

GLEPTAL

Vildagliptin



Presentation:

GLEPTAL 50: Each tablet contains 50mg Vildagliptin in packs of 30 and 60 tablets. Hospital packs are also available (500 and 1000). Note: Not all pack sizes are available in all countries.

Excipients: Lactose Anhydrous, Silicified Microcrystalline Cellulose, Sodium Starch Glycolate, and Magnesium Stearate.

Pharmaceutical form: Tablets for oral use
Pharmaceutical therapeutic group: dipeptidyl-peptidase-4 (DPP-4) inhibitor, ATC code: A10BH02.

Therapeutic Indications:

GLEPTAL is indicated as an adjunct to diet and exercise in patients with type 2 diabetes mellitus as **monotherapy**.

- if diet and exercise are not sufficient

in dual combination with

- metformin when diet, exercise and metformin alone do not result in adequate glycaemic control
- a sulphonylurea (SU) when diet, exercise and a sulphonylurea alone do not result in adequate glycaemic control

- a thiazolidinedione (TZD) when diet, exercise and a thiazolidinedione alone do not result in adequate glycaemic control

in triple combination with

- metformin and a sulphonylurea when diet and exercise plus dual therapy with these agents do not result in adequate glycaemic control.

GLEPTAL is also indicated in combination with insulin (with or without metformin) when diet, exercise and a stable dose of insulin do not result in adequate glycaemic control.

Posology and method of administration:

The dosage of antidiabetic therapy should be individualized. The recommended dose of **GLEPTAL**, when used as monotherapy, is 50mg once or twice daily.

The recommended dose of **GLEPTAL**, when used in combination with insulin (with or without metformin), is 50 mg once or twice daily, depending on renal function.

The recommended dose of **GLEPTAL**, when used in combination with metformin or in combination with metformin and a sulphonylurea, is 50 mg twice daily.

The recommended dose of **GLEPTAL**, when used in combination with a sulphonylurea or a thiazolidinedione, is 50 mg once daily.

When used in combination with a sulphonylurea, a lower dose of the sulphonylurea may be considered to reduce the risk of hypoglycaemia. Dosage higher than 50mg twice daily is not recommended. The tablets can be taken with or without food.

Patients with renal impairment

No dosage adjustment of **GLEPTAL** is required in patients with mild renal impairment (creatinine clearance [CrCl] ≥ 50 mL/minute, corresponding to serum creatinine levels of ≤ 150 μ mol/litre in men and ≤ 133 μ mol/litre in women). The recommended dose in patients with moderate to severe renal impairment is **GLEPTAL** 50 mg once daily.

Patients with hepatic impairment

GLEPTAL is not recommended in patients with hepatic impairment, including patients with pre-treatment ALT or AST $> 2.5 \times$ ULN.

Elderly patients: No dosage adjustment is required in elderly patients.

Children and adolescents

The safety and efficacy of **GLEPTAL** have not been studied in patients under 18 years of age; therefore, the use of **GLEPTAL** in paediatric patients is not recommended.

Contra-indications:

Hypersensitivity to Vildagliptin or to any of the excipients.

Warnings and Precautions for use:

Management of diabetes should always also include diet control. Caloric reduction, weight loss and exercise are essential for the proper treatment of diabetic patients. This is true not only for primary treatment of diabetes, but also as an adjunct to drug therapy.

GLEPTAL should not be used in patients with type 1 diabetes or in patients with ketoacidosis.

Renal impairment

There is limited experience in patients with end-stage renal disease (ESRD) on haemodialysis. **GLEPTAL** should therefore be used with caution in these patients.

Creatinine clearance must be checked before the start of treatment and at regular intervals during treatment.

Hepatic impairment

GLEPTAL is not recommended in patients with hepatic impairment, including patients with pre-treatment ALT or AST $> 2.5 \times$ ULN.

