

BARIATRIC SURGERY AS A SAFE AND EFFECTIVE INTERVENTION FOR THE CONTROL OF COMORBIDITIES IN OLDER ADULTS

A cirurgia bariátrica como intervenção segura e eficaz para o controle de comorbidades em idosos

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ABSTRACT

INTRODUCTION: In addition to being associated with worsening of diseases related to metabolic syndrome and musculoskeletal disorders, obesity in older adults increases the risk of falls, frailty syndrome, depression, and dementia, with consequent functional loss. Among all treatments available, bariatric surgery is an option for eligible patients. **OBJECTIVES:** To discuss aspects related to the safety and benefits of bariatric surgery for the control or remission of comorbidities in older adults. **METHODS:** This literature review was carried out in databases, using the following keywords: bariatric surgery *and* elderly or aged or older adult *and* comorbidities or safety. We included clinical trials, observational studies, comparative studies, and reviews that evaluated the effect of bariatric surgery on the control or remission of comorbidities in older adults. **RESULTS:** In recent years, several studies have evidenced not only control or remission of comorbidities, such as diabetes, hypertension, and sleep apnea syndrome, but also a low rate of complications, similar to those observed in young people. **CONCLUSIONS:** Based on the results of these studies, bariatric surgical procedures can be indicated for eligible older adults, without age restriction, taking into account functional and life expectancy aspects. **KEYWORDS:** bariatric surgery; aged; comorbidity; postoperative complications; mortality.

RESUMO

INTRODUÇÃO: A obesidade no idoso, além de estar associada à piora de doenças relacionadas à síndrome metabólica e a distúrbios osteoarticulares, aumenta o risco de quedas, síndrome de fragilidade, depressão e demência, com consequente perda de funcionalidade. Entre todos os tratamentos disponíveis, a cirurgia bariátrica é uma alternativa em pacientes elegíveis. **OBJETIVOS:** Discutir aspectos relacionados à segurança e aos benefícios da cirurgia bariátrica para o controle ou a remissão de comorbidades no idoso. **METODOLOGIA:** Foi realizada revisão de literatura em bases de dados utilizando os seguintes descritores: bariatric surgery *and* elderly or aged or older adult *and* comorbidities or safety. Foram incluídos ensaios clínicos, estudos observacionais, estudos comparativos e revisões que avaliaram o efeito da cirurgia bariátrica no controle ou na remissão de comorbidades em idosos. **RESULTADOS:** Nos últimos anos, vários estudos têm demonstrado não apenas controle ou remissão de comorbidades como diabetes, hipertensão e síndrome da apneia do sono, mas também reduzida taxa de complicações, semelhante à observada em jovens. **CONCLUSÕES:** Com base nos resultados desses estudos, há espaço para que procedimentos de cirurgia bariátrica sejam indicados a idosos elegíveis, sem limite de idade, considerando também aspectos funcionais e de expectativa de vida. **PALAVRAS-CHAVE:** cirurgia bariátrica; idoso; comorbidade; complicações pós-operatórias; mortalidade.

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INTRODUCTION

According to the Brazilian Ministry of Health, one in every five adults in the country is obese, and the prevalence of obesity increased by 70%, from 11.80 to 19.80%, between 2006 and 2018.¹ Among Brazilians aged 65 years or older, the prevalence of obesity is 18.30% in men and 23.60% in women.¹ Also, obesity shows an overall increasing trend among the older population, reaching epidemic proportions. Europe experienced an increase from 17.50% in 2005 to 19.20% in 2013, and among the ten countries assessed, only Spain reduced the number of obese people over the years.²

In addition to being associated with worsening of diseases related to metabolic syndrome and musculoskeletal disorders, obesity in older adults increases the risk of falls, frailty syndrome, depression, and dementia, with consequent functional loss.³⁻⁶

The therapeutic strategy for obesity should be multifactorial, involving lifestyle changes, psychological and behavioral approaches, and, if necessary, use of a drug or surgical therapy with an appropriate multidisciplinary follow-up.

Over the past decade, bariatric surgery has increasingly become a therapeutic option for older individuals. According to the World Health Organization (WHO) and the Brazilian Ministry of Health, bariatric surgery is indicated for patients with body mass index (BMI) greater than 35 kg/m² who have complications such as sleep apnea syndrome (SAS), systemic arterial hypertension (SAH), diabetes mellitus (DM), dyslipidemia, and degenerative joint diseases, as well as for patients with BMI greater than or equal to 40 kg/m² who were not able to lose weight after two years of clinical treatment (including the use of medication),⁷ regardless of age.

