

Efficacy and resolution of metabolic diseases in the elderly after gastric bypass

Abstract

Background: Obesity constitutes a true global epidemic. The number of obese elderly people is increasing in the world. It is important to identify the best treatment strategy for these patients.

Methods: Retrospect review of 62 elderly patients (60 years-old or more) submitted to gastric bypass, compared to 178 non-elderly patients (18 to 59 years-old) for effectiveness in weight loss and resolution of associated metabolic diseases (diabetes, hypertension and dyslipidemia) at 12 months and 24 months. **Results:** The elderly group had a mean age of 62.8 ± 2.4 years. Older patients had higher rates of diabetes and hypertension ($P < 0.001$), but both groups had comparable rates of dyslipidemia ($P = 0.358$). No difference for total body weight loss and BMI at 12 months and 24 months were observed between the groups. The elderly had remission rates for diabetes, hypertension and dyslipidemia of 51.5%, 45.5% and 48.8% at 24 months, respectively. The younger ones are more likely to respond to bariatric surgery, with higher resolution rates.

Conclusion: Gastric Bypass is effective in patients over 60 years of age and is associated with good results in terms of weight loss and improvement of obesity-related comorbidities, although the results are lower when compared to younger patients.

Keywords: obesity, elderly, gastric bypass, metabolic diseases

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Introduction

With the growing number of elderly people and the increase in obesity rates, it becomes important to identify the best treatment strategy for these people.¹ The available evidence indicates that bariatric surgery is the most effective method for the control of morbid obesity and the reduction of associated comorbidities,² but there are still many questions about its indication in people over 60.³ Our study aims to evaluate the results of bariatric surgery in the elderly, especially as to its effectiveness in weight loss and resolution of associated metabolic diseases.

Material and methods

A retrospective cohort study was conducted from January 2009 to October 2017. During this period, 2797 patients were submitted to gastric bypass for morbidly obesity (accordingly to WHO)⁴ in a tertiary hospital in Porto Alegre, Brazil. Of this total, 94 were elderly patients (>60 years-old) and 289 nonelderly patients (aged between 18 and 59 years) were randomly selected for control group. Thirty-two (32) elderly and a one hundred eleven (111) of non-elderly were not able for analysis because they lost the 2 years minimum follow-up. The data were collected from patient's single record for evaluation of weight loss and resolution of metabolic diseases (Tables 1 & 2).

Results

The results of gastric bypass were analyzed in 240 patients, 62 over 60 years old (elderly group) and 178 under 60 years old (non-elderly group). Table 1 shows the follow up of the groups in the preoperative period, at 12 months and 24 months. There were no differences in weight and BMI between the groups in preoperative

period. The type of the approach and the length of stay was the same for both groups. Total body weight loss and BMI difference at 12 months and 24 months were analyzed, without significant difference between the groups (Figure 1). Table 2 presents the resolution of comorbidities at 12 and 24 months. The younger ones are more likely to respond to bariatric surgery, with higher resolution rates of diabetes and hypertension at 12 and 24 months. For dyslipidemia, only at 24 months we observe a significant difference. These findings suggest that the age we offer the surgery could be an important factor in the evolution of the metabolic diseases and obesity.

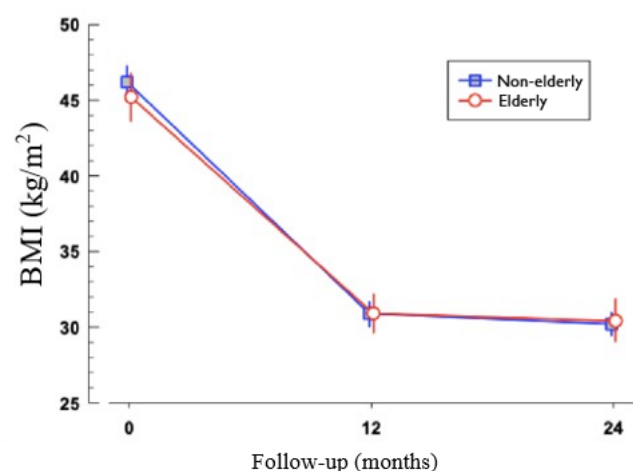


Figure 1 Average BMI of the elderly and non-elderly in the preoperative period, at 12 months and 24 months.

