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Bariatric Surgery in The Elderly Patients

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Abstract

Background and Aims:

Both obesity and life expectancy are increasing worldwide. The present study aimed to report the outcomes of bariatric surgery in patients who are older than 65 years of age.

Methods:

A retrospective review of prospectively collected data from patients aged over 65 years who underwent LRYGP and LSG in our institute from 2006 to 2016. The data analyzed included age, preoperative and postoperative weight, body mass index, postoperative complications, and co-morbidities.

Results:

A total of 47 patients over 65 years (66.5 ± 0.2 years) underwent bariatric surgery in our institute. Of these 47 patients, 21 patients (44.68%) had undergone LRYGP, 20 patients (42.55%) LSG, and six patients (12.76%) conversion of the gastric band (5 patients) and Maison (one patient) to LRYGP. The mean preoperative weight and body mass index were 109.06 ± 2.33kg and 40.93±0.74 kg/m^2, respectively. The median length of follow-up was 12 months (range 1–48). The overall complication rate was 23.4%. No mortality occurred. For 21 patients, the mean percentage of excess weight loss and body mass index was 77.5± 6 % and 29.7±1 at 12 months.The resolution of diabetes mellitus, hypertension, and Obstructive sleep apnea syndrome was 70%, 57%, 75%, and 100 %, respectively.

Conclusions:

Bariatric surgery in carefully screened patients ±65years can be performed safely and improve co-morbidities.

Keywords:

Elderly, Geriatric , Bariatric Surgery, Sleeve, LRYGBP, Obesity, obesity surgery, Quality of life.

Introduction

Regarding the World Health Organization (WHO), 39% of the population worldwide is overweight or obese1. In 2014, over 1.9 billion adults, 18 years and older, were overweight. Of these, over 600 million were obese[1]. In 2016, 17.5% of individuals in France were classified as obese, up from 6.1% in 1980. The prevalence of both overweight and obesity increased with age, reached their highest point between the ages of 50 to 65 years, and showed a slight downward trend afterwards[2]. In 2019, the prevalence of overweight was slightly lower in young females than in young males aged 20–44 years, while this trend was inverted among the age groups over 45 years, probably because of the menopause occurring in women. The prevalence of obesity is, in general, higher in women than in men of any age.

Obesity has been linked to various health behaviors and consequences, including diabetes mellitus, hypertension, heart disease, respiratory insufficiency, obstructive sleep apnea, and stroke [2,3,4].

Moreover, GERD and its complications, such as erosive esophagitis, Barret's esophagus, esophageal adenocarcinoma, colorectal polyps, cancer, and liver disease are all associated with obesity (e.g., non-alcoholic fatty liver disease, cirrhosis, and hepatocellular carcinoma).

Obesity is related to an increased risk of mortality; it is estimated that the risk of death is raised by 20% to 40% in overweight people and twice- to thrice in obese patients compared to normal-weight persons[2,3,4].

People are living longer lives because of continuous advancements in healthcare5. Globally, life expectancy has climbed dramatically since 2000, increasing by five years between 2000 and 2015, the fastest growth since the 1960s [6,7].

In 2015, global life expectancy at birth was 71.4 years (73.8 years for females and 69.1 years for males), ranging from 60.0 years in the WHO African Area to 76.8 years in the WHO European Region5. In France, it reaches 79 years, 85 years for males and females respectively[6].

Obesity rates in the elderly have risen in tandem with global obesity trends. The only established therapeutic option for morbid obesity is bariatric surgery. Most bariatric surgeons are cautious about operating on patients above 65 due to higher morbidity and mortality risk in this age group[8].

Methods

From May 2006 to June 2016, patients 65 years or older who underwent bariatric procedures for obesity at the department

provided prospectively collected data for this retrospective analysis in the bariatric Surgery Department CHU Nice, France.

A multidisciplinary bariatric team, which included a surgeon, anesthesiologist, dietitian, endocrinologist, and psychiatrist, performed thorough preoperative medical screenings on each patient.

A medical history, physical examination, blood tests, hormonal and biochemistry analysis, psychiatric consultation, nutritional and cardiac evaluation, chest radiography, ultrasound, and upper gastrointestinal endoscopy with biopsy to diagnose H. pylori were all performed as part of the preoperative examination process. The patient, the bariatric medical team, and the surgeon chose the procedure. This research included only elderly patients 65 and older with sleeve gastrectomy and Roux-en-Y gastric bypass (RYGB).All procedures used the same laparoscopic RYGB (LRYGB) and laparoscopic sleeve gastrectomy (LSG) techniques.

The data were analyzed retrospectively for age, gender, procedure type, preoperative weight, body mass index (BMI), post-operative weight and BMI, improvement, remission of co-morbidities, and complications. The co-morbidities analyzed were diabetes mellitus type 2 (DMT2), hypertension (HTN), dyslipidemia, gastroesophageal reflux disease (GERD), arthritis, and obstructive sleep apnea.