In Brazil, the number of bariatric surgeries has been growing yearly. In 2013, 468,609 surgeries were performed globally (95.70% were laparoscopies), nearly 20% of them in Brazil.⁸ According to data from the Brazilian Society for Metabolic and Bariatric Surgery, the number of surgeries performed in the country increased by 42.70%, from 72 thousand to 105 thousand, between 2012 and 2017.⁹ Among the patients submitted to bariatric surgery, older adults represent 6 to 10%.¹⁰⁻¹²

To be eligible for bariatric surgery, older adults follow the same criteria established for individuals under 65 years of age⁷ and includes assessing of functional capacity and the impact of the procedure on the quality of life, besides a multidisciplinary risk/benefit evaluation of the procedure.¹³ The preoperative evaluation

should go beyond the clinical and psychosocial status, aiming at functional capacity and the potential quality of life improvement, in a context of life expectancy greater than 10 years.¹³

Bariatric surgical procedures lead to weight loss by being restrictive (reducing the size of the stomach and, consequently, the volume of food consumed), malabsorptive (leading to low absorption of nutrients), or a combination of both mechanisms, the so-called mixed techniques.¹⁴ The most common types are gastric bypass, vertical sleeve gastrectomy, adjustable gastric banding, and biliopancreatic diversion with duodenal switch.¹⁵

Even though vertical sleeve gastrectomy is the most common in North America, most data available in the literature involve gastric bypass, which is the type of surgery most studied and performed in the world.¹⁶ In this surgery, the deviation of food flow produces changes in intestinal hormones that promote satiety and suppress hunger. Patients submitted to this surgery lose 60 to 80% of their initial overweight. The procedure may lead to vitamin and mineral deficiencies in the long term.^{17,18}

Despite the clear indications and benefits of bariatric surgery for non-older individuals, this approach is still criticized and questioned by doctors and other professionals who deal with older people. Faced with this reality, the current work aimed to conduct a narrative review and discuss aspects related to the safety and benefits of bariatric surgery for the control or remission of comorbidities in older adults based on national and international scientific literature, and promote the debate between geriatricians and gerontologists.

METHODS

Between July 11 and 15, 2020, we carried out a literature review in PubMed/MEDLINE, Scopus, Latin American and Caribbean Health Sciences Literature (LILACS), and Scientific Electronic Library Online (SciELO), using the following keywords: bariatric surgery *and* elderly *or* aged *or* older adult *and* comorbidities *or* safety. We included clinical trials, observational studies, comparative studies, and reviews that evaluated the effects of any bariatric surgical procedure on the control or remission of comorbidities in older adults, even when comparing them with lower age groups, as well as aspects relating to safety. The search was limited to articles in English, Spanish, and Portuguese. No restriction was placed regarding the date of publication, in an attempt to identify the greatest possible number of publications

in the field. Studies that evaluated only other outcomes and did not include the control of comorbidities and/or safety were excluded. As a complement, we conducted manual searches to retrieve relevant articles from the lists of references of studies obtained in the main literature searches.

RESULTS

The initial search identified 1,089 articles, from which 1,052 were excluded, as, based on the title and abstract, they did not specifically address the issue under study. Among the 37 remaining papers, 15 did not meet all inclusion criteria, and 2 were duplicates (Figure 1). Only two of the selected articles¹⁹⁻³⁸ differentiated groups of individuals aged 70 years or older,^{23,24} and four considered older individuals those aged 55 years or older,^{29,32,33,38} a common fact among studies on bariatric surgery in the older population. Five of the articles included are literature reviews.^{26,30,32,36,37}

