Outcomes of bariatric surgery in the geriatric population (>65 years) in the Indian subset of patients.

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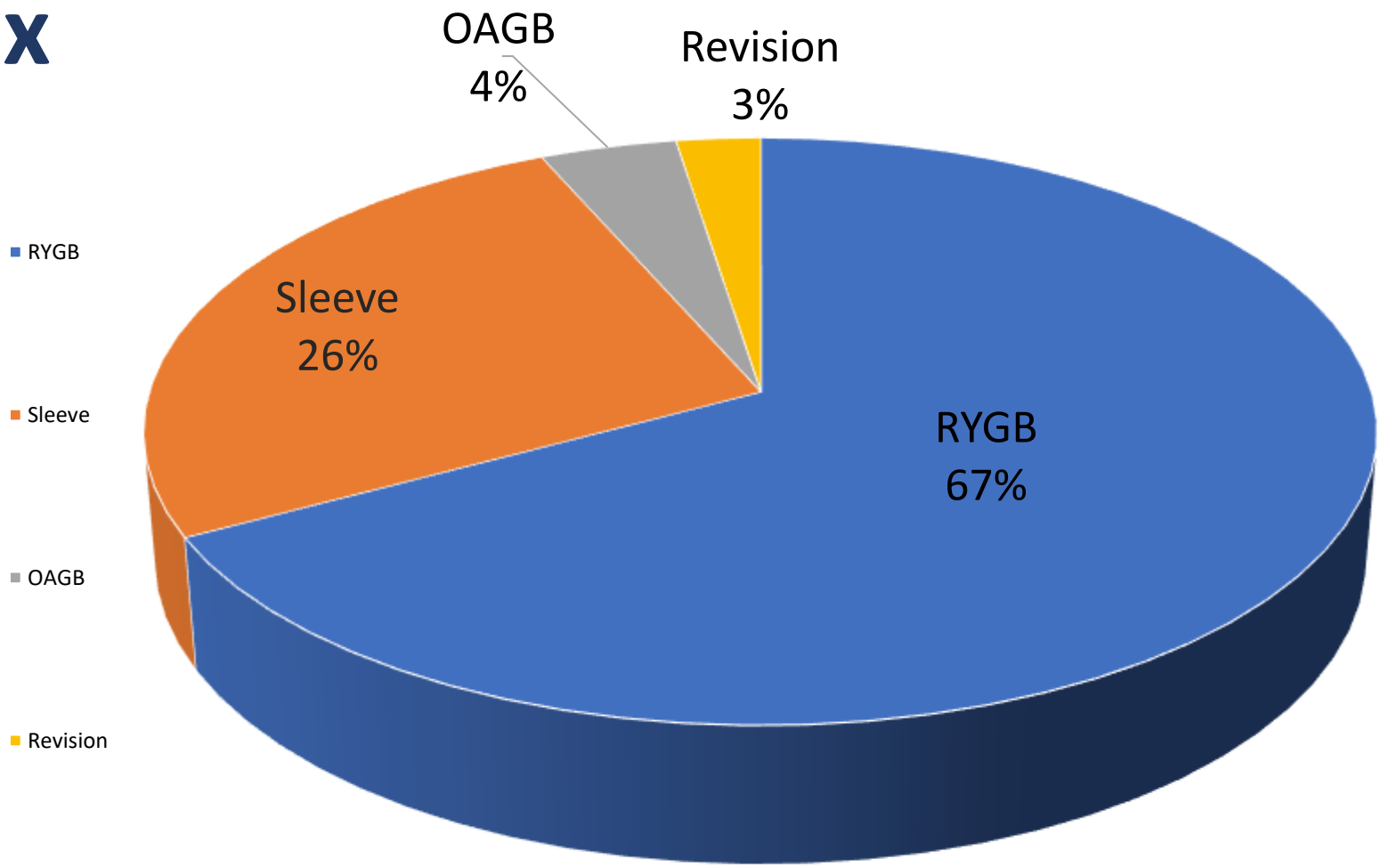
Case Mix


OAGB
4%
Revision
3%
Sleeve
26%
RYGB
67%
RYGB
Sleeve
OAGB
Revision

Disclosure

- No disclosures

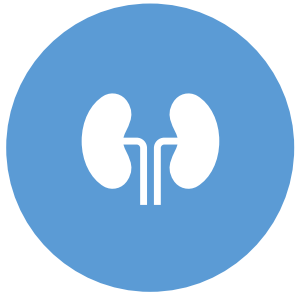
Warm greetings from Team Nobesity

INTRODUCTION

With an ageing population, the need for better effective treatment modalities to improve the quality of life is increasing.

Advance age was previously considered as a relative contraindication for many a surgical procedures, but now with the advancements in minimal invasive techniques and perioperative care protocols, the perception of healthcare providers have changed.

Obesity and related comorbidities is one such health hazard which is a concern for all ages and more so in the advanced as as it more often than not leads to the patient being dependent on some help to even carry out their daily activities.



While many studies have confirmed the effectiveness of bariatric surgery in treatment of morbid obesity, its effectiveness in geriatric population still questioned by many.

AIMS & OBJECTIVES

- To evaluate the safety and outcome of bariatric surgery in patients >65 years of age.

SELECTION OF PATIENTS AND PROCEDURE:

- A total of 124 patients of age greater than 65 years who underwent laparoscopic bariatric surgery from Jan. 2017 to Dec. 2019 were identified from a prospectively maintained database of bariatric metabolic procedures.
- An equal number of adult patients (age 45 to 64 years) matched for surgery type, who also underwent bariatric surgery in the same period at the same institution were also randomly selected for comparative outcome analysis.
- The selection of operative procedure was based on an evaluation of each patient's medical, psychological, and social issues, as well as a thorough discussion of the risks and benefits of surgery with the patient and his/her family.
- Patients lost to follow up and unavailable follow up data were excluded from study.

