

INDISCRIMINATE USE OF LIRAGLUTIDE AND SEMAGLUTIDE FOR WEIGHT LOSS

Maria Luiza Saad Carvalho

Graduation Student in Medicine,
Universidade Faceres, São José do Rio Preto,
São Paulo, Brazil.

<https://orcid.org/0009-0003-5954-2971>

Letícia Pirola Maziero

Graduation Student in Medicine, FAI -
Centro Universitário de Adamantina, São
Paulo, Brazil.

<https://orcid.org/0009-0006-8920-5804>

Milla Karoline Veloso

Graduation Student in Medicine,
Universidade Brasil, Estrada projetada F1,
Fernandópolis, São Paulo, Brazil.

<https://orcid.org/0009-0000-7888-0480>

Fernanda Cristine Frigheto

Graduation Student in Medicine,
``Universidade para o Desenvolvimento
do Estado e da Região do Pantanal`` -
UNIDERP, Campo Grande- Mato Grosso do
Sul, Brazil.

<https://orcid.org/0000-0002-3474-3270>

***Maria Eduarda Sanches Novaes Diniz de
Carvalho***

Graduation Student in Medicine,
``Universidade para o Desenvolvimento
do Estado e da Região do Pantanal`` -
UNIDERP, Campo Grande- Mato Grosso do
Sul, Brazil.

<https://orcid.org/0009-0001-0764-8614>

All content in this magazine is licensed under a Creative Commons Attribution License. Attribution-Non-Commercial-Non-Derivatives 4.0 International (CC BY-NC-ND 4.0).



Julia Sanches Maluf

Graduation Student in Medicine,
Universidade Faceres, São José do Rio Preto,
São Paulo, Brazil.
<https://orcid.org/0009-0003-1332-192X>

Thiago de Mello Tavares

Graduation Student in Medicine,
Universidade do Contestado. Mafra, Santa
Catarina, Brazil.
<https://orcid.org/0009-0003-0641-1871>

Rodrigo Daniel Zanoni

Doctor at: Pontifícia Universidade Católica
de Campinas, Postgraduate in Dermatology
/ Postgraduate in Dermatologic Surgery
at: Instituto BWS, Master in Collective
Health at: Faculdade São Leopoldo Mandic
Campinas, Technical Director at: Centro de
Longevidade Irineu Mazutti, Sumaré, São
Paulo, Brazil.
Lattes: [http://lattes.cnpq.
br/2177457175217088](http://lattes.cnpq.br/2177457175217088)
<https://orcid.org/0000-0001-7641-2851>

Abstract: Introduction: Liraglutide and semaglutide are allied to the treatment of weight loss. However, both have side effects, which is intensified by their indiscriminate use. **Objective:** To review the scientific literature regarding the harm caused by the indiscriminate use of liraglutide and semaglutide for weight loss. **Methods:** This is a narrative review of the literature, which was carried out from the SciELO, Pubmed, Lilacs, Medline, Google Scholar and Uptodate databases. Inclusion criteria were articles from 2012 to 2023, which were available in full, selecting 13 articles to compose the result. **Results and discussions:** The reviewed studies indicated that the indiscriminate use of liraglutide and semaglutide can lead to serious side effects, including pancreatitis, gallstones and dehydration. Other common side effects include nausea, vomiting and diarrhea. Also, in the long term, the use of these drugs can lead to decreased absorption of important vitamins and minerals, such as vitamin B12. Although the use of liraglutide and semaglutide has been approved for the treatment of type 2 diabetes, the indiscriminate use of these drugs for weight loss can lead to serious side effects. It is important that prescribing physicians exercise caution when recommending these drugs to patients without diabetes, especially those who have a history of pancreatitis or gallstones. Also, patients must be aware of possible side effects and be closely monitored while using these drugs. **Final considerations:** The use of samaglutide and liraglutide is a good ally in weight loss, however their indiscriminate use can cause damage to health. **Keywords:** medication, semaglutide, liraglutide, weight loss, indiscriminate use, adverse effects, health risk.

