WILL BARIATRIC SURGERY CEASE TO EXIST IN THE FUTURE?

A CIRURGIA BARIÁTRICA DEIXARÁ DE EXISTIR NO FUTURO?

¿LA CIRUGÍA BARIÁTRICA DEJARÁ DE EXISTIR EN EL FUTURO?

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ABSTRACT

Introduction: Obesity is a serious public health problem, affecting 34% of Brazilian adults, with a projected prevalence of 75% overweight/obesity by 2044. The Brazilian Unified Health System (SUS) offers bariatric surgery as a treatment option for selected cases. GLP-1 (liraglutide and semaglutide) and GIP (tirzepatide) analogues are also effective, but they are not available through SUS and have a high cost.

Objective: To compare excess weight loss (%EWL) and total weight loss (%TWL) between bariatric surgery and GLP-1 and GIP analogues.

Methodology: Review of articles from SciELO and PubMed (2014–2024), in English and Portuguese, using the descriptors: bariatric surgery, gastric bypass, sleeve, duodenal switch, gastric banding, GIP, GLP-1, excess weight loss, total weight loss. Data from DataSUS (2008–2024) complemented the analysis.

Results: The number of bariatric surgeries in Brazil increased by 22.9% compared to 2019, with Roux-en-Y bypass, sleeve gastrectomy, gastric banding, and duodenal switch being the most common procedures. The mean outcomes found were: Roux-en-Y: TWL 28.6%, EWL 68.3% (5 years); gastric banding: TWL 15.9% (3 years), EWL 45.9% (=10 years); sleeve: TWL 25%, EWL 61.1% (5 years); duodenal switch: TWL 39.4%, EWL 98.8% (1 year). Clinical trials showed: semaglutide mean weight loss of 10.2% (4 years) up to 14.9% (68 weeks); tirzepatide up to 18% (72 weeks); liraglutide ranging from 2.2% to 18.5% (6–12 months).

Conclusion: Although pharmacological therapies demonstrate efficacy, their high cost and unavailability within SUS limit their use. Bariatric surgery remains associated with greater weight loss and longer durability of results, maintaining its central role in obesity management in Brazil.

Keywords: Bariatric Surgery. Obesity. GLP-1 Analogues. Weight Loss.

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RESUMO

Introdução: A obesidade é um grave problema de saúde pública, afetando 34% dos adultos brasileiros, com uma prevalência projetada de 75% de sobrepeso/obesidade até 2044. O Sistema Único de Saúde (SUS) oferece a cirurgia bariátrica como opção de tratamento para casos selecionados. Análogos de GLP-1 (liraglutida e semaglutida) e de GIP (tirzepatida) também são eficazes, porém não estão disponíveis pelo SUS e apresentam alto custo.

Objetivo: Comparar a perda de excesso de peso (%EWL) e a perda total de peso (%TWL) entre a cirurgia bariátrica e os análogos de GLP-1 e GIP.

Metodologia: Revisão de artigos das bases SciELO e PubMed (2014–2024), em inglês e português, utilizando os descritores: cirurgia bariátrica, bypass gástrico, sleeve, switch duodenal, banda gástrica, GIP, GLP-1, perda de excesso de peso, perda total de peso. Dados do DataSUS (2008–2024) complementaram a análise.

Resultados: O número de cirurgias bariátricas no Brasil aumentou 22,9% em relação a 2019, sendo bypass em Y de Roux, gastrectomia sleeve, banda gástrica e switch duodenal os procedimentos mais comuns. Os resultados médios encontrados foram: Roux-en-Y: TWL 28,6%, EWL 68,3% (5 anos); banda gástrica: TWL 15,9% (3 anos), EWL 45,9% (≤10 anos); sleeve: TWL 25%, EWL 61,1% (5 anos); switch duodenal: TWL 39,4%, EWL 98,8% (1 ano). Ensaios clínicos demonstraram: semaglutida com perda média de peso de 10,2% (4 anos) até 14,9% (68 semanas); tirzepatida até 18% (72 semanas); liraglutida variando de 2,2% a 18,5% (6–12 meses).

Conclusão: Embora as terapias farmacológicas demonstrem eficácia, seu alto custo e indisponibilidade no SUS limitam seu uso. A cirurgia bariátrica permanece associada a maior perda de peso e maior durabilidade dos resultados, mantendo seu papel central no manejo da obesidade no Brasil.

Palavras-chave: Cirurgia Bariátrica. Obesidade. Análogos de GLP-1. Perda de Peso.