Improvement in hypertension, diabetes, GERD, dyslipidemia, and arthritis was determined by subjective symptomatic relief and assessment of the reduction or cessation of medication use. For patients with obstructive sleep apnea, improvement was verified by the end of the use of continuous positive airway pressure.

Post-operative treatment was provided to all patients per a predefined sequence. All patients were systematically monitored for 24 hours to detect and address surgical problems as early as possible. Forty-eight hours after surgery, a Gastrografin upper gastrointestinal swallow radiologic examination was conducted to identify leakage or other issues. If the patients were stable and no leaks were discovered, they were put on a liquid diet. The patients were discharged after tolerating a liquid diet, and they were then followed up in the clinic at two weeks, [3, 6,] and 12 months, and yearly after that. The data were analyzed and presented as the median or mean ± standard deviation.

Results

From January 2006 to June 2016, 3313 individuals received bariatric surgery at our center. Among these, 47 (1.4%) were over 65. Among those 47 patients, 21 (44.68%) underwent laparoscopic Roux-en-Y gas-

tric bypass, 20 (42.55%) had laparoscopic sleeve gastrectomy, and six (12.76%) had a conversion of the gastric band (5 patients) and Mason (one patient) to Roux-en-Y gastric bypass. Table (1)

Table (1) Types of Procedures

Procedure	N %
LRYGP	21(44.7%)
LSG	20 (42.5%)
CONVERSION TO RYGP	6(12.7%)
Maison procedure	1(2.1%
AGB	5(10.6%)

LRYGP = laparoscopic Roux-en-Y- Y gastric bypass; LSG = laparoscopic sleeve gastrectomy; AGB= adjustable gastric band.

Eight of the 47 patients were lost to follow-up, and 18 were required to follow up in less than six months. They were considered when assessing early problems, hospital stay, and death; however, they were eliminated from the weight loss analysis and co-morbidity resolution.

Patient characteristics

The median age of this study group was 66 years (range 65–71 years), and the median of preoperative weight and body mass index was 107 kg (range 75–150 kg) and 39.5 kg/m2 (range 32–56), respectively. All patients in our study had more than one co-morbidity; hypertension was significant, followed by Obstructive sleep apnea, Diabetes mellitus, arthritis, dyslipidemia, and GERD—table (2).

Table (2): Baseline characteristics of the study cohort

Patient characteristics	cohort (N=47)
Age, yr, mean ±SD	66.5 ± 0.2
Sex (female) n %	34(72.3%)
BMI, kg/m2, mean ± SD	40.9±0.74
Metabolic co-morbidity n, (%)	
DM2	20 (42.5%)
Hypertension	29(61.7%)
Obstructive sleep apnea	21(44.7%)
Dyslipidemia	21(44.7%)
GERD	5(10.6%)
Arthritis	18(38.2%)
OTHERS	20 (42.5%)

SD = standard deviation; BMI = body mass index; DM2= diabetes mellitus type2; GERD = gastroesophageal reflux disease.

Peri-operative Outcome

All procedures started laparoscopically with one patient with sleeve gastrectomy converted to laparotomy due to significant adhesions.

The median length of hospital stay was 6 (range 3-41) days. 6.3% (3/47) of patients stayed more than two weeks, and those were among the same patients who developed major complications. 10 % (5/47) of patients needed readmission within 30 days post-operative to be managed for complications. Reoperation was required in 4.2% (2/47) who were operated on laparoscopically. The overall significant complications were 12.7 % (6/47), and the minor complications were 10.6 % (5/47). Table (3)

Table (3): Perioperative outcome Length of hospital stay (median+ range) 6 (3-41)

More than two weeks	3 (6.3%)
Major complications n (%)	6 (12.7%)
Leakage	3
Occlusion	3
Minor complications n (%)	5 (10.6%)
Wound infection	1
Parietal hematoma	1
Basal atelectasis, pneumonia	1
Leg cellulitis	1
Pleural effusion	1
Readmission	5(10.6%)
Reoperation	2 (4. 2 %)
Mortality n (%)	(0%)

Two patients developed a gastrojejunal leak on day six, managed by laparoscopic exploration on the same day with peritoneal lavage and good drainage. The patient was discharged two days later under antibiotic coverage with a good response, and the fistula healed three weeks later.

The second patient who had LSG converted to laparotomy due to adhesions of previous operations; (appendectomy, cholecystectomy, and uterine fibro myomectomy); on the first day, she had a bilateral massive pulmonary embolism, and she was transferred to the ICU for eight days then returned to the department ward. She developed sepsis, and the CT scan showed a 6.5 cm left sup-phrenic collection, which was then managed by aspiration under Ultrasound guidance. The collection diminished in size, but the patient remained septic, and the follow-up scan on day 33 revealed a gastric leak near the gastroesophageal junction, which was managed conservatively.

A third patient who converted gastric banding to GBP due to migration and se-

vere dysphagia also had a voluminous hiatus hernia with GERD. The dissection was challenging due to marked fibrosis of the previous band; a small biliary leakage was noticed during dissection, which is managed by good drainage and SOMATOSTATIN post-operatively.