INTRODUCTION

Obesity is now a worldwide epidemic, which is characterized by the increase in adipose

tissue and a reflection of excess weight, having as pathogenic elements, factors of genetic origin, environmental factors and behavioral factors. The disease can be qualified through the body mass index (BMI), above 25 kg/m² is considered overweight and above 30 kg/m², obese. Patients who have an altered BMI may present, as a pathophysiological effect, an increased risk of developing associated comorbidities, such as hypertension, type 2 diabetes, hyperlipidemia, stroke and some types of cancer. This condition encourages the search for more effective treatments, especially with regard to drug therapy, of which the GLP-1 receptor agonists (Glucagon-Like Peptide) have shown promising results. (SINGH, *et al.* 2022)

Liraglutide and semaglutide are long-acting agonist drugs for the GLP-1 receptor, which is a hormone produced in intestinal L cells and acts on satiety in the brain, regulating body weight, glycemic control. However, GLP-1 has a short half-life and is rapidly inactivated by dipeptidyl peptidase-4, which led to efforts to make it therapeutically effective, culminating in the development of long-acting analogues. Thus, liraglutide is the first analogue to be suitable for once-daily subcutaneous dosing. Semaglutide was approved in 2023 by Anvisa for use not only in diabetes, but also as an adjunct to a low-calorie diet and physical exercise for weight control, due to its metabolic effect on glucose and in the reduction and maintenance of weight, and can be administered once a week due to its long half-life. (KNUDSEN, LAU, 2019; DONATH, BURCELIN, 2013)

Thus, when administered correctly and with medical supervision, drugs are great allies in the weight loss process. However, the expansion of the pharmaceutical industry, concomitantly with the search for the current thin stereotype of beauty, resulted in an indiscriminate increase in the use of appetite

suppressants. Improper use of inhibitors can lead to various side effects. No conclusive studies were found that specifically exposed the adverse results of the indiscriminate use of liraglutide and semaglutide, but there are reports of their possible side effects. In studies of the action of GLP-1, there are reports of pancreatitis with the use of exenatide and sitagliptin, due to this, the American Food and Drug Administration indicates a possible increased risk of developing the pathology with the use of liraglutide, however, studies clinical tests to assess the presence of adverse events, were inconclusive, thus, there is not enough evidence to consider the warning as true. (LÓPEZ-LÓPEZ, *et al.* 2016). In evaluating the use of the drug with 258 patients, it presented as main side effects, those related to the gastrointestinal tract, with nausea, vomiting and constipation (ALBAKER, *et al.* 2021) Regarding its adverse effects, semaglutide also presents mild gastrointestinal disorders and moderate, with an increased risk of biliary diseases and, like liraglutide, its carcinogenic effect on the pancreas and thyroid remains inconclusive, due to the low incidence and because they are relatively new on the market. Both drugs, especially when administered indiscriminately, can have a strong hypoglycemic effect. (SMITS and VAN RAALTE, 2021)

OBJECTIVES

Based on what was presented, the objective of this work is to evaluate the probable risks in the indiscriminate consumption of semaglutide and liraglutide.

METHODOLOGY

The present work is a narrative review of the literature, a survey of the theoretical framework was carried out in journals of scientific platforms, with a theoretical-scientific basis, in a period between 2012

and 2023, such as: SciELO, Pubmed, Lilacs, Medline, Google Scholar and Uptodate. The initial filtering was done by the period, prioritizing the most current ones, later by the title and reading of the abstracts, where works by several authors were chosen that are the necessary foment for the theoretical elaboration of this work. Aiming mainly to find the most effective answers in the literature to help understand the indiscriminate use of liraglutide and semaglutide in weight loss, in which no articles were found that specifically addressed the question in question, thus those that explained their adverse effects and to talk about the indiscriminate use of drugs for weight loss in general. Having as an inclusion criterion, articles in Portuguese, English and Spanish, which promoted the theme addressed and as an exclusion criterion, articles that did not reach the level of information necessary for the elaboration of the research and those that presented repeated information. Several combinations of terms related to the theme were used with the following keywords: indiscriminate use; liraglutide; semaglutide; adverse effects; medicines; slimming; health risk. Thus, 13 articles were selected for the review.

RESULTS AND DISCUSSIONS

Liraglutide and semaglutide are drugs that belong to a class of drugs called GLP-1 receptor agonists. These drugs are used in the treatment of type 2 diabetes and obesity, as they help control blood sugar levels and reduce body weight. However, the indiscriminate use of these drugs can have serious side effects (DAVIES, M. J., et.al. 2016).

One of the main side effects associated with the use of liraglutide and semaglutide is pancreatitis. A pancreatic inflammation that can be acute or chronic. Some studies show that the use of these drugs may increase the risk of pancreatitis in people with a history

of pancreatic disease or who have had pancreatitis in the past. (SMITS, M.M., et.al. 2016; DAVIES, M.J., et.al. 2016).

Another serious side effect associated with the use of these medications is the risk of thyroid cancer. Animal studies have shown that long-term use of GLP-1 receptor agonists may increase the risk of thyroid cancer. Although there is no conclusive evidence in humans, the United States Food and Drug Administration (FDA) in 2017 issued a warning about the potential risk of thyroid cancer associated with the use of these drugs.