RESUMEN

Introducción: La obesidad es un grave problema de salud pública, que afecta al 34% de los adultos brasileños, con una prevalencia proyectada del 75% de sobrepeso/obesidad para 2044. El Sistema Único de Salud (SUS) ofrece la cirugía bariátrica como opción de tratamiento para casos seleccionados. Los análogos de GLP-1 (liraglutida y semaglutida) y de GIP (tirzepatida) también son eficaces, pero no están disponibles en el SUS y tienen un alto costo.

Objetivo: Comparar la pérdida de exceso de peso (%EWL) y la pérdida total de peso (%TWL) entre la cirugía bariátrica y los análogos de GLP-1 y GIP.

Metodología: Revisión de artículos de SciELO y PubMed (2014–2024), en inglés y portugués, utilizando los descriptores: cirugía bariátrica, bypass gástrico, sleeve, switch duodenal, banda gástrica, GIP, GLP-1, pérdida de exceso de peso, pérdida total de peso. Datos de DataSUS (2008–2024) complementaron el análisis.

Resultados: El número de cirugías bariátricas en Brasil aumentó un 22,9% en comparación con 2019, siendo el bypass en Y de Roux, la gastrectomía sleeve, la banda gástrica y el switch duodenal los procedimientos más comunes. Los resultados promedio encontrados fueron: Roux-en-Y: TWL 28,6%, EWL 68,3% (5 años); banda gástrica: TWL 15,9% (3 años), EWL 45,9% (≤10 años); sleeve: TWL 25%, EWL 61,1% (5 años); switch duodenal: TWL 39,4%, EWL 98,8% (1 año). Ensayos clínicos mostraron: semaglutida con una pérdida

media de peso de 10,2% (4 años) hasta 14,9% (68 semanas); tirzepatida hasta 18% (72 semanas); liraglutida variando entre 2,2% y 18,5% (6–12 meses).

Conclusión: Aunque las terapias farmacológicas demuestran eficacia, su alto costo y la falta de disponibilidad en el SUS limitan su uso. La cirugía bariátrica sigue asociada con una mayor pérdida de peso y una mayor durabilidad de los resultados, manteniendo su papel central en el manejo de la obesidad en Brasil.

Palabras clave: Cirugía Bariátrica. Obesidad. Análogos de GLP-1. Pérdida de Peso.

1 INTRODUCTION

Obesity has become a serious public health problem over the years, with a prevalence of 34% among Brazilian adults and an estimated prevalence of overweight and obesity reaching 75% in Brazil by 2044. Obesity is a multifactorial disease, with behavioral, pharmacological, iatrogenic, genetic, among other causes, and is highly associated with conditions such as type II diabetes mellitus, cardiovascular diseases, chronic respiratory diseases, and cholelithiasis. From 2010 to 2021, 24,678 deaths of obese individuals aged between 30 and 69 years were recorded in the Mortality Information System (SIM).

The Brazilian Unified Health System (SUS) provides several treatment options for obesity, such as bariatric surgery, which is indicated for individuals with a BMI greater than 50 kg/m²; with a BMI greater than 40 kg/m², with or without comorbidities, who have not achieved success with longitudinal clinical treatment carried out in Primary Health Care and/or Specialized Outpatient Care for at least two years and who have followed clinical protocols; or with a BMI greater than 35 kg/m² and comorbidities, such as individuals at high cardiovascular risk, with diabetes mellitus and/or difficult-to-control systemic arterial hypertension, sleep apnea, and degenerative joint diseases, who have not achieved success with longitudinal clinical treatment for at least two years and who have followed clinical protocols.

On the other hand, there are other treatment options for obesity available on the market, such as glucagon-like peptide-1 (GLP-1) analog drugs, which are not provided by the SUS. Indicated for patients with overweight and obesity, as well as type II diabetes mellitus, established cardiovascular disease, or risk of metabolic and cardiovascular diseases, the approved medications for treatment in Brazil include sibutramine, orlistat, liraglutide, semaglutide, tirzepatide, naltrexone, and bupropion.

Considering the problems associated with weight gain, such as comorbidities and increased risk of mortality, this study proposes a literature review to provide useful data for healthcare professionals regarding the best treatment options and patient guidance. In addition, the research aims to enrich the existing literature by systematizing these procedures and providing a consolidated database for future investigations.

2 OBJETIVES

To comprehensively analyze the percentages of weight loss and BMI reduction across different bariatric surgery techniques and with the use of GLP-1 and GIP analogues, such as semaglutide, liraglutide, and tirzepatide.