Two patients developed stenosis two months post-operative at the gastrojejunal anastomosis treated by endoscopic dilatation. Another patient developed acute small intestinal obstruction due to an adhesive band 10 cm distal to jejunojejunostomy treated by laparoscopic exploration with adhesiolysis one month post-operatively.

One patient had a parietal hematoma over the trocar the day 8 surrounding the left epigastric artery and required blood transfusion and cessation of anticoagulants.

Four more patients developed basal atelectasis, pneumonia, pleural effusion, leg cellulitis, and wound infection. There was no mortality within 30 days post-operatively.

Weight loss

The median length of follow-up was 12 months (range 1– 48 months). Intermediate follow-up (more than six months) was available for 21 patients. For those 21 patients, the mean percentage of excess weight loss was 77.5± 6 % at 12 months. The mean post-operative BMI was 29.7±1, with the rate of change in BMI 28±2% at 12 months.

Resolution of co-morbidities

There was a significant improvement in obesity-related co-morbidities. Complete resolution in DM 70%, HTN 57%, OSA 75%, and GERD 100 % of patients, while improvement of arthritis and dyslipidemia occurred in 88.8% and 66.6%, respectively. Table (4)

Table (4): Resolution of co-morbidities

Metabolic co-morbidity n, (%)	cohort (N=21)	complete resolution	improvement
DM2	10	7 (70%)	2 (20%)
Hypertension	14	8 (57%)	5(35. 7%)
OSA	8	6(52.3%)	-
Dyslipidemia	13	-	7(66.6%)
GERD	2	2(100%)	-
Arthritis	9	-	8 (88.8%)

Long term outcome

Five patients developed late complications during four years of the most prolonged follow-up duration.

Two patients developed an anastomotic ulcer, one developed chronic diarrhea, one developed esophageal and gastric stenosis, and the other developed cholelithiasis.

The % EWL reached 146.9 ±13.5% after three years follow up in four patients and

165.5±13.5% after four years follow up in three patients.

Discussion

The volume of bariatric surgery in the elderly has significantly increased over the past decade to comprise 10.1% of all bariatric procedures, with a threefold increase compared with the prior decade[9].

Bariatric surgery is globally accepted to be the only proven effective treatment of morbid obesity and its related co-morbidities with the assumed percentage of morbidity and mortality[10]. However, the relationship between advanced age and bariatric surgery outcomes remains controversial.

Several studies reported that SG and RYGB had low morbidity and no mortality in elderly obese patients. Despite not being statistically significant, LSG had a lower rate of severe complications than LRYGB in this population setting[11]. On the other side, several studies concluded that bariatric surgery in the elderly is safe and effective with significant weight loss, resolution of co-morbidities and widespread use of medications, and improved quality of their lives [12,13,14].

Our study focused on elderly patients aged 65 years or older and their outcomes during early and late post-operative periods. Data collected from this study group demonstrated that for elderly patients, laparoscopic bariatric procedures, LRYGP and LSG could be performed safely with an accepted overall early complication rate of 23.4%. (Early significant complication rate of 10% with no deaths in this study group). These results accompanied those of other studies [15,16,17] and came with the accepted morbidity rate of bariatric procedures for all age groups [18,19]. Moreover, there was no 30-day mortality.

The length of hospital stay was like other studies [7, 9]. The three patients had extended hospital stays because they developed major complications requiring immediate and close care. One patient stayed up to 41 days as she developed a dramatic post-operative scenario; she had a previous open appendectomy, cholecystectomy, and fibroid myomectomy, a condition that makes LSG challenging, and conversion to laparotomy was necessary. The other two patients developed bilateral pleural effusion and trocar site hematoma, required blood transfusion, and stayed 20 and 21 days, respectively. Thus, the extended stay was not unique to the elder age.

Readmission and reoperation rates of 10% and 4.2%, respectively, are still accepted and like the findings of other studies [18,19].

Regarding resolution and improvement of comorbidities, with an average of 12-month follow-up, data from 21 patients have demonstrated that laparoscopic bar-

iatric surgery for elderly patients induced sufficient weight loss and ameliorated obesity-related co-morbidities like the outcomes in the other age categories.

Several studies discussed the effect of age on the outcome of bariatric surgery; Quebbemann et al, found that the percentage of excess weight loss at one year for the GBP group was 71%20. Recently, Pajecki D et al, found that the mean %EWL was (63.1 ± 4.3) and (43.5 ± 6.7%) 36 months after RYGBP and LSG in patients 65 years old or more13. Moreover, Nelson et al found a resolution of co-morbidity and reduction of the use of medications[21] and more recently, Navarrete et al, reported significant resolution and improvement of comorbidities in the elderly after LSG[22], another study by Thereaux et al, reported the same results after LRYGP in patients over 60 years[23].

Conclusion

Age should not be considered a limiting factor in properly screening the elderly during decision-making for bariatric procedures. For Patients 65 years or older, laparoscopic bariatric procedures (LRYGP and LSG) provide a safe and effective option for treating morbid obesity and favorable resolution and improvement of comorbidities. Currently, this age group represents a rising fraction of bariatric surgery candidates worldwide.

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