DIETARY PROTOCOL AND EVALUATION OF NUTRITIONAL DEFICIENCIOES

Nutritional education was provided to all patients postoperatively.

For the first 2 days, only clear liquids were allowed in an escalated manner as tolerated.

If tolerated, a diet of clear liquids was initiated for the following 5 days. Thick liquids were started on post-operative day 7 then escalated to soft diet on post-operative day 15 followed by small frequent meals with insistence on high protein intake diet from the next week.

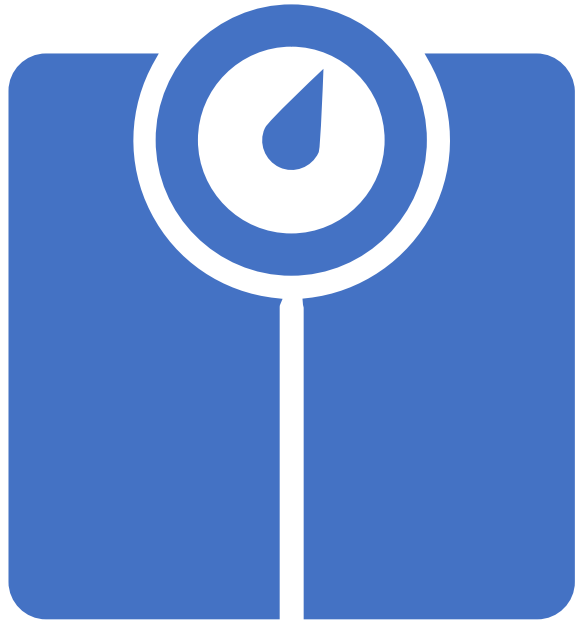
In addition, an exercise regimen of walking was advised.

Multivitamin supplements were prescribed throughout this time, along with iron, calcium and vitamin D supplements as per ASMBS guidelines.

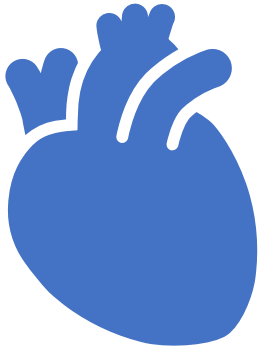
Nutritional metrics including serum iron, albumin, vitamin B12 and vitamin D3, were recorded at 6 months, 12 months, 24 months and 36 months and compared with baseline values.

Evaluation of Weight Changes

- Ideal body weight was weight corresponding tp BMI of 25 kg/m2.
- Data on body weight were collected preoperatively and then at 6 months, 1 year, and thereafter at yearly intervals.
- Afterwards, patients were followed up telephonically at 6 months and 1, 2, and 3 years following surgery. Patients were advised to record their weight on the same scale at a fixed time of the day preferrably in the morning after waking up.
- Postoperative weight (loss) was recorded in kilograms and percent excess body weight (loss) (%EBWL) were calculated.



Evaluating Resolution of Obesity-Related Co-Morbidities



Resolution of T2DM was defined as attaining a fasting plasma glucose level below 126 mg/dl and HbA1c below 6.5%, with cessation of all diabetes medications.

Hypertension resolution was defined as normal blood pressure (systolic < 140 mmHg and diastolic < 80 mmHg), without the use of antihypertensive medications

