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ANALYSIS OF RISKS AND BENEFITS IN THE PHARMACOLOGICAL TREATMENT OF OBESITY: A SYSTEMATIC REVIEW OF THE LITERATURE

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ABSTRACT

Introduction: Obesity is a global public health problem characterized by the excessive accumulation of body fat, associated with several comorbidities. Its treatment includes multidisciplinary approaches, including the use of drugs that help control weight. However, these drugs have different levels of effectiveness and potential adverse effects. **Objective:** This study aims to analyze the main pharmacological treatments used for obesity, its side effects, and the recurrence of weight gain after medication discontinuation. **Methodology:** This is a systematic review of the literature based on scientific articles published in the last five years. The sources used include databases such as Google Scholar, Latindex and SciELO. Inclusion and exclusion criteria were applied to select relevant studies on the subject, ensuring the timeliness and reliability of the information. **Results and discussion**: GLP-1 receptor agonists, norepinephrine and dopamine reuptake inhibitors, and cannabinoid receptor type 1 antagonists stand out among the most prescribed drugs. Despite their effectiveness in reducing weight, many of these drugs have adverse effects, such as nausea, cardiovascular risk, and psychiatric impact. In addition, it was observed

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that discontinuation of the use of these drugs often results in the regain of lost weight, indicating the need for complementary strategies to maintain weight loss. **Final considerations:** Pharmacological treatment of obesity can be an effective alternative for certain patient profiles, but it presents challenges such as side effects and a high rate of recurrence of weight gain after discontinuation of medication. Thus, it is recommended that the use of these drugs is always accompanied by dietary re-education and psychological support, ensuring better long-term results.

Keywords: Pharmacology. Obesity. Public health.

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INTRODUCTION

Obesity is a multifactorial condition that affects millions of people globally, being recognized by the World Health Organization (WHO) as one of the main public health challenges of the 21st century (DA FONSECA SANCHES *et al.,* 2024). Characterized by the excessive accumulation of adipose tissue, obesity is associated with several metabolic, cardiovascular, and osteoarticular complications (DE ASSIS *et al.,* 2021).

The treatment of this condition involves a multidisciplinary approach, which includes lifestyle changes, behavioral interventions, and, in specific cases, the use of drugs to control body weight. Pharmacotherapy has been shown to be an effective alternative for patients with weight loss difficulties with non-pharmacological measures alone. However, its use should be evaluated with caution, considering risks and benefits (BARBOSA *et al.,* 2022).

The study of the use of drugs in the treatment of obesity has great social, academic and personal relevance. Socially, understanding the impacts of these medications helps in the development of public policies to control obesity and reduce costs with the treatment of associated diseases, such as diabetes and hypertension (DA OBESITY, 2024).

In academia, systematic research on the subject contributes to the expansion of scientific knowledge, enabling the development of new safer and more effective drugs (FEIER *et al*., 2024). Personally, the theme becomes essential for patients seeking therapeutic alternatives for weight control, aiming to improve quality of life and prevent comorbidities (CORREIA, 2023).

The present research was developed based on a systematic review of the literature, using articles published in the last 5 years to ensure the updating of information. Recognized scientific databases such as *Google Scholar, Latindex* and *Scielo* were consulted, with strict inclusion and exclusion criteria, prioritizing clinical studies and reviews that address the risks and benefits of drugs used in the treatment of obesity. This methodology allows obtaining a comprehensive and evidence-based view, ensuring that the conclusions of the study are based on recent and quality data.

WHAT IS CONSIDERED OBESITY IN MEDICINE

Obesity is a condition characterized by the excessive accumulation of body fat, usually assessed through the Body Mass Index (BMI), which classifies an individual as obese when their BMI is equal to or greater than 30 kg/m² (WHO, 2024). According to the

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World Health Organization (WHO), obesity is a significant risk factor for several chronic diseases, including type 2 diabetes, cardiovascular disease, and certain cancers (WHO, 2024). In addition, the prevalence of obesity has increased globally, becoming a public health problem of great impact.

Studies show that obesity is not only a result of excessive calorie consumption, but also of socioeconomic and environmental factors. Anekwe *et al*. (2020) point out that low-income populations tend to have a higher risk of obesity due to the difficulty of access to healthy foods and opportunities for physical activity. In addition, urbanization and changes in dietary patterns, with the increase in the consumption of ultra-processed foods, also contribute to this alarming growth in obesity (Popkin; Hawkes, 2016).

