# Medicine for Managers

Dr Paul Lambden BSc(Hons) MB BS BDS(Hons) FDSRCSEng MRCSEng LRCPLond DRCOG MIHSCM

# GLP-1

**GLP-1 receptor agonists are medication available on prescription in the UK. Their action is to mimic a gut hormone to regulate blood sugar, slow stomach emptying and reduce appetite. Although it is best known as a treatment for obesity and to promote weight loss, it is also used to manage blood glucose levels in Type 2 Diabetes and to assist in lowering risk of heart attack and stroke in high risk patients.**

This article is a departure from usual topics because this group of drugs are very interesting, and have benefits which may improve the health of the patients for whom they are indicated and prescribed.

***GLP-1*** receptor agonists (GLP is Glucagon-Like Peptide) have a number of actions. They:

- Act by imitating the gut hormone ***glucagon*** released following food consumption.
- Reduce the rate of stomach ***emptying.***
- Stimulate ***insulin release*** and thereby lower blood sugar.
- Notify the brain of ***fullness*** through a network of fast nerve signals and slower gut hormones. Stomach stretching triggers nerve impulses to the hypothalamus to stop hunger.

There are a number of such medications:

- ***Tirzepatide*** (**Mounjaro**) suggested by research to be the most effective for weight loss and blood sugar control. Given by weekly injection
- ***Semaglutide*** (**Ozempic**, **Wegovy**). Given by weekly injections or daily tablets
- ***Liraglutide*** (**Saxenda**). Given by daily injection.
- ***Exanatide*** (**Byetta**) One of the earliest formulations, given either by twice-daily injections or in extended release form as once-weekly injections

Although the GLP-1 receptor agonists imitate glucagon, some newer formulations such as **Mounjaro** act on a second hormone, ***GIP*** (Glucose-Dependent Insulinotropic Polypeptide) involved in appetite and blood sugar control.

The drugs are licensed by the ***MHRA*** (Medicines and Healthcare products Regulatory Agency) for weight loss and diabetic control (with reduced calorie intake and exercise) but are ***not*** licensed for weight loss for aesthetic or cosmetic purposes.

The drugs do have side effects which include:

- Nausea and Vomiting
- Diarrhoea and Constipation
- Bloating and abdominal pain
- Headaches, dizziness, weakness and mood changes

Although the side effects are generally mild, sometimes they are more pronounced leading to severe dehydration, requiring hospital admission. Rarely, they can cause acute pancreatitis (inflammation of the pancreas) with serious outcomes.

Women of child-bearing age should either desist from using the drugs or should use appropriate contraception to avoid pregnancy.

Some animal studies have shown harm to the unborn foetus, although no human studies have been reported. Contraceptive pill users should also exercise caution and use a barrier method in addition for four weeks after starting GLP-1 drugs because they reduce the effectiveness of oral contraceptives.

The drugs do cause reduced appetite as an intended effect, but patients should be monitored regularly to ensure that calorie intake does not fall too low.

GLP-1 drugs add an important component to the management of complications of diabetes and excessive weight gain, and have provided a game-changer for many patients. They typically produce a 15-22.5% reduction in weight over an average of seventy weeks, with *Tirzepatide* reported as the most effective. It is estimated that 1.5 million people currently access them to reduce hunger, manage blood sugar and to help them eat less.

Unlike many medicines, perhaps one of the most significant effects of the drugs is feeling well during use, possibly from the benefits of having a stable blood sugar, reduced inflammation, and the psychological relief associated with losing food cravings and the strain of food challenges, which provide extra energy and lifted mood.

paullambden@compuserve.com