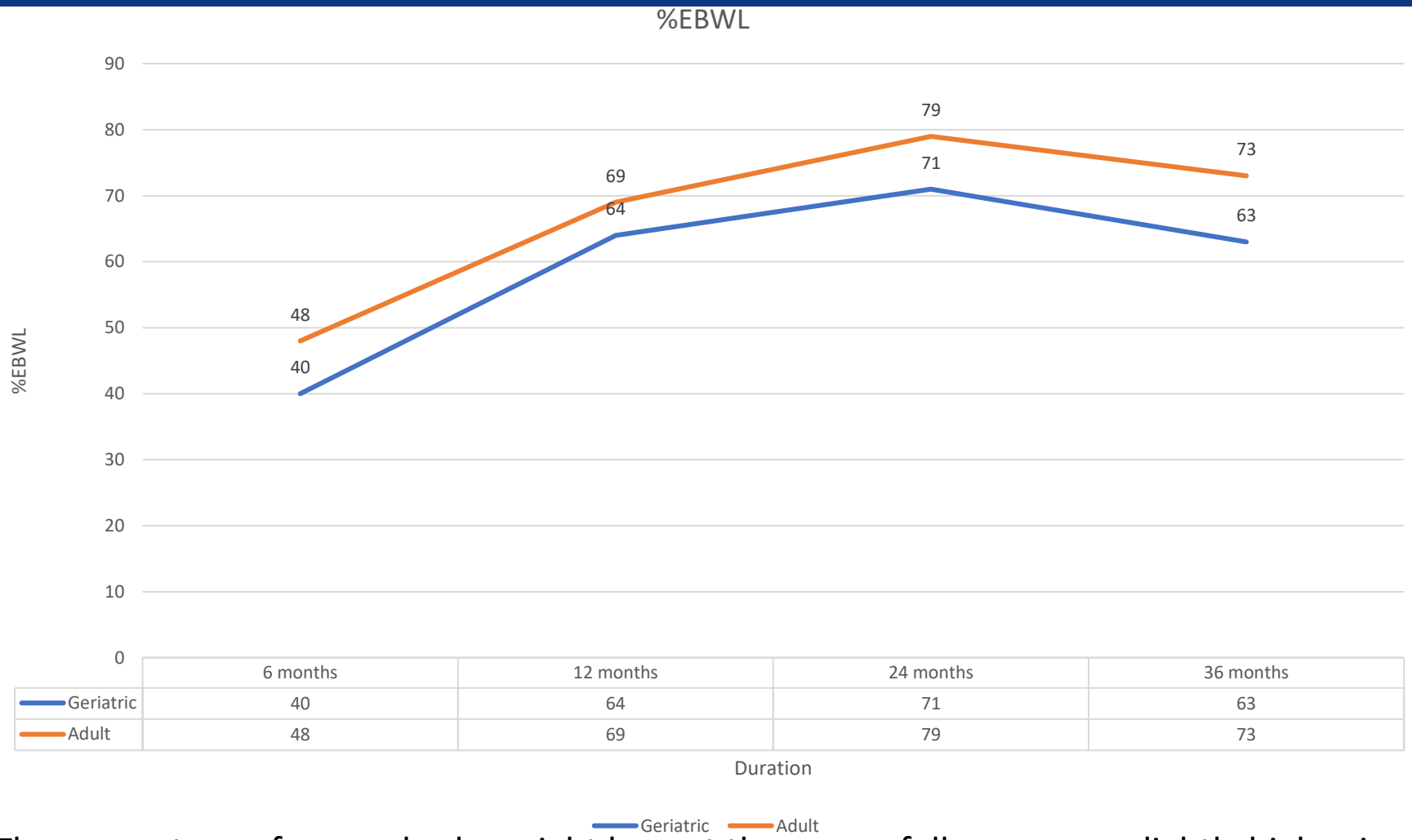
STATISTICAL ANALYSIS

- All the baseline demographic, clinical, preoperative and post operative data if the patients were entered inside the Microsoft Excel 2019 ® and descriptive statistics were analysed using SPSS 25.0, (IBM corporation ®) was used. Data is presented as number and percentages for discrete variables and as a mean ±standard deviation for the continuous variables. Baseline and Intra and postoperative complications were compared in adults and geriatric groups using chi-square test for discrete variables and independent sample student's t test for continuous variables. P value less than 0.05 was considered as statistically significant.

RESULTS

Patient profile	Geriatric (>65 years)	Adult (45years-64years)
Age (years)	69.7±4.7	53.5±8.5
Male:Female	42:82	52:72
Bodyweight(kilograms)	108.4±9.6	116.2±17.8
Height (centimetres)	153±4	163±8
BMI (kg/m2)	46.2±6.1	43.7±3.7
Type of surgery		
Sleeve Gastrectomy	72	72
Roux-en Y gastric Bypass	42	42
OAGB/MGB	10	10
Co-morbidites		
Type 2 Diabetes mellitus	68	33
Hypertension	97	48
History of cardiac ailment	26	16

Out of 124 patients in each group, 42 (33.8 %) had undergone Roux-en-Y gastric bypass, 10 (8.1%) one anastomosis gastric bypass, and 72 (58.1 %) sleeve gastrectomy. The average age was 69.7 years and 53.5 years in the geriatric and adult groups respectively. Average preoperative weight and BMI were 108.4 kg and 116.2 kg and 46.2 kg/m2 and 43.7 kg/m2 in the geriatric and adult groups respectively



The percentage of excess body weight loss at three year follow up was slightly higher in adult cohorts. It was not stastically different.

