

Semaglutide: A potential treatment of obesity in PCOD patients

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Abstract

Semaglutide is a Glucagon Like Peptide GLP agonist, Semaglutide has been shown to be effective in inducing weight loss in patients with obesity. Studies have shown that the infusion of GLP 1 results in reduced gastrointestinal emptying and an increased rate of fasting and postprandial gastric volumes, resulting in a decrease in hepatic glycemia. Polycystic ovarian syndrome (PCOS) is the most common endocrine disorder among women of reproductive age, Semaglutide affects the brain's hunger control centers, causing a reduction in food intake and an increased feeling of fullness, that is helpful in people who are struggling to lose weight. Multiple trials have shown that introduction of Semaglutide in regime helps with weight loss in patients of PCOD and is also effective in management of insulin resistance and lowering high levels of VLDL, LDL and triglycerides. Possible introduction of Semaglutide in the treatment of PCOD and obesity should be considered.

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Respected Mx, Semaglutide is a Glucagon-like peptide (GLP) agonist,(5) GLP is a naturally occurring hormone released by enteroendocrine L cells of the intestine. The GLP-1 molecule becomes active by proconvertase1, and it is inactivated by dipeptidyl peptidase IV (DPP-IV) so that the half-life of endogenous GLP-1 is 2-3 min. GLP-1 stimulates insulin secretion from β cells of islets of Langerhans.

In recent years, semaglutide has gained attention for its ability to induce weight loss in individuals with obesity. The effect of this is that it affects the brain's hunger control centres, causing a reduction in food intake and an increased feeling of fullness.(1) This makes it a promising option for people struggling with obesity, including those with conditions like polycystic ovary syndrome (PCOS) that often involve weight management challenges. Human studies show that infusion of GLP-1 results in slowing gastric emptying, and increased fasting and postprandial gastric volumes which reduces postprandial glycemia. (3)

According to emerging research on GLP agonists, A randomized control trial shows that semaglutide significantly decreases gastric emptying in obese patients (1), which is helpful in the treatment of obesity. Semaglutide enhances lipid and glucose metabolism while fasting and after meals. Fasting concentrations of triglycerides, very low-density lipoprotein (VLDL) and apolipoprotein B48 (ApoB48) were significantly decreased with oral semaglutide.(1) In a 68-week, efficacy and safety trial comparing once-daily oral semaglutide 50 mg for weight management to placebo in 667 adults with obesity or overweight with one or more comorbidities, people treated with oral semaglutide 50 mg achieved a statistically significant weight loss of 17.4% after 68 weeks compared to a 1.8% reduction with placebo. In addition, 89.2% of those who received oral semaglutide 50 mg, reached a weight loss of 5% or more after 68 weeks, compared to 24.5% with placebo. (3) Injectable semaglutide resulted in an approximate weight loss of 37–65%, being observed in people on 0.1 mg or more dosage. (4)

Polycystic ovarian syndrome (PCOS) is one of the most common endocrine disorders among women of reproductive age.(2) Obesity has a significant role in

PCOS and influences symptoms' intensity and long-term health effects. Studies have shown that semaglutide may lead to significant weight reduction when administered at higher doses specifically intended for the treatment of obesity. In some countries, the higher dose formulation of semaglutide marketed under the brand name Wegovy has been approved by regulatory authorities for the treatment of chronic weight loss in patients with obesity, which is typically administered as a once-weekly injection.(5)

Finding effective and safe methods to treat obesity in these patients is indispensable. In obese women with PCOS, GLP agonist is effective inducing significant weight loss and reducing waist perimeter (2). At present, monotherapy of metformin is being used to treat insulin resistance and obesity in PCOS patient but emerging studies states that combined therapy with GLP agonist is more beneficial (2) In 2021 the United States Food and Drug Administration (FDA) approved the use of semaglutide in obese patients (5).

We have set out to make suggestions in this letter that further studies ought to be conducted and the possible introduction of *semaglutide* in the treatment of obesity of PCOS must be sought as elucidated in the letter, said which when combined with lifestyle changes such as a good diet and increased exercise may lead to substantial weight loss over time.

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