GENERAL

OZEMPIC - THE NEW AND EMERGING WEIGHT LOSS TREATMENT

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Introduction

Ozempic is the **brand name of the marketed drug semaglutide**. Semaglutide belongs to the **glucagon-like peptide-1 (GLP-1) receptor agonist** class of drugs. Other brand names under which semaglutide is marketed are **Rybelsus tablets**, **Wegovy injection**. Ozempic does not have a generic version.

Ozempic is marketed as an **injection in the form of a pen** and is only available on a doctor?s prescription. The doses have to be taken according to the instructions of the doctor, and they can be s**elf-injected**. Ozempic has to be injected **subcutaneously**. Ozempic received FDA (Food and Drug Administration) approval for **treatment of type 2 diabetes** in the year 2017.

Mechanism of Action

Ozempic (semaglutide) is a glucagon-like peptide-1 (GLP-1) receptor agonist. **It mimics the activity and effect of GLP-1, a hormone that regulates amount of insulin released into the bloodstream after eating, gastric emptying and also regulates appetite and food intake.** Activation of the GLP-1 receptors will help increase insulin secretion and also reduce glucagon (hormone that helps increase blood sugar levels) release especially after a meal and will reduce blood glucose (sugar) levels.

GLP-1 receptor activation also **slows down gastric emptying**, reducing feelings of being hungry and thus reduces frequency of food intake, helping control blood sugar levels and eventually helping in weight loss. **Activation of GLP-1 receptors in the hypothalamus also increases feelings of being full (satiety) and hence reduces food cravings, contributing to weight loss.**

Uses/indications of Ozempic

Ozempic has been approved by the Food and Drug Administration (FDA) for:

1. **Reduction in blood sugar levels in patients with type-2 diabetes along with changes in diet and exercise.**
2. **Reducing the risk of serious cardiovascular events such as stroke, heart attack or death in patients with type 2 diabetes and heart disease.**

Ozempic is now increasingly being used off-label as a remedy for weight loss. FDA has not approved use of Ozempic for weight loss treatment.

Side effects of Ozempic (semaglutide)

The **common/mild side effects** associated with Ozempic use are:

1. Nausea
2. Headache
3. Vomiting
4. Diarrhoea
5. Burping

6. Passing gas (Flatulence).
7. Stomach upset.
8. Stomach pain.
9. Constipation.
10. Heartburn.
11. Dizziness, tiredness.

The **serious** side effects associated with Ozempic use are:

1. **Pancreatitis**: **Inflammation of the pancreas is known as pancreatitis**. The symptoms which are usually observed are- pain in the back and abdomen, swelling in the upper abdomen, nausea, vomiting, fever, unintended weight loss.
2. **Hypoglycemia (low blood sugar)**: The key symptoms observed are- dizziness, confusion, weakness, sweating, feeling hungry, anxiety, fast heartbeat, irritability.
3. **Diabetic retinopathy**: **Diabetic retinopathy is a condition observed in diabetic people in which there is damage to the blood vessels supplying the retina, leading to blurred vision, seeing dark spots, poor night vision. Use of Ozempic may worsen this condition.**
4. **Gallbladder problems:** Ozempic use can cause **cholelithiasis** and **cholecystitis**, which are known as **gallstones and can lead to inflammation of the gallbladder**. Other symptoms that can be caused indicating gallbladder issues are- fever, stomach pain, **clay-coloured stools**, **skin and the whites of the eyes turning yellow in colour (jaundice**).
5. **Kidney damage: This is one of the major life-threatening complications associated with Ozempic use**. The main symptoms observed are- reduced urge for urination, swelling in the ankles, feet, weakness or unexplained tiredness, shortness of breath, nausea.
6. **Thyroid cancer, also known as medullary thyroid carcinoma, is given as a boxed warning from the Food and Drug Administration (FDA) when it comes to use of Ozempic. The key symptoms observed are- a growth or lump in the neck, difficulty in swallowing, hoarse voice, breathing difficulty.**
7. **Allergic reactions**: Ozempic has been found to cause allergic reactions which maybe mild or severe. The symptoms observed are- **skin rashes, pale red bumps on the skin called hives, itching, fever, swelling in the eyelids, lips, hands, feet, lips, throat, tongue, mouth, breathing problems, dizziness, fainting, joint pain.**

If any of the above symptoms are observed and are not resolving quickly, the doctor may either discontinue Ozempic treatment or lower the dose considerably.