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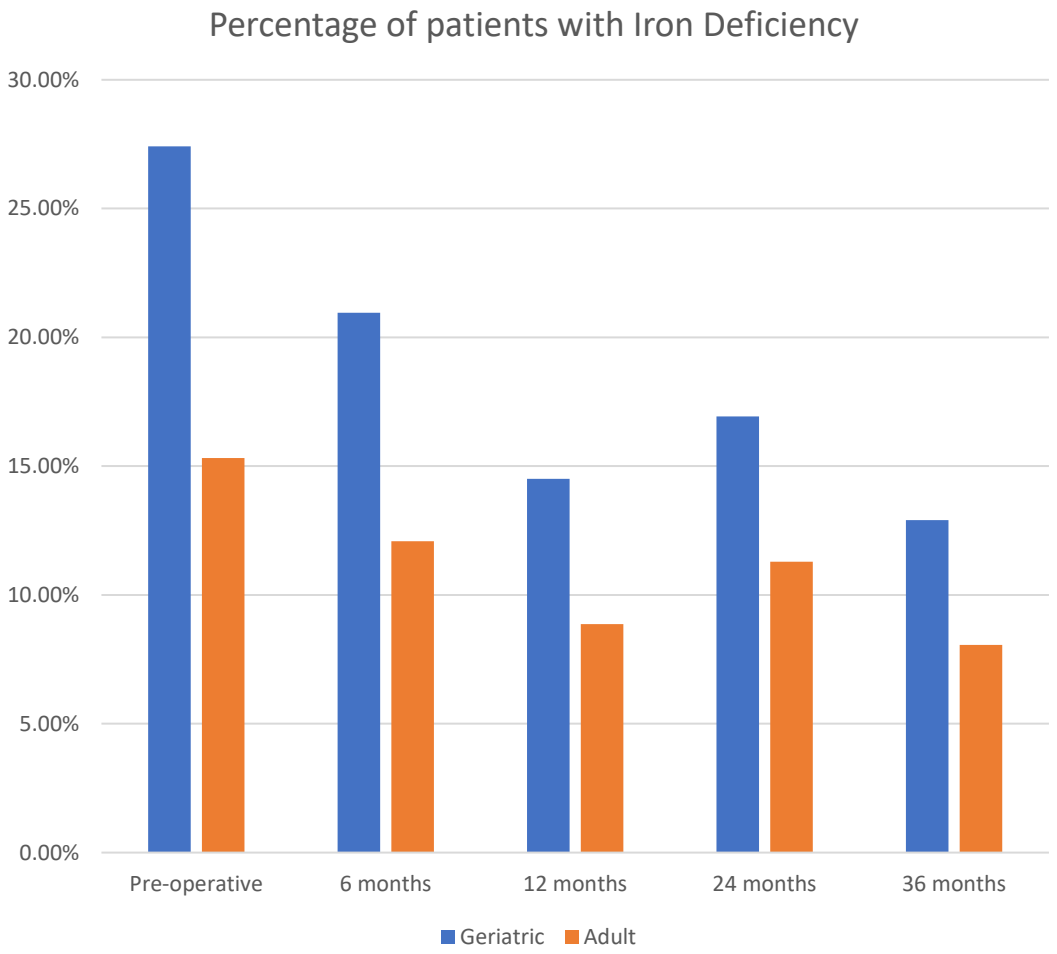
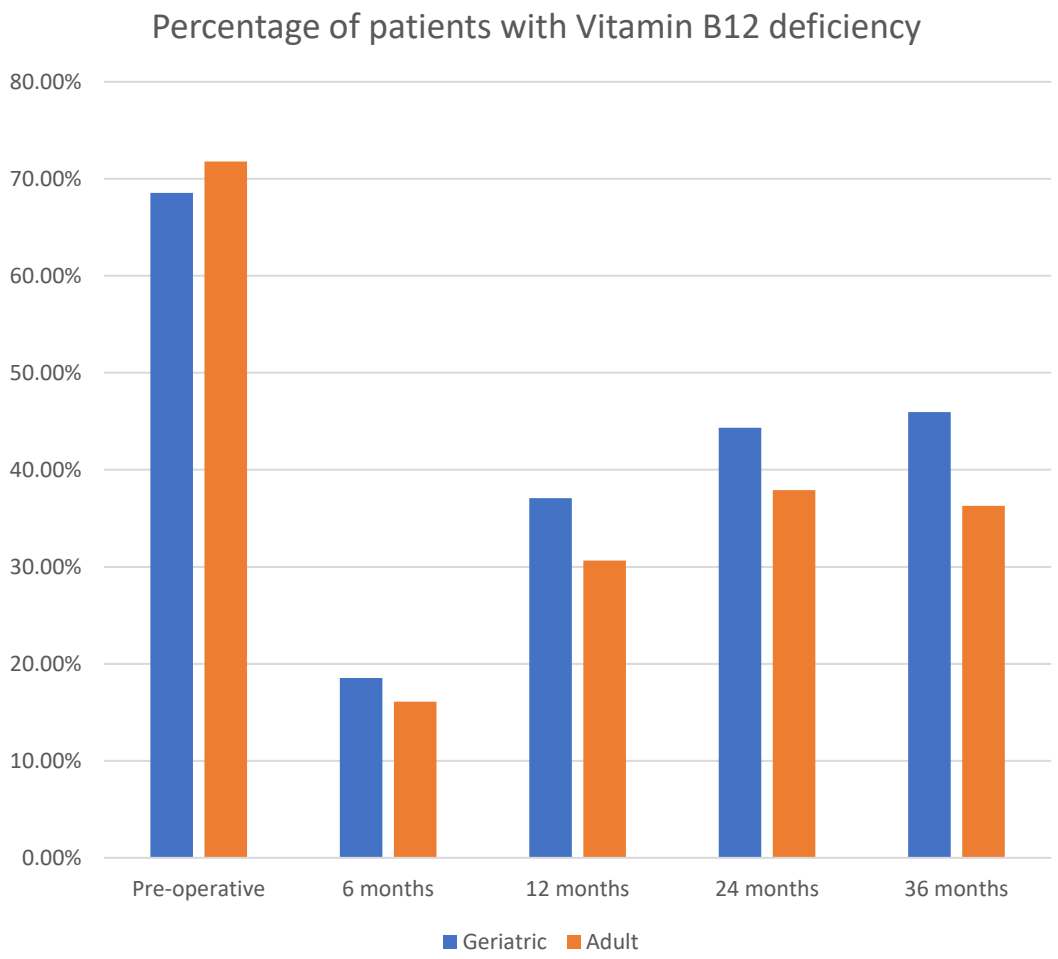