3 METHODOLOGY

The research consists of a documentary, descriptive, and comparative bibliographic study, conducted through a literature review of studies published between 2014 and 2024 on the PubMed and SciELO platforms, using the following keywords: bariatric, bariatric surgery, gastric bypass, laparoscopic sleeve gastrectomy, Roux-en-Y gastric bypass, biliopancreatic diversion, duodenal switch, gastric banding, jejunoileal bypass, laparoscopic adjustable gastric banding, GIP, GLP-1, excess weight loss, and total weight loss. Data from DataSUS (2008–2024) were used to complement the analysis.

The inclusion criteria for the study were publications that reported percentages of excess weight loss (EWL%) and total weight loss (TWL%) over a minimum follow-up period of three years after bariatric surgery, as well as after the use of GIP and GLP-1 analogues. Studies with sample sizes smaller than 10 patients, involving patients without proper indications for the procedures, lacking data clarity, or duplicate studies were excluded.

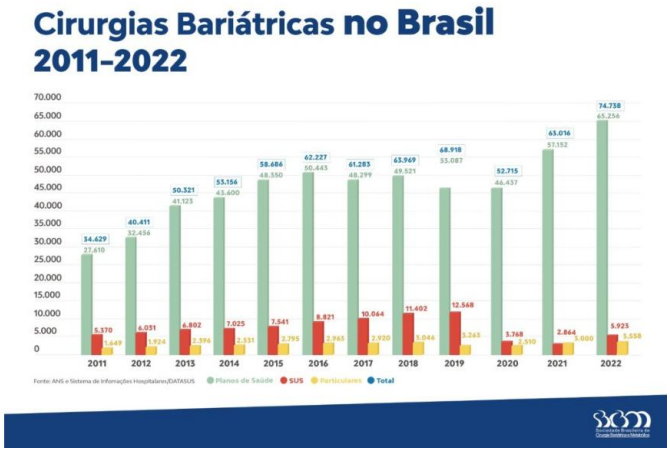
4 RESULTS

In 2018, a total of 10,599 gastroplasties with intestinal bypass (Roux-en-Y gastric bypass), 208 laparoscopic sleeve gastrectomies, 26 gastric banding procedures, 19 vertical gastrectomies with duodenal diversion (duodenal switch), and 539 laparoscopic bariatric surgeries were performed. In comparison, according to DATASUS data from August 2023 to December 2024, 4,954 Roux-en-Y gastric bypasses, 189 sleeve gastrectomies, 257 gastric banding procedures, 72 vertical gastrectomies with or without duodenal diversion, and 6,682 laparoscopic bariatric surgeries were performed.

Although the total number of surgeries across these modalities increased by approximately 6.7%, the Brazilian Society of Bariatric and Metabolic Surgery reported a significant growth in the number of procedures performed through private health insurance plans. In 2022, there was a 22.9% increase compared to 2019, representing a 54.8% reduction in procedures performed by the Unified Health System (SUS) (Figure 1).

Figure 1

Bariatric surgeries in Brazil from 2011 to 2022, stratified by Health Insurance Plans (green), the Unified Health System – SUS (red), Private procedures (yellow), and total surgeries (blue)



Source: SBCBM et al., 2023.

Surgical techniques are evaluated based on durability and effectiveness, with most studies addressing outcomes within 1–3 years of postoperative follow-up, some between 3–10 years, and only a minority extending beyond 10 years. Weight loss outcomes are divided into percentage of total weight loss (%TWL) and percentage of excess weight loss (%EWL), with the calculations demonstrated by the formula below:

$$\%TWL = \frac{loss\ of\ IMC}{IMC-0} \times 100\% \qquad \%EWL = \frac{loss\ of\ IMC}{IMC-25} \times 100\% \qquad (1)$$

Thus, the values of interest for the study were summarized in Table 1, addressing the main bariatric surgical techniques performed.

Table 1

Summary of total weight loss (TWL) and excess weight loss (EWL) across the surgical techniques studied

Surgical Tecnic	%TWL	%EWL	Observations
Roux em Y by-pass	28,6% in 5 years	• 1º year: 76,7% • 2º year: 77,4% • 3º year: 73,9% • 4º year: 70,8% • After 5 years: 68,3% • Média de 56,7%	Average weight loss was 36,6kg in 5 years.
Laparoscopic Adjustable Gastric Banding (LAGB)	15,9% in 3 years.	45,9% in 10-year follow-up.	The peak weight loss remains stable for up to 20 years after the second postoperative year.