Liver enzyme monitoring

Cases of hepatic dysfunction (including rare cases of hepatitis) have been reported. In these cases, the patients were generally asymptomatic without clinical sequelae, and liver function test (LFT) results returned to normal after discontinuation of treatment. LFTs should be performed prior to the initiation of treatment with **GLEPTAL** to determine the patient's baseline values. Hepatic function should be monitored during **GLEPTAL** treatment at three-month intervals during the first year and periodically thereafter. In patients who develop increased transaminase levels, this test should be repeated. If the results are confirmed, the patient should be monitored at frequent intervals until test results return to normal. Withdrawal of **GLEPTAL** is recommended in patients with elevated AST or ALT levels $\geq 3 \times$ ULN.

Patients who develop jaundice or other signs suggestive of liver dysfunction should discontinue treatment with **GLEPTAL**.

Following withdrawal of treatment with **GLEPTAL** and normalization of LFT results, treatment with **GLEPTAL** should not be reinitiated.

Pancreatitis

In post-marketing experience there have been spontaneously reported adverse reactions of acute pancreatitis. Patients should therefore be informed of the characteristic symptom of acute pancreatitis: persistent, severe abdominal pain. Resolution of pancreatitis has been observed after discontinuation of Vildagliptin. If pancreatitis is suspected, Vildagliptin and other potentially suspect medicinal products should be discontinued.

Heart failure

Experience with Vildagliptin therapy in patients with New York Heart Association (NYHA) class I-II heart failure is limited. Vildagliptin should be used with caution in these patients. There is no experience of Vildagliptin use in clinical trials in patients with NYHA functional class III-IV and therefore use is not recommended in these patients.

Skin disorders

Skin lesions, including blistering and ulceration, have been reported on the extremities of monkeys in non-clinical toxicology studies. Although no increased incidence of skin lesions was observed in clinical trials, there is only limited experience in patients with diabetic skin complications. Therefore, in keeping with routine care of diabetic patients, monitoring for skin disorders, such as blistering or ulceration, is recommended.

Hypoglycaemia

Patients receiving Vildagliptin in combination with a sulphonylurea or insulin may be at increased risk of hypoglycaemia. A lower dose of sulphonylurea or insulin should therefore be considered in order to reduce the risk of hypoglycaemia.

GLEPTAL tablets contain lactose. Patients with rare hereditary galactose intolerance, severe lactase deficiency or glucose-galactose malabsorption should not take **GLEPTAL** tablets.

Effects on ability to drive and use machines

There have been no studies of the effects of this product on the ability to drive or use machines. Patients who experience dizziness should thus avoid driving vehicles or using machines.

Use During Pregnancy and Lactation: Pregnancy

Fertility studies have been performed in rats at doses up to 200 times the human dose and have revealed no evidence of impaired fertility or early embryonic development due to Vildagliptin. Vildagliptin was not teratogenic in either rats or rabbits. There are, however, no adequate and well-controlled studies in pregnant women, and therefore Vildagliptin should not be used during pregnancy unless clearly necessary.

Animal studies are not always predictive of human response. Because current information strongly suggests that abnormal blood glucose levels during pregnancy are associated with a higher incidence of congenital anomalies as well as increased neonatal morbidity and mortality, most experts recommend that insulin monotherapy be used during pregnancy to maintain blood glucose levels as close to normal as possible.

Lactation

As it is not known whether Vildagliptin is excreted in breast milk, **GLEPTAL** should not be

administered to breast-feeding women. Studies in lactating rats have shown excretion in milk.

Drug Interactions:

Since Vildagliptin neither inhibits nor induces CYP450 enzymes, it is not likely to interact with co-medications that are metabolized by CYP450 or that act as inhibitors or inducers of these enzymes.

Drug interaction studies were conducted with commonly co-prescribed medications for patients with type 2 diabetes or medications with a narrow therapeutic window. As a result of these studies, no clinically relevant interactions with other oral antidiabetics (glibenclamide, pioglitazone, metformin), amlodipine, digoxin, ramipril, simvastatin, valsartan or warfarin, were observed after co-administration with Vildagliptin.