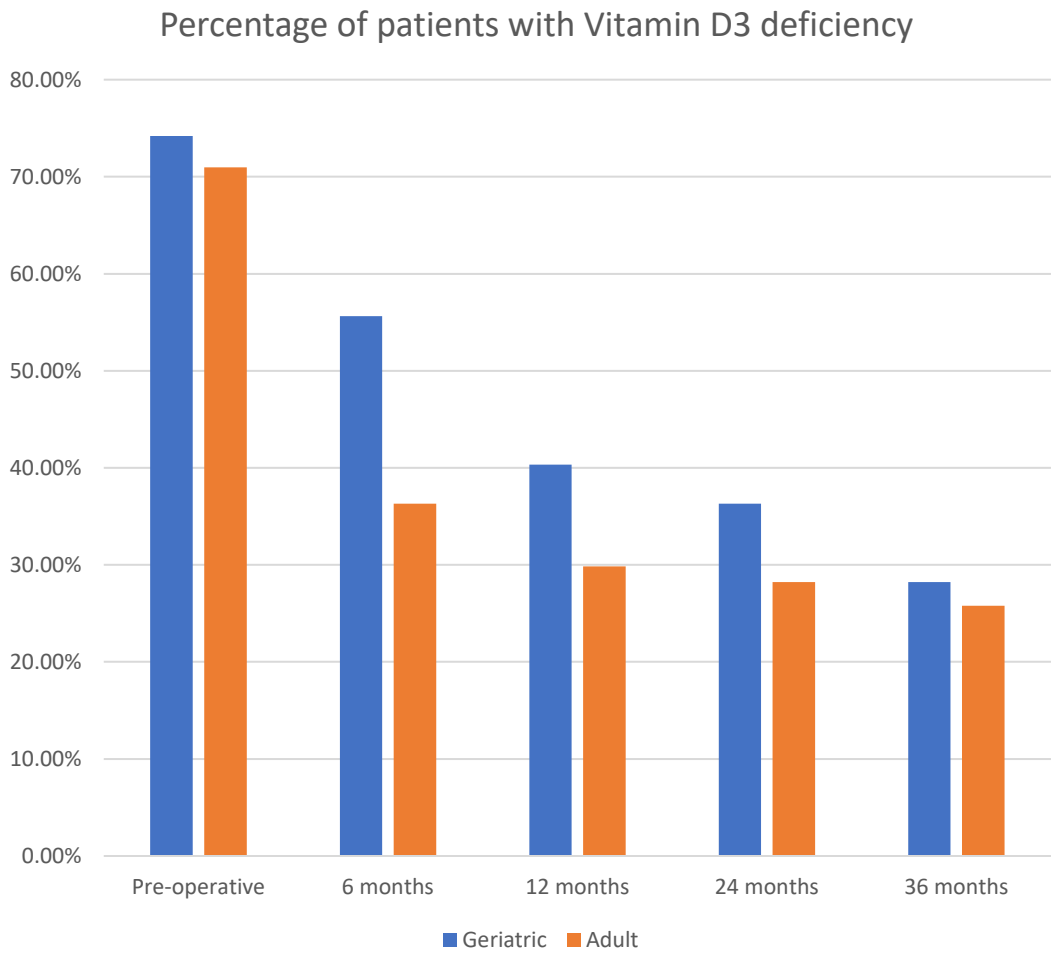
	Percentage of patients with Iron deficiency	
	Geriatric	Adult
Pre-operative	27.41% (34/124)	15.32% (19/124)
6 months	20.96% (26/124)	12.09% (15/124)
12 months	14.51% (18/124)	8.87% (11/124)
24 months	16.93% (21/124)	11.29% (14/124)
36 months	12.90% (16/124)	8.06% (10/124)

Iron deficiency defined as Haemoglobin <11gm%, Serum iron <50mcg/dl



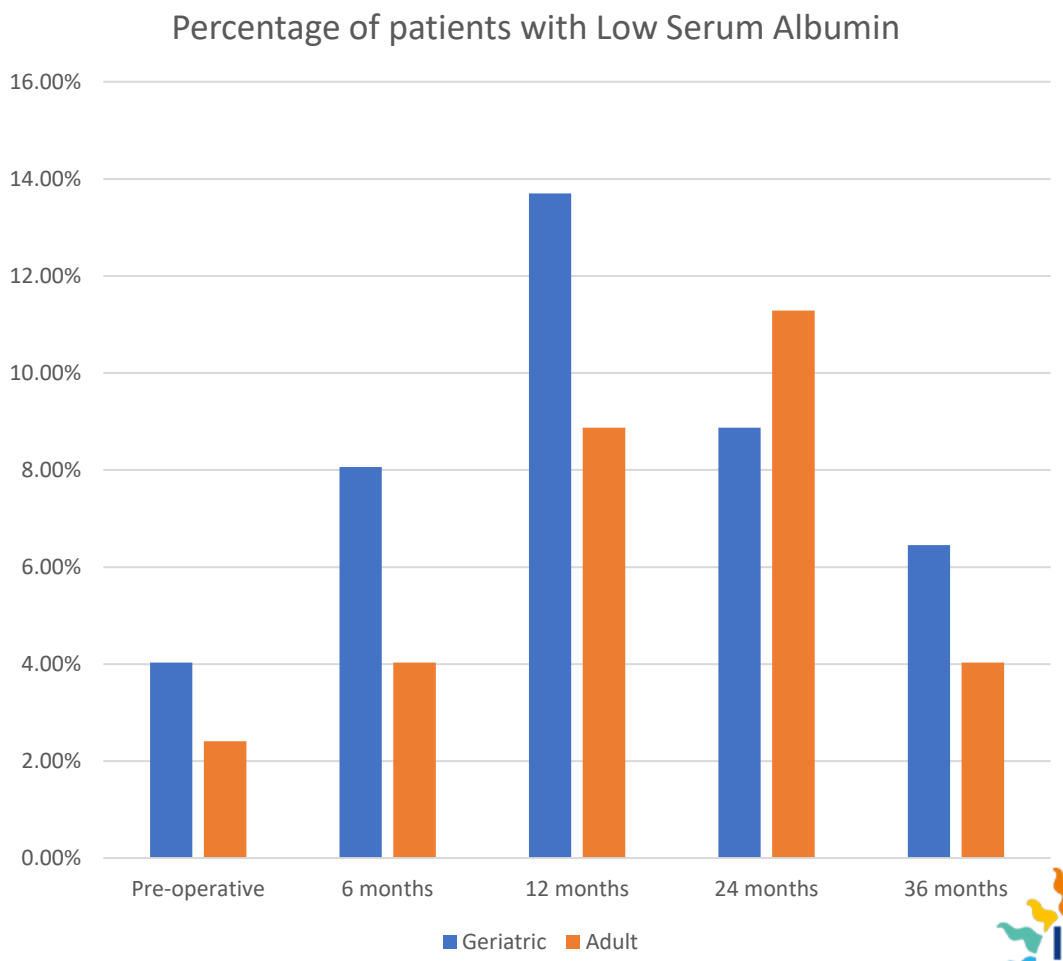
	Percentage of patients with Vitamin B12 deficiency	
	Geriatric	Adult
Pre-operative	68.54% (85/124)	71.77% (89/124)
6 months	18.54% (23/124)	16.12% (20/124)
12 months	37.09% (46/124)	30.64% (38/124)
24 months	44.35% (55/124)	37.90% (47/124)
36 months	45.96% (57/124)	36.29% (45/124)