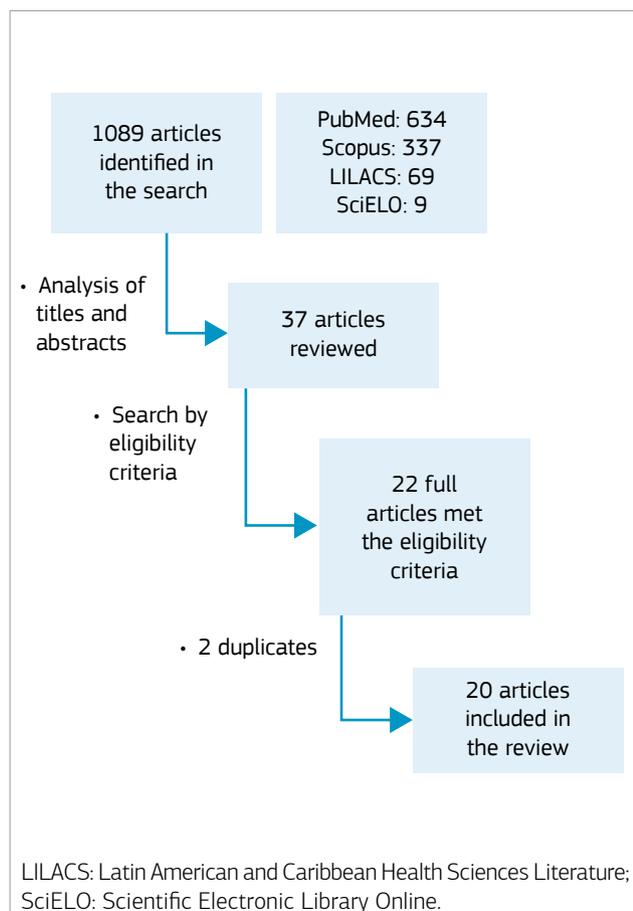


Figure 1 Literature search results.

DISCUSSION

Benefits

Overall, the studies selected for this literature review point to a large amount of scientific evidence indicating the beneficial effects of bariatric surgery in older adults. The percentage of total weight loss was between 25 and 35% of the weight before surgery.^{24,33} The percentage of excess weight lost (the difference between pre-surgery weight and the ideal weight according to the BMI of 25 kg/m²) ranged from 39 to 76%. The numbers were lower after procedures such as adjustable gastric banding (39.10%)³² and among individuals older than 70 years (from 47.10 to 50.40%).^{23,24}

In addition to weight loss, significant benefits related to clinical and metabolic parameters were found in the older population. The literature has presented concordant results, showing remission, albeit less expressive than that in young people, of obesity-related comorbidities, such as DM, SAH, and dyslipidemia, regardless of the surgical technique used.^{22,26,27} DM improvement and/or remission ranged from 50 to 100%, while for SAH, these values varied from 42 to 98% in older individuals after surgery. Three other reviews confirmed the same benefits concerning these comorbidities.^{32,36,37}

Other comorbidities often found in older adults and that improved with the surgical procedure are SAS, reported in 12 of the studies analyzed;^{19,20,22,25,27,28,31-35,38} joint pain, in 7 studies;^{19,20,22,25,32,35,38} and osteoarthritis, in 2 studies.^{28,34} Among the metabolic parameters, bariatric surgery reduced glycated hemoglobin,³⁹ total cholesterol, and triglycerides,^{39,40} and increased high-density lipoprotein (HDL)-cholesterol.⁴⁰ Likewise, these benefits were identified among Brazilian older adults in a study conducted by our group in Brasília, also included in this review.²⁹

Another significant outcome for the older population is the impact of the surgical procedure on reducing the number of drugs taken. O'Keefe et al. found a 60% reduction in the average number of medications used per older adults after one year of surgery (mean decrease from 8.10 to 4.90 drugs).⁴¹ Various studies have confirmed this finding, with a reduction in the number of medications around 40%.^{42,43} Interestingly, older people seem to have more benefits regarding the decrease in the number of medications than young individuals one year after surgery.⁴⁴ Australian research showed a decrease in the use of antihypertensive drugs, hypoglycemic agents, lipid-lowering drugs, and analgesics after the procedure.¹⁹ This finding was also identified in a previous study we conducted involving older Brazilians, which confirmed the reduction in the use of drugs, despite the increase in vitamin and mineral supplements.²⁹

In addition to the benefits mentioned, we also highlight the improvement in the quality of life. Four studies have evaluated this aspect.^{19,22,25,38} In general, the individuals reported improvement in the quality of life after bariatric surgery, associating it with physical function, perceived health, and vitality. On the other hand, according to a French study, young people seem to experience a more significant impact on their quality of life post-surgery than older adults.²²

