

METABOLIC SURGERY VERSUS CLINICAL TREATMENT: COMPARISON OF COSTS AND EFFICACY IN THE MANAGEMENT OF MORBID OBESITY

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Abstract: Morbid obesity is a chronic and progressive condition associated with various comorbidities, such as type 2 diabetes, hypertension and cardiovascular diseases. In the management of this condition, clinical treatments and surgical interventions have been widely debated, with metabolic surgery standing out as an alternative for cases refractory to clinical treatment. To compare the costs and efficacy of metabolic surgery and clinical treatment in the management of morbid obesity, assessing the economic impacts and clinical outcomes in the medium and long term. This is a literature review with a qualitative approach, based on studies available in the PubMed, Scopus and Web of Science databases. Health descriptors such as “Bariatric Surgery,” “Obesity Management,” and “Type 2 Diabetes Treatment” were used, covering the period from 2015 to 2023. The selection followed specific inclusion and exclusion criteria to ensure the relevance and quality of the articles included. Studies show that metabolic surgery is more effective in sustained weight loss and in controlling metabolic comorbidities, with type 2 diabetes remission rates of over 70%. In terms of costs, although the initial investment for the surgical procedure is high, there are savings in the long term due to the reduction in expenditure on medication, hospitalizations and monitoring of complications. In contrast, clinical treatment has lower initial costs, but often requires prolonged use of medication and interventions, with lower success rates in weight maintenance and remission of comorbidities. Metabolic surgery stands out as an effective and economically viable option for morbidly obese patients, especially those with severe comorbidities. However, the choice of treatment must be individualized, taking into account the surgical risks, the ability to adhere to lifestyle changes and the resources available in the health system.

Keywords: Metabolic Surgery; Diabetes Mellitus 2; Clinical Treatment; Metabolic Diseases.

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INTRODUCTION

Morbid obesity represents a global public health problem, associated with a series of comorbidities, such as type 2 diabetes mellitus, hypertension, dyslipidemias, and obstructive sleep apnea. These conditions not only compromise the quality of life of individuals, but also substantially increase costs for health systems. In this context, the search for effective treatments that can control weight and associated complications becomes a priority. Two widely used methods are intensive clinical treatment, involving lifestyle changes, medications, and psychological support, and metabolic surgery, which has shown significant benefits in several studies (NGUYEN and VARELA, 2022).

Metabolic surgery, initially developed to treat morbid obesity, has stood out for its effectiveness in providing sustained weight loss and remission of metabolic diseases, especially type 2 diabetes. Procedures such as gastric bypass and sleeve gastrectomy not only reduce caloric intake but also promote hormonal changes that regulate glucose homeostasis and appetite. On the other hand, intensive clinical treatment depends on continuous interventions and strict adherence by patients, which often results in limited long-term success rates (RUBINO et al., 2020).

The economic analysis of these approaches is also a crucial point in the debate. Metabolic surgery, although it has high initial costs, can reduce future expenses related to the management of comorbidities associated with obesity. Clinical treatment, on the other hand, due to its continuous nature, implies cumulative costs that can become significant over time. Thus, understanding the differences in terms of cost-effectiveness between these options is essential to support public policies and clinical recommendations (FRIED et al., 2021).

This study seeks to compare metabolic surgery and clinical treatment in the management of morbid obesity, analyzing not only the costs involved, but also the effectiveness of each approach in terms of weight control, remission of comorbidities, and impact on quality of life. The relevance of this topic lies in the need to optimize health resources and offer patients the best possible care, considering both clinical outcomes and the economic sustainability of treatments (LAKDAWALLA et al., 2023).



MATERIALS AND METHODS

This is a literature review, with a qualitative approach, based on studies available in the PubMed, Scopus and Web of Science databases. Health descriptors such as “Bariatric Surgery,” “Obesity Management,” and “Type 2 Diabetes Treatment” were used, covering the period from 2015 to 2023. The selection followed specific inclusion and exclusion criteria to ensure the relevance and quality of the articles included.

1. Guiding Question

What is the current scientific evidence supporting the use of bariatric surgery as a management strategy for severe obesity and its effectiveness compared to conventional treatments for obesity and type 2 diabetes?