The relationship between obesity and metabolism is also widely discussed in the literature. Rosenbaum (2023) explains that the regulation of energy balance is complex and involves multiple factors, such as appetite control and basal energy expenditure. Obesity can lead to metabolic adaptations that make it difficult to lose weight, making it essential to adopt effective long-term strategies for its control. In addition, hormonal and genetic factors play an important role in the predisposition to obesity (Ribeiro *et al*., 2020).

Another relevant aspect is the impact of the environment on the prevalence of obesity. The study conducted by the NCD Risk Factor Collaboration (2019) points out that the increase in BMI in rural areas has been one of the main drivers of the global obesity epidemic. This is due to the nutritional transition and greater access to industrialized products in these regions. In addition, a sedentary lifestyle, associated with the reduction in occupational energy expenditure over the last decades, has contributed to the increase in obesity rates (Church *et al.,* 2011).

Given this scenario, multidisciplinary intervention measures are essential to contain the advance of obesity. Effective strategies include public policies aimed at regulating the food industry, incentives for physical activity, and raising awareness among the population about healthy eating habits (Chaput *et al.,* 2023). The fight against obesity requires collaboration between governments, health professionals and society, aiming not only at reducing body weight, but also at promoting the quality of life of the global population.

WHAT ARE THE CAUSES OF OBESITY

Obesity is a health condition globally recognized for its significant impact on quality of life and public health costs. It is the result of a combination of genetic, environmental,

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and behavioral factors. Duarte and Queiroz (2024) argue that, in addition to genetics, the environment and eating behavior play a crucial role in the prevalence of obesity. The increase in the consumption of ultra-processed foods, associated with the reduction of physical activities, has been one of the major contributors to the spread of this condition, especially in urban societies.

Genetic factors are fundamental in the predisposition to obesity, as highlighted by Poulain (2024). Certain genes influence how the body stores and uses fat, making some people more susceptible to weight gain. However, as the author emphasizes, obesity does not result only from genetics; it is strongly modulated by the environment in which the person is inserted. Therefore, a genetic predisposition can be exacerbated by poor eating habits and lack of physical activity.

Modern eating behavior has been shown to be one of the main risk factors for obesity. According to Menezes et al. (2021), a diet rich in processed foods, rich in sugars and saturated fats, has a significant impact on increasing body weight. Excessive consumption of these foods, especially in children and adolescents, directly contributes to obesity, creating a vicious cycle in which poor eating habits perpetuate weight gain. In addition, the increasing availability of these foods in all social contexts facilitates adherence to an unbalanced diet.

Another relevant factor is a sedentary lifestyle, which is directly related to the increase in obesity. Poulain (2024) notes that a lack of physical activity, combined with increased time spent on sedentary activities such as using computers and mobile devices, has been one of the biggest challenges for public health. This lifestyle reduces calorie burning, favoring fat storage and increasing body weight. A sedentary lifestyle is one of the factors that most contributes to obesity in modern societies, particularly among the young population.

The social stigma of obesity also plays a significant role in the causes of this condition. Duarte and Queiroz (2024) discuss how discrimination associated with excessive weight can result in a profound psychological impact, exacerbating the problem. The shame and prejudice experienced by obese people can contribute to depression, anxiety, and disordered eating behaviors. This cycle of stigma and inappropriate eating behavior often prevents these people from seeking professional help, perpetuating obesity.

Social and cultural pressure is also an important factor in the formation of behaviors that contribute to obesity. Apolinário and Moço (2022) note that, especially among young

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people, social pressures and stereotypes related to the body can lead to an increased risk of obesity. Bullying, especially in schools, is a clear example of how teens can experience emotional damage that interferes with eating behavior and lifestyle choices. These cultural and social factors can harm mental health, resulting in a vicious cycle that favors weight gain.

Regarding psychological issues, Menezes *et al.* (2021) point out that obesity can be both a cause and a consequence of emotional problems. Emotional eating, often triggered by stress, depression or anxiety, can lead to weight gain, further aggravating the condition. This demonstrates the interconnection between physical and mental health, with obesity often being a manifestation of unresolved psychological problems, which make the weight loss process more difficult.