Despite being the cornerstone of geriatric assessments, few studies have addressed the possible benefit of bariatric surgery to the functional capacity of older adults. Because chronological age is not always parallel with biological age, future research on this topic must investigate functional capacity as an outcome. We found no studies that evaluated this aspect in the postoperative period of bariatric surgery. In Brazil, Pajecki et al. analyzed a sample of 40 older adults (mean age of 64.15 years) and identified dependence in performing activities of daily living before surgery in approximately 50% of them, with the greatest limitation involving the increase in BMI and not the age greater than 65 years.⁴⁵ Thus, the benefit for this clinical and functional variable remains unclear.

Safety

The main concern might be more related to doubts about the safety of bariatric surgery than to its benefit for the older population. Despite the plausible worry about this surgical procedure in older individuals, a systematic review of 38 studies compared the safety of bariatric surgery among older and young people, revealing that most studies found no differences in early mortality or the rates of complications between groups.³ The other studies included in the review showed varying rates of complications associated with the type of procedure and even the surgeon's experience. A recent systematic review comparing complications of gastric bypass and vertical sleeve gastrectomy among young and older (> 65 years of age) individuals found no significant difference in the incidence of complications between the groups,⁴⁶ or even when comparing patients submitted to distinct types of procedure, regardless of age.⁴⁷

Among the complications related to bariatric surgery in older adults, those associated with the surgical procedure, particularly vomiting, occlusion, abscess, stenosis, and bleeding, stand out. Non-surgical complications include venous thromboembolism, anemia, malnutrition, and infection.^{11,12,40,48}

A survey of the International Federation for the Surgery of Obesity and Metabolic Disorders reported information of patients from 31 countries submitted to bariatric surgery between 2013 and 2015. It revealed that gastric bypass was

performed in 49.40% of cases, vertical sleeve gastrectomy in 40.70%, gastric banding in 5.50%, and other procedures in less than 1%.¹⁶ Despite the complications described in gastric bypass and vertical sleeve gastrectomy, the data available is not clear enough to determine which surgical technique is superior. However, Pechman et al. suggest that vertical sleeve gastrectomy could be the most suitable for older adults with risk factors in specific organs, due to increased adverse effects, such as acute kidney failure and myocardial infarction, in individuals older than 70 years submitted to Roux-en-Y gastric bypass.⁴⁸ Another study that compared older and young people who underwent gastric bypass and vertical sleeve gastrectomy revealed that the group with higher age showed no increased intra- or postoperative risk.⁴⁴

An important aspect is the long-term follow-up of these individuals. The deficit in the process of nutrient absorption, coupled with non-adherence to the recommendations for supplementation, is a critical causal factor for their nutritional deficiency after bariatric surgery. The primary nutritional deficiencies after bariatric surgery in older adults and young people are associated with the decrease in food intake or the reduction in the area of nutrient absorption caused by the surgery.⁴⁹ Levels of vitamin B12, folate, iron, thiamine, vitamin D, calcium, zinc, and copper should be monitored.^{49,50} Bergeat et al. revealed that, after 24 months, iron and vitamin B12 deficiencies were less prevalent among older adults than in the younger group.²² Monitoring patients submitted to bariatric surgery is crucial to treat early deficiencies and avoid complications caused by a lack of micronutrients.

CONCLUSION

In line with the worldwide growth in obesity prevalence, bariatric surgeries tend to increase proportionally among the older population. The literature is convergent and points to significant clinical and metabolic benefits in the postoperative period, including the control of DM, SAH, SAS, and osteoarthritis, as well as the reduction in drug use and levels of total cholesterol, triglycerides, and glycated hemoglobin. Regarding safety, the surgery is associated with mortality similar to that of younger individuals and low complication rates. Bariatric surgical procedures can be indicated for eligible older adults, without age restriction, considering a good functional evaluation and life expectancy. These individuals should also be regularly monitored, and long-term studies are necessary to identify possible late complications that have not been investigated yet.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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AUTHORS' CONTRIBUTION

JBC, MCMPE, SLMA, OTN, EFC: conceptualization, methodology, data curation, formal analysis. JBC, MCMPE, SLMA, EFC: investigation, writing - original draft. JBC, OTN, EFC: writing - review & editing, supervision. All authors have read and approved the final version of the article.

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