3. Health Descriptors and Boolean Markers

Health descriptors standardized by the DeCS/MeSH vocabularies were used:

-Descriptors:

- “Bariatric Surgery”
- “Obesity Management”
- “Type 2 Diabetes Treatment”
- “Metabolic Surgery”
- “Cost-effectiveness”

Boolean Markers:

- “Bariatric Surgery” AND “Type 2 Diabetes”
- “Obesity Management” OR “Pharmacological Treatment”



- “Cost-effectiveness” AND NOT “Adolescents”

Inclusion Criteria:

- Publications between the years 2015 and 2023;
- Peer-reviewed articles available in full text;
- Comparative studies between bariatric surgery and conventional treatments;
- Works in English or Portuguese;
- Systematic reviews, meta-analyses, and clinical guidelines.

Exclusion Criteria:

- Studies exclusively related to pediatric or adolescent populations;
- Publications outside the defined time frame;
- Case reports with isolated samples;
- Studies focused on surgical complications with no correlation with efficacy.

THEORETICAL FOUNDATION

Morbid obesity is a multifactorial and complex problem that affects millions of people around the world. Associated with a range of metabolic, cardiovascular, and orthopedic comorbidities, obesity represents a significant challenge for health systems. In the treatment of this condition, two main approaches have been used: intensive clinical treatment and metabolic surgery. The theoretical foundation of this work is based on the analysis of the characteristics, benefits and limitations of these approaches, highlighting relevant studies in the area.

The clinical treatment of morbid obesity is widely used as an initial approach and includes interventions such as personalized diets, physical exercise, behavioral therapy, and the use of medications. Despite its large-scale application, studies indicate that the success rates of clinical treatment are limited,



especially in morbidly obese patients, due to the difficulty of long-term adherence and the presence of genetic and hormonal factors that hinder sustained weight loss (APOVIAN et al., 2015).

On the other hand, metabolic surgery has been shown to be an effective alternative for the management of morbid obesity, especially in cases of clinical treatment failure. Procedures such as Roux-en-Y gastric bypass and sleeve gastrectomy not only promote significant weight loss, but are also associated with remission of metabolic diseases such as type 2 diabetes mellitus. These surgeries act through mechanisms that go beyond dietary restriction, including hormonal changes and changes in the intestinal microbiota, which positively impact metabolism (SCHAUER et al., 2017).

In addition to clinical efficacy, cost-effectiveness analysis has gained prominence in the literature. Although metabolic surgery involves high upfront costs, such as hospitalization and surgical procedures, it substantially reduces long-term comorbid management expenditures. A study by Lakdawalla et al. (2023) demonstrated that the cumulative costs of clinical treatment can exceed those of metabolic surgery in a period of five to ten years, due to the continuous need for medications and medical follow-up.

Another relevant aspect of the discussion is the impact on the quality of life of patients. Metabolic surgery has shown significant benefits in this regard, including improved mobility, reduced depressive symptoms, and increased ability to participate in daily activities. Clinical treatment, although less invasive, presents less expressive results in this regard, particularly in patients with long-standing obesity (MINGRONE et al., 2015).

However, it is important to consider the limitations of both approaches. Metabolic surgery is not without risks, such as surgical complications and malnutrition, while clinical treatment faces challenges related to patient compliance and the need for constant multidisciplinary follow-up. Thus, the choice of the ideal treatment should be based on an individualized analysis, considering the clinical characteristics and preferences of the patient (RUBINO et al., 2020).



CONCLUSION

The comparison between metabolic surgery and clinical treatment for the management of morbid obesity reveals a complex and multifaceted panorama, in which each approach has specific advantages and limitations. Metabolic surgery, with its proven benefits in terms of sustained weight loss, remission of metabolic comorbidities, and improved quality of life, emerges as an effective solution, especially in cases of failure of conventional clinical treatment. In addition, their cost-effectiveness analysis points to long-term savings due to the reduction of expenses associated with the ongoing management of obesity complications.

On the other hand, clinical treatment, despite its less invasive approach, faces challenges related to patient adherence and limited efficacy in morbidly obese populations. However, it remains an essential alternative for patients who have no indication or choose not to undergo surgery, in addition to serving as an initial strategy for weight management.

Advances in the understanding of the mechanisms involved in obesity, as well as the development of new surgical technologies and pharmacological therapies, broaden the perspectives of personalization of care. The choice between these approaches should consider factors such as the patient's clinical profile, individual preferences, associated risks, and economic viability.

Therefore, optimal management of morbid obesity requires a holistic and multidisciplinary view, which integrates the best available scientific evidence with a patient-centered approach. The promotion of preventive and educational strategies is equally crucial, aiming to reduce the prevalence of obesity and the costs associated with its treatment. Based on joint efforts between health professionals, researchers, and managers, it is possible to achieve better clinical and social outcomes in coping with this challenging condition.



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