Laparoscopic Sleeve Gastrectomy	25% after 5 years.	• 1° year: 72,4% • 2° year: 71,9% • 3° year: 69,5% • 4° year: 64,2% • 5° year: 61,1% • After 10 years: about 58,3%	Average weight loss was 33kg after 5 years.
Switch Duodenal	• In 6 months: 30% • In 1 year: 39,4%	• In 6 months: 75% • In 1 year: 98,8%	The SADS variation of the procedure showed a %TWL of 22% at 6 months and 38.5% at 1 year. The DADS variation of the procedure showed a %TWL of 20.2% at 6 months and 38% at 1 year.
Gastroplastia Vertical Aberta	• In 1 year: 34% • In 10 years: 24%	• In 1 year: 79% • In 10 years: 51%	

In contrast, glucagon-like peptide-1 receptor agonists (GLP-1RAs) have emerged, whose mechanisms of action are related to glycolysis and lipolysis, contributing to increased energy expenditure and subsequent weight loss. The **Associação Médica Brasileira** reported that the Danish pharmaceutical company **Novo Nordisk** recorded revenues of BRL 3.7 billion from Ozempic and other semaglutide-based medications in 2023. According to the data, this represented a 52% increase compared to the previous year, highlighting the steadily growing demand for these medications in the market.

The use of semaglutide (2.4 mg weekly) in the SELECT clinical trial, which included obese patients without diabetes and without weight loss as the primary endpoint, demonstrated a mean weight reduction of 10.2% over approximately four years. In the STEP trial, involving adults with overweight or obesity without diabetes, the mean weight loss was 14.9% over 68 weeks. Real-world evidence indicates that weight loss at 6 to 12 months ranged from 4.4% to 19.5%.

Tirzepatide (10 mg weekly), in the SURMOUNT-1 trial, which included adults with overweight or obesity without diabetes, resulted in weight loss of 5% or more in 96% of participants over 72 weeks. Overall, weight loss of up to 18% was observed compared to placebo. In studies reflecting routine clinical practice, follow-up at 6 to 12 months showed weight loss ranging from 4.8% to 21.2%. In a cohort study conducted in the United States with overweight patients, tirzepatide demonstrated greater weight loss than semaglutide, with reductions of −15.3% and −8.3% at 12 months, respectively (Table 2).

Liraglutide demonstrated weight loss ranging from 2.2% to 18.5% over a follow-up period of 6 to 12 months. In a 2024 study conducted in **Australia**, individuals who used the

medication with the intention of weight management achieved a mean weight reduction of 11.6% over 32 weeks. In another 2024 study carried out in **Turkey**, patients who adhered to diet and exercise protocols achieved a weight reduction of 18.6% over 24 weeks; however, treatment adherence was lower.

Table 2

Comparison of weight loss achieved with tirzepatide 5.0 mg/week and semaglutide 0.5 mg/week

TIME	TIRZEPATIDE	SEMAGLUTIDE
3 months	-5,9%	-3,6%
6 months	-10,1%	-5,8%
12 months	-15,3%	-8,3%

Source: Rodriguez et al., 2024.

It is important to emphasize that several factors influence the effectiveness of these medications, such as sex, ethnicity, baseline BMI, comorbidities, adherence, persistence, and the dosage used. As a result, randomized clinical trials tend to demonstrate greater weight loss than that observed in real-world clinical practice. Adverse effects can be managed through dose fractionation, preference for weekly formulations, dietary and fluid intake adjustments, as well as targeted pharmacological treatment of symptoms. The aim of these interventions is to facilitate adaptation among patients who are eligible for this form of treatment.

5 CONCLUSION

It is concluded that, although the available medications have demonstrated efficacy in promoting weight loss, they remain largely inaccessible to the general Brazilian population due to the high costs of the pharmaceutical market and the lack of availability within the Clinical Protocols and Therapeutic Guidelines (PCDT) regulated by the Specialized Component of Pharmaceutical Assistance (CEAF) of the Unified Health System (SUS).

It is possible to consider that, over the next decade, as the understanding of obesity treatments evolves and the effectiveness of these medications is more broadly studied and confirmed in long-term settings, they may be incorporated as a prerequisite for bariatric surgery within the SUS, provided they are included as part of longitudinal clinical treatment. The continuation of scientific research is essential to identify and support new interventions and therapeutic options.

Based on the current reality and available evidence, bariatric surgery will continue to evolve and maintain its fundamental role within the Brazilian healthcare system for patients

who meet the established indications, offering significantly greater and more sustained weight reduction compared to other approaches, thereby resulting in improved quality of life and life expectancy.

Patient individualization is central to obesity treatment, particularly because it is a chronic, multifactorial disease that requires multiprofessional follow-up and continuous care.

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