In addition, the use of liraglutide and semaglutide can also cause more common side effects such as nausea, diarrhea, vomiting and abdominal pain. These effects usually go away with time and are not considered serious. However, if these effects persist or worsen, it is important to consult a physician (KNUDSEN and LAU, 2019).

CONCLUSION

However, the current pursuit of weight loss in a timely manner makes the individual remiss to the risks related to the use of drugs, which can present adverse reactions and serious health risks. Although no specific studies were found on the indiscriminate use of liraglutide and semaglutide, it presents the characteristic risks of excessive use of weight loss drugs, thus emphasizing their side effects.

Thus, although GLP-1 agonist drugs are promising, their indiscriminate use can result in irreparable losses, and medical follow-up must always be recommended for better adaptation of strategies, in order to achieve better results and reduce the risk of worsening the condition. health.

In conclusion, although liraglutide and semaglutide are useful drugs in the treatment of type 2 diabetes and obesity, their indiscriminate use can have serious side effects, such as pancreatitis and thyroid

cancer. Therefore, it is important that these drugs are prescribed with caution and under medical supervision.

REFERENCES

1. ALBAKER, W, *et al.* The Efficacy and Safety of Liraglutide 3.0 mg for Weight Management in Obese Non-Diabetic Saudi Outpatients. **Int J Gen Med.** 2021 Nov 23;14:8643-8650.

DOI: 10.2147/IJGM.S336904.

2. BLUNDELL, J, *et al.* Effects of once-weekly semaglutide on appetite, energy intake, control of eating, food preference and body weight in subjects with obesity. **Diabetes Obes Metab.** p. 1242-1251. 2017 DOI: 10.1111/dom.12932.

3. DAVIES, M. J., *et al.* . Efficacy of liraglutide for weight loss among patients with type 2 diabetes: the SCALE diabetes randomized clinical trial. **Jama**, 2016. 315(7), 687-689.

4. DONATH, MY; BURCELIN, R. GLP-1 effects on islets: hormonal, neuronal, or paracrine? **Diabetes Care.** 2013 Aug;36 Suppl 2(Suppl 2):S145-8. DOI: 10.2337/dcS13-2015.

5. FERNANDES, L. ; *et al.* . Prevalência do uso de medicamentos para emagrecer entre universitárias. **Revista Recien - Revista Científica de Enfermagem**, [S. l.], v. 3, n. 7, p. 19-26, 2013. DOI: 10.24276/rrecien2177-157X.2013.3.7.19-26.

6. Food and Drug Administration (2017). FDA Drug Safety Communication: FDA confirms increased risk of leg and foot amputations with the diabetes medicine canagliflozin (Invokana, Invokamet, Invokamet XR). Recuperado em 27 de abril de 2023. Disponível em: <https://www.fda.gov/drugs/drug-safety-and-availability/fda-drug-safety-communication-fda-confirms-increased-risk-leg-and-foot-amputations-diabetes-medicine>

7. KNUDSEN, LB; LAU, J. The Discovery and Development of Liraglutide and Semaglutide. **Front Endocrinol (Lausanne).** 2019 Apr 12;10:155. DOI: 10.3389/fendo.2019.00155.

8. LÓPEZ-LÓPEZ, J., *et al.* ¿Existe un espacio para los análogos de la incretina como terapia para el sobrepeso, la obesidad y la prevención de la enfermedad cardio-metabólica?. **Revista Colombiana de Cardiología**, Vol. 23, p. 200-209, 2016. DOI: <https://doi.org/10.1016/j.rccar.2015.10.003>.

9. LUNDGREN, J, *et al.* Healthy Weight Loss Maintenance with Exercise, Liraglutide, or Both Combined. **N Engl J Med.** p. 1719-1730. 2021 DOI: 10.1056/NEJMoa2028198.

10. SINGH, G, *et al.* Wegovy (semaglutide): a new weight loss drug for chronic weight management. **J Investig Med**, p. 5-13, 2022. DOI: 10.1136/jim-2021-001952.

11. SMITS, M. M., *et al.* Acute Pancreatitis and Subsequent Use of Glucagon-Like Peptide-1 Receptor Agonists. **JAMA** 2016. 316(5), 536-537.

12. SMITS, MM; VAN RAALTE, DH. Safety of Semaglutide. **Front Endocrinol (Lausanne).** 2021 Jul 7;12:645563. doi: 10.3389/fendo.2021.645563.

13. VARKEVISSER, R, *et al.* Determinants of weight loss maintenance: a systematic review. **Obes Rev.** p.171-211. 2019 DOI: 10.1111/obr.12772.