Therapeutic Effects of Glucagon-Like Peptide -1 Receptor Agonist in Adult Overweight and Obese Women with Polycystic Ovary Syndrome: A Narrative Review

Keli F, Panicker S

University of Nairobi, Kenya and University of Southwales, UK

Address for Correspondence: Dr. Florence Keli. Email: florencekariithi@gmail.com

Abstract

Background: Abnormal glucose metabolism, adiposity, and hyperandrogenism occur in polycystic Ovary Syndrome (PCOS) phenotypes.

Objectives: Lifestyle modification and metformin are mainstays in managing Insulin Resistance (IR) in PCOS. This narrative review evaluated the effects of glucagon-like-1 receptor agonists (GLP-1 RA) on IR, glucose metabolism, anthropometrics, lipids and androgens in women with excess weight and PCOS.

Methods: A logic criteria constructed based on the study question was used to assemble medical subheadings and synonyms for retrieval of articles published between 2013 and May 2023 in PubMed, EMBASE, EBSCO, Cochrane Library and MEDLINE. These filters; human studies, time and publications in English language were applied to select 56 out of 1012 articles retrieved. Data was extracted from 12 Randomized Control Trials (RCTs) identified from the 56 articles using a google questionnaire, RCTs were included if participants;

- Were aged ≥ 18 years.
- Had PCOS and excess weight.
- A GLP1-RAs was administered.

The quality of RCTs was assessed using the Critical Appraisal Skills Program assessment tool. Eliminated articles were; 4 duplicate RCTs, 12 RCTs not meeting inclusion criteria, 26 literature reviews, 2 systematic reviews and 2 metanalysis.

Results: Liraglutide, exenatide, semaglutide and dulaglutide improved ir and 2hour oral glucose tolerance. Liraglutide and exenatide caused ≥ 5%, semaglutide and dulaglutide, 7%, weight loss from the baseline weight. These agents reduced basal metabolic index and waist circumference. Liraglutide reduced triglycerides only while total-, low density-, triglyceride and high density-cholesterols improved with exenatide, dulaglutide and semaglutide. All the GLP-1 ras increased sex hormone binding globulins, reduced total testosterone, free androgen index and dehydroepiandrosterone sulphate.

Conclusions: Glucagon Like Peptide -1 Receptor agonists are potential add on therapy in managing IR, hyperglycemia, excess weight, hyperandrogenemia and dyslipidemia in women with PCOS. Importantly, these RCTs were conducted in women of non-African descent and outcomes may differ locally. Additionally, GLP-1 RAs cause increased gastrointestinal disturbance and are not cheap.

Key words: Glucagon-Like Peptide -1 Receptor agonist, Obese women, Polycystic ovary syndrome