Vitamin B12 deficiency defined as Vitamin B12 <200pg/ml



	Percentage of patients with Vitamin D3 deficiency	
	Geriatric	Adult
Pre-operative	74.19% (92/124)	70.96% (88/124)
6 months	55.64% (69/124)	36.29% (45/124)
12 months	40.32% (50/124)	29.83% (37/124)
24 months	36.29% (45/124)	28.22% (35/124)
36 months	28.22% (35/124)	25.80% (32/124)

Vitamin D3 deficiency defined as Vitamin D3 <30ng/ml



	Percentage of patients with Low Serum Albumin	
	Geriatric	Adult
Pre-operative	4.03% (5/124)	2.41% (3/124)
6 months	8.06% (10/124)	4.03% (5/124)
12 months	13.70% (17/124)	8.87% (11/124)
24 months	8.87% (11/124)	11.29% (14/124)
36 months	6.45% (08/124)	4.03% (5/124)

Low Serum Albumin defined as Serum Albumin levels <3gm/dl

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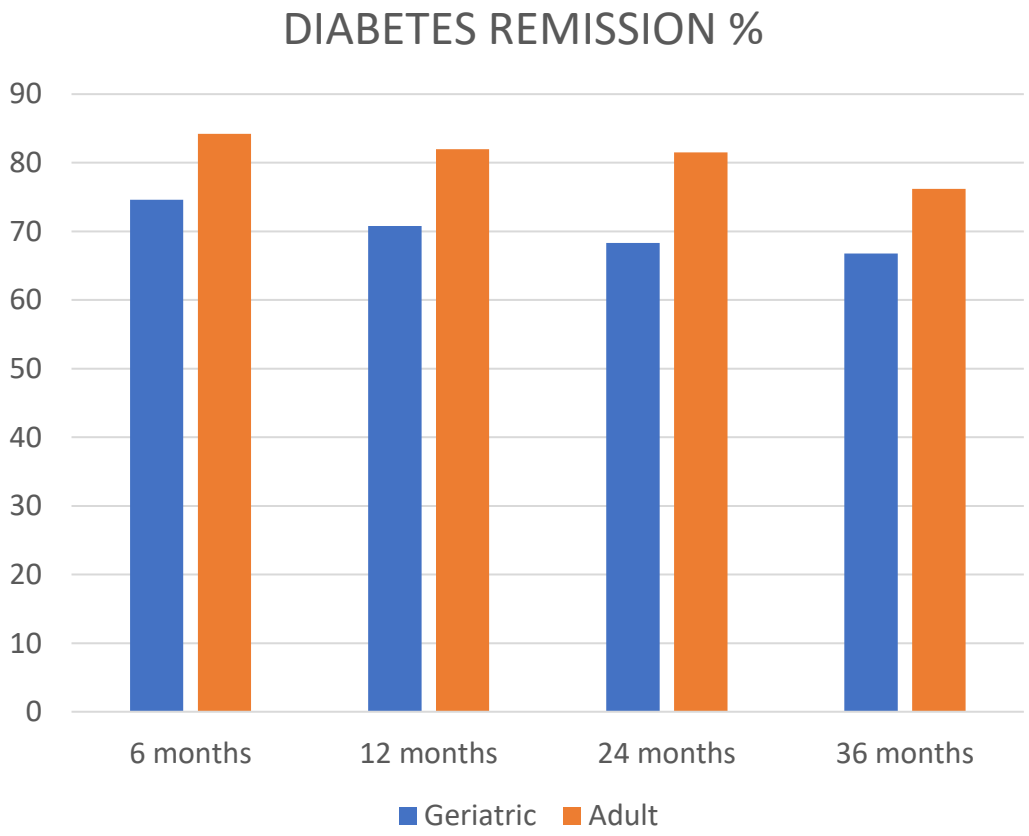
• DIABETES REMISSION



	REMISSION OF DIABETES (%)	
	Geriatric	Adult
6 months	74.6	84.2
12 months	70.8	82.0
24 months	68.3	81.5
36 months	66.8	76.2

Complications	Geriatric	Adult
Bleeding	2	1
Leak	0	1
pulmonary complications	3	1
30 day mortality	0	0
30 day readmission	5	4
port site hernia	2	1

The postoperative complication rates were low in the adult patients compared to 65 years old. The operative outcomes were similar for the 2 groups as determined by the post operative length of stay (56 hours versus 52 hours), and 30-day readmission rate (4.03% versus 3.2%).

DISCUSSION

- We started this study with the aim to evaluate the outcomes of bariatric surgery in geriatric population.

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Surgery for Obesity and Related Diseases ▮ (2014) 00–00

SURGERY FOR OBESITY AND RELATED DISEASES

Original article

Early morbidity and mortality of laparoscopic sleeve gastrectomy and gastric bypass in the elderly: a NSQIP analysis

Konstantinos Spaniolas, M.D.[a,*], Thadeus L. Trus, M.D.[b], Gina L. Adrales, M.D., M.P.H.[b], Maureen T. Quigley, A.P.R.N., M.S.[b], Walter J. Pories, M.D.[a], William S. Laycock, M.D.[b]

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Abstract

Background: Even though the U.S. population is aging, outcomes of bariatric surgery in the elderly are not well defined. Current literature mostly evaluates the effects of gastric bypass (RYGB), with paucity of data on sleeve gastrectomy (SG). The objective of this study was to assess 30-day morbidity and mortality associated with laparoscopic SG in patients aged 65 years and over, in comparison to RYGB.

Methods: The National Surgical Quality Improvement Program (NSQIP) database was queried for all patients aged 65 and over who underwent laparoscopic RYGB and SG between 2010 and 2011. Baseline characteristics and outcomes were compared. P value $< .05$ was considered significant. Odds ratios (OR) with 95% confidence interval (CI) were reported when applicable.