Table 1 Characteristics and follow up of the patients

	Preoperative			12 months			24 months		
	> 60 years	< 60 years	P	> 60 years	< 60 years	P	> 60 years	< 60 years	P
no	62	178		62	178		62	178	
Age (years, mean±SD)	62,8±2,4	38,9±9,3	<0,001	***	***	***	***	***	***
Female (no. (%))	44 (71,0)	144 (80,9)	0,110	***	***	***	***	***	***
Weight (kg, mean±SD)	116,7±19,9	123,4±25,2	0,062	80,0±13,7	82,4±16,4	0,302	78,8±14,6	80,5±16,1	0,479
Heights (m, mean±SD)	1,61±10	1,63±9	0,059	***	***	***	***	***	***
BMI (kg/m ² , mean±SD)	45,2±6,6	46,2±7,8	0,390	30,9±5,1	30,9±5,7	0,968	30,4±5,7	30,2±5,6	0,728
Abdominal Circumference (cm, mean±SD)	129,1±13,4	129,6±16,2	0,240	99,8±11,6	97,6±13,4	0,199	98,1±13,0	95,6±13,4	0,588
Laparoscopic approach (no. (%))	28 (45,2)	93(52,2)	0,378	***	***	***	***	***	***
Length of stay (days, mean±SD)	2,68±1,1	2,33±0,6	0,058	***	***	***	***	***	***
Total Body Weight Loss (kg, mean±SD)	***	***	***	-36,8±12,0	-41,0±15,6	0,257	-37,9±14,1	-42,9±16,8	0,257
Difference BMI (kg/m ² , mean±SD)	***	***	***	-14,3±4,1	-15,3±5,3	0,940	-14,7±5,1	-15,9±5,8	0,750
Diabetes (no. (%))	33 (53,2)	45 (25,3)	<0,001	18 (29,0)	13 (7,3)	<0,001	16 (25,8)	10 (5,6)	<0,001
Hypertension (no. (%))	55 (88,7)	98 (55,1)	<0,001	33 (53,2)	36 (20,2)	<0,001	30 (48,4)	32 (18,0)	<0,001
Dyslipidemia (no. (%))	43 (69,4)	110 (61,8)	0,358	21 (33,9)	43 (24,1)	0,202	22 (35,5)	38 (21,3)	0,003
Systolic BP (mmHg, mean±SD)	139±20	133±17	0,021	124±17	114±14	<0,001	124±17	114±15	<0,001
Diastolic BP (mmHg, mean±SD)	84±13	85±11	0,818	77±11	73±9	0,007	75±10	73±9	0,148
Fasting Blood Glucose (mg/dl, mean±SD)	122±39	110±37	0,038	92±16	85±11	<0,001	95±16	86±11	<0,001
HbA1c (%; mean±SD)	6,7±1,2	6,2±1,3	0,013	5,7±0,7	5,4±0,6	0,020	5,8±0,7	5,5±0,6	0,060
Total Cholesterol (mg/dl, mean±SD)	186±36	196±40	0,095	169±32	161±28	0,071	175±36	164±32	0,025
HDLc (mg/dl, mean±SD)	51±15	49±12	0,440	56±14	54±12	0,369	60±15	60±15	0,899
Triglycerides	176±122	169±86	0,881	103±40	90±34	0,013	101±43	89±38	0,057

no; number, SD; standard deviation, BMI; body mass index, BP; blood pressure, HbA1c; glycated hemoglobin, HDLc; high-density lipoprotein cholesterol, P; P value
Weight loss was reported as ASMBS Outcomes reporting statement.⁵

Normal values for Glucose, HbA1C, Cholesterol, HDLc and Triglycerides were considered as IDF statement.⁶

Table 2 Resolution of metabolic diseases in the elderly and non-elderly at 12 months and 24 months

	> 60 years	< 60 years	P
Diabetes (no./no. Total (%))			
12 months	15/33 (45,5%)	32/45 (71,1%)	0,035
24 months	17/33 (51,5%)	35/45 (77,8%)	0,028
Hypertension (no./no. Total (%))			
12 months	22/55 (40,0%)	62/98 (63,3%)	0,007
24 months	25/55 (45,5%)	66/98 (67,3%)	0,010
Dyslipidemia (no./no. Total (%))			
12 months	22/43 (51,2%)	67/110 (60,9%)	0,281
24 months	21/43 (48,8%)	72/110 (65,5%)	0,067

No; number, y; years-old, P; P value

Resolution of metabolic diseases were considered as normalization of glucose, cholesterol and triglycerides accordingly to IDF statement.⁶

Discussion

Although increasing age is often considered a risk factor for lower outcomes and higher rates of complications after surgery,⁷ the number of advanced age patients undergoing bariatric surgery has been steadily increasing.⁸ Studies indicate that the proportion of patients over 60 years old undergoing bariatric surgery has increased more than 10% in the last decade.⁹ In 2004, Sugerman¹⁰ was the first to evaluate the results of bariatric procedures in people over 60 years old and showed that diabetes remission in patients over 60 can reach more than 47% in 5 years, with sustained weight loss and excellent results in quality of life. In a systematic review of the effects of gastric bypass in the elderly, performed by Chow and collaborators,¹¹ in 2016, they analyzed more than 1800 performed surgeries. According to the authors, the elderly had weight loss similar to younger patients, without presenting higher rates of postoperative complications, demonstrating the clinical benefits of surgery in these people. Although, the effects of gastric bypass on the resolution of metabolic diseases associated with obesity were not analyzed.

Marczuk and collaborators,¹² performed a meta-analysis that evaluated the effectiveness and safety of gastric bypass in patients over 60 years old. The main objective was to evaluate morbidity and weight loss, placing the remission rates of metabolic diseases in a secondary character. The weight loss was evaluated according to the excess weight lost, ranging from 59.9% to 77%. The remission rates for diabetes varied from 37% to 75% and for hypertension the variation was from 18.8% to 91%. No parameters related to dyslipidemia were evaluated. The data point out that both the weight loss and the resolution of comorbidities favor the younger ones. The authors conclude that new studies, better formulated, need to be developed to evaluate the total effect of bariatric surgery on elderly people. Our study evaluated a significant sample of elderly patients, being even larger than some revised works. Regarding the results obtained concerning weight loss, the elderly had a similar performance to the younger ones, showing the efficacy of the surgery for this purpose. As regards the resolution of comorbidities, the elderly presented inferior results in relation to the younger patients, suggesting that age, a reflection of the time of obesity, can be a determining factor. The limitations of this study are its retrospective character, with limitation in the number of participants by age restrictions and associated comorbidities. Our study indicates that gastric bypass is effective in patients over 60 years of age and is associated with good results in terms of weight loss and improvement of obesity-related comorbidities, although the results are lower when compared to younger patients.

Ethics

The project was approved by the Ethics and Research Committee under the number 4.286.132. A consent form was used for data use.

All procedures performed in our studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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Conflicts of interest

The author declare that there are no conflicts of interest.

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