG, RYGB, or BPD/DS at our institution.

Methods

After approval from the institutional Ethics Review Board, we carried out a retrospective study of a prospectively collected database from a single academic tertiary institution. We included patients aged 60 years and older, who underwent SG, RYGB, BPD/DS, or revisional bariatric procedure from January 2006 until December 2014 to have at least 2 years of follow-up. All data were inputted in the database by a member of the multidisciplinary team (surgeon, nurse, or the nutritionist) at each follow-up appointment. To improve follow-up, patients who either missed their appointments or had no follow-up in the last 6 months of the study period, were contacted and scheduled for a clinic visit. However, not all such patients were

successfully reached or were able to present to their respective appointments.

The information on patients' age, sex, weight, BMI, procedure type, postoperative complications, readmission, reoperations/reintervention, %EWL, and percentage total weight loss were obtained. Postoperative complications were reported as early/late, minor/major according to the established standardized reporting recommendations for bariatric surgery [15].

The obesity-related co-morbidities assessed preoperatively and at last follow-up were T2D, HTN, and OSA. We did not report postoperative outcomes on dyslipidemia due to significant missing data during the follow-up. Remission of T2D was defined as cessation of antidiabetic medication along with a fasting blood glucose ≤ 125 mg/dL (7 mM) and HbA1C $< 6.4\%$. Remission of HTN was defined as a blood pressure $\leq 120/80$ mm Hg without any antihypertensive medication. Improvements in both HTN and T2D were defined as either remission or improved parameters using less number of medications or at a lower dosage, which was clearly documented in the physician consultation notes. Remission of OSA was defined as a normal sleep pattern reported by the patient without the use of continuous positive airway pressure device. Routine postoperative polysomnography was not performed.

The estimates on the study parameters are expressed as mean \pm standard deviation and number (%). Descriptive statistics were carried out using the STATA software (Stata Corp., College Station, Texas, USA) version 12.

Results

The study cohort included 104 patients, who underwent 115 bariatric procedures during the study period. Mean age and BMI were 63.3 ± 2.6 years and 51.7 ± 8.1 kg/m², respectively. Of patients, 32 (31%) were ≥ 65 -years old and the age of the study cohort ranged between 60- and 70-years old. There were 66 SO patients (63%) with a mean BMI of 56.4 ± 6.4 kg/m². At baseline, 81 (78%) patients in the study cohort, and 54 (82%) of the SO subgroup had at least 2 obesity-related co-morbidities. Table 1 shows baseline characteristics of both study cohort and the SO subgroup.

There were 12 patients (11%) who had 2 bariatric procedures: 2 patients underwent unplanned conversion to RYGB for weight loss failure after 30 and 34 months from initial SG, both had $< 35\%$ EWL at time of revision; 1 underwent repeat SG for weight loss failure along with a hiatal hernia repair 25-months postinitial SG (40%EWL before revision); 1 patient had a conversion to RYGB 3 months after sleeve obstruction due to twisting; and 8 patients had a planned second-stage BPD/DS after an initial SG, but 1 had the SG at age 58 that was not included in the total procedure count. The interval time between the SG and the second-stage BPD/DS was 21.7 ± 15.4 months. All procedures were performed laparoscopically except for

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