Contraindications of Ozempic

Ozempic **may not be prescribed/is contraindicated** for the following patients:

1. If the patient has a history of thyroid cancer such as medullary thyroid carcinoma or a rare form of cancer such as multiple endocrine neoplasia syndrome type 2, the doctor will not prescribe Ozempic because it carries a boxed warning from the FDA for these cancers.
2. If the patient has had a severe allergic/hypersensitivity reaction to other GLP-1 agonists earlier, Ozempic may or may not be prescribed. It should only be taken if the doctor recommends it.
3. If the patient has had a history of diabetic retinopathy, taking Ozempic may worsen the condition. Hence it will likely never be prescribed for patients with this condition.
4. If the patient has suffered or is suffering from any pancreatic disorder such as pancreatitis (inflammation of the pancreas) or any other pancreatic issues, Ozempic should only be taken if the doctor advises for the same.
5. If the patient has a history of kidney problems, taking Ozempic may be harmful because of cases of kidney damage due to Ozempic. For such patients, Ozempic should only be taken if the doctor gives his/her consent.

6. Pregnant women or women who plan to become pregnant should consult their doctor regarding Ozempic use. Though there is little evidence to show if Ozempic will harm the baby, women who are taking Ozempic and are planning to become pregnant should consult their doctor if there is a need to discontinue Ozempic.
7. If the patient is on any medications for diabetes, the doctor should be consulted before taking Ozempic due to high risk of severe hypoglycemia (low blood sugar).

Interactions

A number of medications that can interact with Ozempic are:

1. **Medications increasing insulin levels**: If the patient is already on medicines which help increase blood insulin levels such as glyburide, glipizide, glimepiride, insulin glargine, taking Ozempic together carries the risk of severe hypoglycemia (low blood sugar). Ozempic should only be taken on the doctor?s advice. If Ozempic has to be taken, the doctor will adjust the doses to prevent hypoglycemia.
2. **Oral medications**: If the patient is on any oral medications, taking Ozempic together will reduce the bioavailability of the oral medication. It is advised to take the oral medicine at least one hour before Ozempic injection.
3. **Herbs and natural supplements**: Taking Ozempic when already taking certain herbs and natural supplements may lead to hypoglycemia. It is best to consult the doctor before taking Ozempic with any herbs or natural supplements. Examples of such herbs are- gymnema, chromium, Banaba, bitter melon, alpha-lipoic acid.
4. **Alcohol:** Taking Ozempic with alcohol carries the risk of low blood sugar levels (hypoglycemia). If drinking alcohol regularly, the doctor?s advice should be taken before taking Ozempic.

How to use Ozempic

Ozempic is available as a liquid in a prefilled multi dose pen which can be set to deliver doses of 0.25, 0.5 and 1 mg (milligrams), depending on the doctor?s recommendation. This prefilled pen has to be injected in the abdominal, thigh or upper arm area.

Ozempic has to be injected only once a week at any time, with or without food. The day on which it is injected has to be kept the same every week. The pen should never be shared with anyone, even if the injection needle has been replaced.

The initial dose recommended is usually 0.25 mg which can be gradually increased to 0.5, 1 and 2 mg depending on the doctor?s recommendation.

Conclusion

Semaglutide as Ozempic has been in use for treatment of type 2 diabetes for the last few years with satisfactory outcomes. But the recent increase in Ozempic use for weight loss has become a cause for concern.

Ozempic has still not been approved by the Food and Drug Administration (FDA) for the purpose of losing weight. It is being prescribed by doctors for off-label use to reduce body weight. There is not enough evidence to prove the safety of Ozempic as a long-term treatment for weight loss. In animal trials, serious and life-threatening side effects as described earlier have come to light.

Hence, more clinical trials in humans are the need of the hour to determine long term efficacy as well as safety of Ozempic for use as a weight loss treatment so that in the hope of reducing weight, people?s lives are not put in grave danger.

Competing interests

The authors declare that they have no competing interests.

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