Finally, the lack of effective public policies to prevent and treat obesity contributes significantly to its prevalence. Duarte and Queiroz (2024) suggest that, in addition to interventions focused on individual behavioral changes, a collective effort is also needed to change the social and cultural environment. The implementation of nutritional education policies, encouragement of physical activity, and reduction of obesity stigma are essential measures to combat this condition at the population level.

MOST USED PHARMACOLOGICAL TREATMENT TO COMBAT OBESITY, NEW DRUGS AND THEIR SIDE EFFECTS

The pharmacological treatment of obesity has been consolidated as an adjuvant strategy to change eating habits and the practice of physical activity. Several drugs have been used to control body weight, with different mechanisms of action and safety profiles. Among the most widely used are GLP-1 receptor agonists, norepinephrine and dopamine reuptake inhibitors, and cannabinoid receptor type 1 antagonists (DA FONSECA SANCHES *et al.,* 2024).

GLP-1 receptor agonists, such as liraglutide and semaglutide, have been shown to be effective in reducing weight by increasing satiety and delaying gastric emptying. These drugs are widely used due to their positive impact on glycemic control and the reduction of cardiovascular events. However, its side effects include nausea, vomiting, pancreatitis, and, in recent studies, a possible association with thyroid neoplasms (FEIER *et al.,* 2024).

Another pharmacological class used are norepinephrine and dopamine reuptake inhibitors, such as phentermine and bupropion, which act by reducing appetite and

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increasing energy expenditure. Despite their efficacy, these drugs have cardiovascular risks, including increased blood pressure and heart rate, which limits their use in patients with cardiac comorbidities (BARBOSA *et al*., 2022).

Type 1 cannabinoid receptor antagonists, such as rimonabant, have been developed to reduce appetite and improve lipid metabolism. However, due to the high incidence of psychiatric adverse effects, such as depression and increased risk of suicide, its use has been discontinued in several countries (LECUBE *et al.,* 2024). Thus, the safety of these treatments must be constantly evaluated to avoid damage to the health of patients.

The recurrence of weight gain after drug discontinuation is one of the main challenges in the pharmacological treatment of obesity. Studies show that most patients regain part or all of the weight lost after stopping the medication, highlighting the need for a multifactorial approach, including psychological support and dietary re-education (DE ASSIS *et al*., 2021).

In addition, the high cost of some of these drugs limits access to a significant portion of the population. Semaglutide, for example, has superior efficacy to other treatments, but its value makes its continuous use unfeasible for many patients (DA OBESITY, 2024). This limitation reinforces the importance of public policies that guarantee access to treatment for those who need it.

In view of this evidence, it is concluded that the pharmacological treatment of obesity can be effective, but not free from adverse effects and challenges, such as the need to maintain weight loss and the high cost of drugs. Therefore, it must be used with discretion and always associated with behavioral and nutritional interventions to ensure lasting results (CORREIA, 2023).

FINAL CONSIDERATIONS

Pharmacological treatment of obesity represents an important alternative for patients who cannot achieve the desired weight loss with lifestyle changes alone. However, as evidenced throughout the study, the use of drugs should be monitored with caution, considering their side effects, contraindications, and the need for continuous medical follow-up. Medications such as GLP-1 receptor agonists, norepinephrine and dopamine reuptake inhibitors, and cannabinoid receptor antagonists have varying efficacy and distinct impacts on the health of individuals, requiring a personalized approach.

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The analysis showed that, although these drugs can significantly help reduce body weight, recurrence after stopping treatment is still a major challenge. This reinforces the need for a more comprehensive therapeutic plan, which combines pharmacotherapy with dietary re-education, psychological follow-up, and behavioral changes. In addition, the high costs of some of these drugs make it difficult for the population to access effective treatments, highlighting the importance of public policies that facilitate their availability to those who need them most.

In view of these aspects, it is concluded that the treatment of obesity cannot be based exclusively on the use of medications, but rather on a multifactorial strategy that promotes lasting and safe results. The advancement of research in the area allows the search for new pharmacological therapies that are more effective and with a lower incidence of adverse effects, providing a better quality of life for patients. Thus, the approach to obesity must be constantly reevaluated, ensuring that interventions are safe, affordable, and effective in the long term.

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