Results: We identified 1005 patients. Mean body mass index was 44 ± 7. SG was performed in 155 patients (15.4%). The American Society of Anesthesiology physical classification of 3 or 4 was similar between the 2 groups (82.6% versus 86.7%, $P = .173$). Diabetes was more frequent in the RYGB group (43.2% versus 55.6%, $P = .004$). 30-day mortality (0.6% versus 0.6%, OR 1.1, 95% CI .11–9.49), serious morbidity (5.2% versus 5.6%, OR .91, 95% CI .42–0.96), and overall morbidity (9% versus 9.1%, OR 1.0, 95% CI .55–1.81) were similar.

Conclusion: In elderly patients undergoing laparoscopic bariatric surgery, SG is not associated with significantly different 30-day outcomes compared to RYGB. Both procedures are followed by acceptably low morbidity and mortality. (Surg Obes Relat Dis 2014;▮:00–00.)

- In this study by, Spaniolas et al where The National Surgical Quality Improvement Program (NSQIP) database was queried for all patients aged 65 and over who underwent laparoscopic RYGB and SG between 2010 and 2011, 1005 patients were identified and included in the study.
- They concluded that in elderly patients undergoing laparoscopic bariatric surgery, both procedures are followed by acceptably low morbidity and mortality.
- SG is not associated with significantly different 30-day outcomes compared to RYGB.

OBES SURG
DOI 10.1007/s11695-013-0905-3

ORIGINAL CONTRIBUTIONS

Correlation Between Age and Weight Loss after Bariatric Surgery

Juan Eduardo Contreras · Carmen Santander · Ismael Court · Jorge Bravo

Abstract
Background Conflicting evidence exists regarding age as a predictive factor in excess weight loss after bariatric surgery. The objective of this cross-sectional study is to evaluate differences in excess BMI loss (%EBMIL) 1 year after surgery in patients older and younger than 45 years.
Methods Adult obese patients fulfilling selection criteria underwent either Roux-en-Y gastric bypass or sleeve gastrectomy and were grouped according to age < and ≥45 years with follow-up at least 1 year. Both groups were compared in terms of excess BMI loss (%EBMIL) and other clinical outcomes. Possible relationship between %EBMIL, age, surgical technique, and presence of comorbidities such as diabetes mellitus, hypertension (HT), and dyslipidemia (DL) was searched.
Results Three hundred thirty-seven patients (72.5 % female), 196 (50.1 %) younger than 45 years and 141 (49.9 %) with age ≥45 years. There was significant difference between age group and %EBMIL 12 months after surgery ($p<0.001$), showing better results in younger patients. No differences were found in terms of gender, preoperative body mass index (BMI), surgical technique, nor presence of DL. Using multiple regression, we found significant interaction effect between age group ($p<0.001$), presence of HT ($p=0.001$), and %EBMIL at follow-up.
Conclusions Patients younger than 45 years lose greater amount of excess BMI than older patients after bariatric surgery. This tendency might be useful as a preoperative weight loss predictor in bariatric patients.

Keywords Bariatric surgery (MeSH) · Age factors (MeSH) · Age · Weight loss (MeSH)

Introduction

Obesity is a growing problem worldwide with estimates of 344,221 bariatric procedures performed in 2008 [1]. It has been proved that surgical treatment, using bariatric techniques, is more effective than conservative medical treatment in achieving and maintaining a significant weight loss as well as reducing associated comorbidities in obese adult population [2].

There is no absolute certainty regarding some factors associated with the amount of excess weight loss [3]. There is conflicting evidence about age as a determinant factor, with series showing no difference [4–6] and others demonstrating less excess weight loss among patients older than 60 years in comparison to younger ones [7, 8]. Those studies present bias in patient selection and fail to consider other factors that may influence the

- In this study by, J. E. Contreras: C. Santander : I. Court : J. Bravo, weight loss was studied between patients less than 45 years and their elder counterparts and they concluded that older patients might lose less weight because of impaired metabolic capacity and greater presence of sarcopenia compared to younger patients. They have suffered from associated comorbidities longer, which might have an influence in their baseline physical condition.

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Surgery for Obesity and Related Diseases ▮ (2014) 00–00

SURGERY FOR OBESITY AND RELATED DISEASES

Original article

Benefits and risks of bariatric surgery in patients aged more than 60 years

Patrick Ritz[a,d,*], Philippe Topart[b], Salomon Benchetrit[c], Géraud Tuyeras[a,d], Benoit Lepage[d], Jean Mouiel[e], Guillaume Becouarn[b], François Pattou[f], Jean-Marc Chevallier[g]

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Received July 12, 2013; accepted December 10, 2013

Abstract

Background: The benefits and risks of bariatric surgery are debated in older patients. The objective of this study was to compare the weight changes and adverse outcomes in patients >60 years and in younger ones.

Methods: The French SOFFCO registry was screened for gastric bypass (RYGB), gastric banding (LAGB), or sleeve gastrectomy (SG) performed between 2007 and 2010. Adverse outcomes and weight changes (%) over 12 months were compared between patients <40 years (N = 1379), between 40–59 years (N = 1065), and >60 years (N = 164).

Results: After a RYGB surgical (12.3 versus 3.8%; $P = .03$) and nonsurgical (7.0% versus .8%; $P = .01$) complications were more prevalent in patients above 60 years than in those below 40. No increased prevalence of surgical and nonsurgical complications was seen after a LAGB or a SG. Weight loss (% of initial weight) was lower after a LAGB than after a RYGB or a SG. After LAGB weight loss (%) did not differ between patients above 60 years and those aged <40 (difference 1.7 ± 1.5%, $P = .26$). After a RYGB weight loss (%) was lower in patients aged >60 years (−5.6 ± 1.7%, $P = .001$) than in those aged <40 years. After a SG, weight loss (%) was lower in patients aged >60 years (−7.0 ± 2.6%, $P = .01$) than in those aged <40 years.

