

Role of glucagon-like peptide-1 analogues in weight management

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Abstract

Obesity is a growing concern in all parts of the world. It carries major health concerns which are in turn translated into financial costs. Alongside patient education and guidance, both surgical and pharmacological methods are being employed to control weight. A major breakthrough in this regard has been introduction of glucagon-like peptide-1 analogues (GLP-1), which have now been approved for use in weight management(1).

Key words: weight management, glucagon-like peptide-1 analogues,

Introduction

The economic impact of overweight and obesity in 2019 is estimated at 2.19% of global gross domestic product (GDP). If current trends continue, by 2060, the economic impacts from overweight and obesity are projected to rise to 3.29% of GDP globally(2). There are a number of reasons why people can gain weight. Logically foremost is overeating and sedentary lifestyle(3). Genetics can play a role as in how the body stores and processes fat, making some people more prone to weight gain than others(4). Hormonal imbalances, such as hypothyroidism or insulin resistance, can also contribute to weight gain(5). Other medical conditions such as polycystic ovary syndrome (PCOS), Cushing's syndrome, and Prader-Willi syndrome also play a role in weight gain. Alongside these, certain medications, such as antidepressants, antipsychotics, and steroids, can be the contributing factor in weight gain for some.

An ageing population means slow metabolism, which can lead to weight gain if they do not adjust their calorie intake or physical activity level(6). Another important factor is stress. Chronic stress can cause hormonal changes that contribute to weight gain. Foss et al raised the question whether stress in obesity is cause or consequence?(7). A lack of sleep which is closely related to stress can affect hormones that regulate appetite, leading to increased cravings and overeating(8).

It is important to address the underlying factors that contribute to weight gain to create a sustainable weight loss plan. This may involve changes in diet, physical activity level, stress management, medication adjustments, or treatment for any underlying medical conditions and now the introduction of new medication.

Discussion

GLP-1 (glucagon-like peptide-1) analogues are a class of medications used in the treatment of type 2 diabetes and obesity. GLP-1 is a hormone that is naturally produced in the gut and helps regulate blood sugar levels by stimulating insulin release and suppressing glucagon secretion. GLP-1 analogues mimic the effects of natural GLP-1 and are used to lower blood sugar levels in people with diabetes.

In addition to their effects on blood sugar levels, GLP-1 analogues have also been found to promote weight loss. GLP-1 analogues work by reducing appetite and increasing feelings of fullness (satiety), which can lead to a reduction in calorie intake and subsequent weight loss.

Several GLP-1 analogues are currently approved for the treatment of obesity, including liraglutide (Saxenda) and semaglutide (Wegovy)(9). These medications are typically used in conjunction with lifestyle changes, such as a healthy diet and exercise, to achieve and maintain weight loss.

Studies have shown that treatment with GLP-1 analogues can lead to significant weight loss, with some people losing up to 10% of their body weight over the course of several months(10). Rubino et al showed a weight loss of 18% overall and continued weight loss after 20 weeks with continuation of Semaglutide as opposed to switching to placebo(11). Wilding et al report a weight loss of 15% or more for 50.5% of the patients studied (12). Additionally, GLP-1 analogues have been found to improve other health outcomes in people with obesity, such as reducing blood pressure and improving lipid profiles (13).

However, it is important to note that GLP-1 analogues are not appropriate for everyone and can have side effects, such as nausea, vomiting, and diarrhea. While most patients will find these to be mild and transient some may not be able to continue with medication. Wilding et al found that 4.5% of the patients discontinued Semaglutide due to gastrointestinal side effects(12). These medications should only be used under the guidance of a healthcare provider and as part of a comprehensive weight management plan.

Surgical vs pharmacological weight management

Bariatric surgery and GLP-1 analogues are both options for weight management, but they have different mechanisms of action and potential risks and benefits. Bariatric surgery typically leads to greater weight loss than GLP-1 analogues, with an average weight loss of 30-40% of excess body weight compared to 15-20% for GLP-1 analogues(14).

Bariatric surgery is a major surgical procedure that carries risks such as bleeding, infection, and complications related to anesthesia. GLP-1 analogues are generally well tolerated but can have side effects such as nausea, vomiting, and diarrhea.

Bariatric surgery also carries a huge financial cost which is more than GLP-1 analogues and in some cases that cost may not be covered by insurance.

Both bariatric surgery and GLP-1 analogues can lead to improvements in obesity-related health conditions such as type 2 diabetes, high blood pressure, and sleep apnoea.

Conclusion

While GLP-1 analogues play a huge role in weight management it is important to address the underlying factors that contribute to weight gain to create a sustainable weight loss plan. This may involve changes in diet, physical activity level, stress management, medication adjustments, or treatment for any underlying medical conditions.

Bibliography

1. NICE recommends new drug for people living with obesity | News | News [Internet]. NICE. NICE; 2022 [cited 2023 Mar 14]. Available from: <https://www.nice.org.uk/news/article/nice-recommends-new-drug-for-people-living-with-obesity>
2. Okunogbe A, Nugent R, Spencer G, Powis J, Ralston J, Wilding J. Economic impacts of overweight and obesity: current and future estimates for 161 countries. *BMJ Glob Health*. 2022 Sep 1;7(9):e009773.
3. Jebb SA, Moore MS. Contribution of a sedentary lifestyle and inactivity to the etiology of overweight and obesity: current evidence and research issues. *Med Sci Sports Exerc*. 1999 Nov 1;31(11 Suppl):S534-41.
4. Herrera BM, Lindgren CM. The Genetics of Obesity. *Curr Diab Rep*. 2010 Dec 1;10(6):498-505.
5. Kahn BB, Flier JS. Obesity and insulin resistance. *J Clin Invest*. 2000 Aug 15;106(4):473-81.
6. Chapman IM. Obesity in Old Age. *Obes Metab*. 2008;36:97-106.
7. Foss B, Dyrstad SM. Stress in obesity: Cause or consequence? *Med Hypotheses*. 2011 Jul 1;77(1):7-10.
8. Chaput JP, Dutil C. Lack of sleep as a contributor to obesity in adolescents: impacts on eating and activity behaviors. *Int J Behav Nutr Phys Act*. 2016 Sep 26;13(1):103.
9. Current and Future Drug Targets in Weight Management | SpringerLink [Internet]. [cited 2023 Mar 14]. Available from: <https://link.springer.com/article/10.1007/s11095-010-0341-1>
10. Mehta A, Marso SP, Neeland IJ. Liraglutide for weight management: a critical review of the evidence. *Obes Sci Pract*. 2017;3(1):3-14.
11. Rubino D, Abrahamsson N, Davies M, Hesse D, Greenway FL, Jensen C, et al. Effect of Continued Weekly Subcutaneous Semaglutide vs Placebo on Weight Loss Maintenance in Adults With Overweight or Obesity: The STEP 4 Randomized Clinical Trial. *JAMA*. 2021 Apr 13;325(14):1414-25.
12. Wilding JPH, Batterham RL, Calanna S, Davies M, Van Gaal LF, Lingvay I, et al. Once-Weekly Semaglutide in Adults with Overweight or Obesity. *N Engl J Med*. 2021 Mar 18;384(11):989-1002.
13. Mundil D, Cameron-Vendrig A, Husain M. GLP-1 receptor agonists: A clinical perspective on cardiovascular. *9.8Silver Spring Md*. 2022 Nov;30(11):2111-21.
14. Sarma S, Palcu P. Weight loss between glucagon-like peptide-1 receptor agonists and bariatric surgery in adults with obesity: A systematic review and meta-analysis. *Obes Silver Spring Md*. 2022 Nov;30(11):2111-21.