

EMERGING ROLE OF GLP-1 RECEPTOR AGONISTS IN THE MANAGEMENT OF POLYCYSTIC OVARY SYNDROME

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Relevance: Polycystic ovary syndrome (PCOS) is one of the most common endocrine disorders affecting women in reproductive age and is associated with obesity, insulin resistance, infertility and metabolic dysfunction. Recent studies have shown the potential role of GLP-1 Receptor agonist in the management of Polycystic Ovary Syndrome (PCOS).

Aim: To evaluate the therapeutic potential of GLP-1 RA in women with PCOS based on recent scientific literature

Materials and Methods A literature review was conducted using the scientific database PubMed. Recent clinical studies, systematic reviews and meta-analyses published between 2019 and 2026 were analyzed. The review was focused on the effects of GLP-1 receptor agonists on metabolic and reproductive outcomes in women with PCOS.

Results and discussion: Recent studies and meta-analyses demonstrate that GLP-1 receptor agonists have significant therapeutic potential in women with polycystic ovary syndrome (PCOS), especially in patients with obesity and insulin resistance. Several studies reported significant reductions in body weight, body mass index (BMI), and waist circumference following treatment with liraglutide and other GLP-1 receptor agonists. In addition to weight reduction, GLP-1 receptor agonists were associated with improved insulin sensitivity and better metabolic outcomes. Some studies demonstrated improvements in menstrual regularity, ovulatory function, and reductions in free testosterone levels. Compared with metformin, GLP-1 receptor agonists showed greater efficacy in reducing BMI and improving metabolic parameters in several clinical trials and meta-analyses. Liraglutide currently has the strongest clinical evidence among GLP-1 receptor agonists in women with PCOS. Semaglutide and tirzepatide also demonstrate promising effects; however, additional long-term studies are required to evaluate their reproductive and endocrine outcomes. The most commonly reported adverse effects included nausea, headache, and gastrointestinal symptoms, although overall treatment was generally well tolerated.

Conclusion: GLP-1 receptor agonists demonstrate significant benefits in weight reduction, body mass index (BMI), and insulin sensitivity in women with PCOS, particularly in patients with obesity and metabolic dysfunction. However, current evidence regarding their effects on ovarian cysts, ovulation, menstrual regularity, and endocrine function remains limited and inconclusive. Further long-term studies are required to evaluate their reproductive outcomes in women with PCOS.

Abstract:

Polycystic ovary syndrome (PCOS) is one of the most common endocrine disorders affecting women of reproductive age and is frequently associated with obesity, insulin resistance, infertility, and metabolic dysfunction. Recent evidence has highlighted the growing role of GLP-1 receptor agonists in the management of metabolic complications associated with PCOS.

The aim of this literature review was to evaluate the therapeutic potential of GLP-1 receptor agonists in women with PCOS based on recent scientific studies. A review of clinical trials,

systematic reviews, and meta-analyses published between 2019 and 2026 was conducted using the PubMed scientific database.

Recent studies demonstrate that GLP-1 receptor agonists contribute to significant reductions in body weight, body mass index (BMI), and waist circumference in women with PCOS, particularly in patients with obesity and insulin resistance. In addition, these agents may improve insulin sensitivity and metabolic outcomes. Some studies also reported potential improvements in menstrual regularity and ovulatory function; however, current evidence regarding their effects on ovarian cysts, endocrine function, and reproductive outcomes remains limited and inconclusive. Liraglutide currently has the strongest clinical evidence among GLP-1 receptor agonists, while semaglutide and tirzepatide demonstrate promising therapeutic potential requiring further investigation.

GLP-1 receptor agonists may represent a promising therapeutic strategy for metabolic management in women with PCOS. Further long-term studies are needed to evaluate their reproductive and endocrine effects.

Key words:PCOS, GLP-1 receptor agonists, insulin resistance, obesity, infertility, semaglutide, liraglutide.