Conclusion: Bariatric surgery can be a short-term effective and safe therapeutic option in elderly patients. LAGB or SG appears to be an alternative strategy to RYGB, with lower adverse outcome rate. (Surg Obes Relat Dis 2014;▮:00–00.)

- In this study by, Patrik Ritz et al where The French SOFFCO registry was screened for gastric bypass (RYGB), gastric banding (LAGB), or sleeve gastrectomy (SG) performed between 2007 and 2010, 2598 patients were identified and included in the study.
- They concluded that bariatric surgery is a safe and effective therapeutic option in elderly patients.
- SG is not associated with significantly different 30-day outcomes compared to RYGB and both procedures are followed by acceptably low morbidity and mortality.

Clinical Interventions in Aging

Dovepress

REVIEW

Bariatric surgery in elderly patients: a systematic review

This article was published in the following Dove Press journal:
Clinical Interventions in Aging
13 October 2015
Number of times this article has been viewed

Salvatore Giordano[1]
Mikael Victorzon[2,3]

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Abstract: Controversy exists regarding the effectiveness and safety of bariatric/metabolic surgery in elderly patients. We performed a systematic review on this issue in patients aged 60 years or older. MEDLINE, Cochrane Library, Embase, Scopus, and Google Scholar were searched until August 2015 for studies on outcomes of bariatric surgery in elderly patients. The results were expressed as pooled proportions (%) with 95% confidence intervals. Heterogeneity across the studies was evaluated by the *F* test, and a random-effects model was used. Twenty-six articles encompassing 8,149 patients were pertinent with this issue and included data on bariatric surgery outcomes in elderly population. Fourteen patients died during the 30-day postoperative period, with a pooled mortality of 0.01%. Pooled overall complication rate was 14.7%. At 1-year follow-up, pooled mean excess weight loss was 53.77%, pooled diabetes resolution was 54.5%, and pooled hypertension resolution was 42.5%, while pooled lipid disorder resolution was 41.2%. Outcomes and complication rates of bariatric surgery in patients older than 60 years are comparable to those in a younger population, independent of the type of procedure performed. Patients should not be denied bariatric surgery because of their age alone.

Keywords: morbid obesity, bariatric surgery, elderly, gastric bypass, weight loss, laparoscopy

- This systematic review involving 8,149 patients provides a compelling insight into the value of bariatric surgery in patients 60 years or older.
- The pooled analysis showed an overall low mortality and an acceptable complication rate (0.01% and 14.7%, respectively).
- At 1-year follow-up, pooled mean excess weight loss was 53.77%, pooled diabetes resolution was 54.5%, and pooled hypertension resolution was 42.5%

Obesity Surgery
https://doi.org/10.1007/s11695-019-03718-6

ORIGINAL CONTRIBUTIONS

Outcomes of bariatric surgery in geriatric patients ≥ 65 years: single institution study

Mohit Bhandari[1] · Winni Mathur[1] · Mathias Fobi[1] · Susmit Kosta[2]

Abstract

Background Obesity is an epidemic with an increasing incidence in geriatric individuals also. The aim of the present study is to determine the outcomes in geriatric patients ≥ 65 years, who underwent Bariatric Surgery.

Material and Methods A retrospective review was performed of prospectively collected data on geriatric patients (age 65 to 80 years) who had undergone bariatric surgery at a single institution from Jan. 2010 to Dec. 2013. A cohort of adult patients (age 17 to 64 years) were matched for comparative evaluation who also underwent bariatric surgery in the same period. The data analyzed included gender, co-morbidities, weight (loss), complications, and resolution of co-morbidities.

Results 184 (7.3%) patients 65 years and older were identified out of 2508 patients who had bariatric surgery between January 2010 and December 2013. These were compared with 184 patients matched for types of surgery. Out of 184 patients in each group, 53 (28.8%) had undergone Roux-en-Y gastric bypass, 39 (21.2%) one anastomosis gastric bypass, and 92 (50%) sleeve gastrectomy. The average age was 68.7 years and 49.85 years in the geriatric and adult groups respectively. Average preoperative weight and BMI were 106.71 kg and117.69 kg and 42.59 kg/m^2 and 43.08 kg/m^2 in the geriatric and adult groups respectively. The co-morbid conditions were significantly more in the geriatric group. The weight (loss), nutrient deficiencies, and resolution of co-morbid conditions were similar in both groups. There were three major complications in the adult group and two in the geriatric group. One mortality was documented in the adult group from pulmonary embolus.

Conclusion The outcomes of bariatric surgery in geriatric patients in this study were similar to that in adults. Our study confirms the findings of previous published studies that bariatric surgery could be a safe and effective treatment option in a selected geriatric population.

Keywords Bariatric metabolic surgery · Obesity · Weight loss · Co-morbidities · Geriatric patients

- In this study by Bhandari et al, they concluded that the outcomes of bariatric surgery in geriatric patients were similar to that in adults with no significant difference in weight loss, co-morbidity resolution, hospital stay and complication rates.

CONCLUSION

- Obesity is an important health hazard in geriatric population which is a major deterrent to lead a healthy and independent life. Bariatric surgery can safely performed in geriatric population with good outcome and low complication rates.

Limitations of the study

- Majority of the patients were from the western part of the country with different diet preference and thus might not represent a national picture.
- Retrospective design does not allow to include more variables.
- Patients were matched for only type of surgery and not BMI which could provide a clearer picture.

Future work

- Does attending support groups affect the outcome in geriatric population ?
- Quality of Life?

THANK YOU

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QUESTIONS

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