Undesirable effects:

Rare cases of angioedema were reported with Vildagliptin at a similar rate to the control group. A greater proportion of cases was reported when Vildagliptin was administered in combination with an ACE inhibitor. The majority of the events were mild in severity and resolved with ongoing Vildagliptin treatment.

In comparative controlled monotherapy studies, hypoglycaemia was uncommon.

Adverse effects reported in patients who received **GLEPTAL** in double-blind studies as monotherapy and add-on therapy are listed below by system organ class and absolute frequency. Frequencies are defined as follows: Very common ($\geq 1/10$), common ($\geq 1/100$ to $< 1/10$), uncommon ($\geq 1/1000$ to $< 1/100$), rare ($\geq 1/10000$ to $< 1/1000$), very rare ($< 1/10000$), not known (cannot be estimated from the available data). Within each frequency grouping, adverse effects are ranked in order of decreasing seriousness.

Infections and infestations: Very rare:

Upper respiratory tract infections, nasopharyngitis.

Nervous system disorders: Common:

Dizziness, tremor. Uncommon: Headache, fatigue.

Vascular disorders: Uncommon: Peripheral oedema (common when **GLEPTAL** is combined with a TZD).

Gastrointestinal disorders: Common:

Nausea. Uncommon: Constipation.

Hepatic disorders: Rare:

Elevated transaminase levels.

Musculoskeletal disorders: Uncommon:

Arthralgia.

Metabolism disorders: Uncommon:

Hypoglycaemia (common in combination therapy with metformin or a sulphonylurea), weight increase (common when **GLEPTAL** is combined with a TZD).

General disorders: Uncommon:

Asthenia. **Post-marketing experience:** The following additional adverse drug reactions have been reported during the post-marketing period:

Rare cases of hepatitis that resolved following discontinuation of **GLEPTAL**.

Frequency not known:

Urticaria, pancreatitis, bullous eruptions, localized exfoliation or blistering of the skin. Combination of Vildagliptin with insulin (with/without metformin).

The incidence of hypoglycaemia in the controlled clinical studies conducted was similar in both treatment groups (14.0% of patients on Vildagliptin vs. 16.4% of patients on placebo). Severe hypoglycaemia occurred in $n = 2$ patients on Vildagliptin vs. $n = 6$ on placebo. The overall effect on mean weight was small in both treatment groups ($+ 0.6$ kg on Vildagliptin vs. ± 0 kg on placebo).

The following adverse effects occurred in these studies:

Metabolism and nutrition disorders

Common: Decreased blood glucose.

Nervous system disorders: Common:

Headache, chills.

Gastrointestinal disorders: Common:

Nausea, gastro-oesophageal reflux disease.

Uncommon: Diarrhoea, flatulence.

Discontinuations due to these adverse effects were rare overall.

Combination with metformin and a sulphonylurea

Hypoglycaemia was common in both treatment groups (5.1% for Vildagliptin + metformin + glibenclamide vs. 1.9% for placebo + metformin + glibenclamide). One severe hypoglycaemic event was reported in the Vildagliptin group. At the end of the study, the effect on mean body weight was small ($+ 0.6$ kg in the Vildagliptin group and 0.1 kg in the placebo group).

Adverse effects in patients who received GLEPTAL 50 mg twice daily in combination with metformin and a sulphonylurea ($n = 157$):

Metabolism and nutrition disorders

Common: Hypoglycaemia.

Nervous system disorders: Common:

Dizziness, tremor.

Skin disorders: Common:

Hyperhidrosis.

General disorders: Common:

Asthenia.

Overdose: Oedema and muscle pain were dose-limiting in clinical trials. At 600 mg, one subject experienced oedema of the hands and feet, and an excessive increase in creatine phosphokinase (CPK) levels, accompanied by elevated levels of aspartate aminotransferase (AST), C-reactive protein and myoglobin. Three additional subjects in this group presented with oedema of both feet, accompanied by paraesthesia in two cases. All symptoms and laboratory abnormalities resolved after study-drug discontinuation.

In case of overdose, **GLEPTAL** should be withdrawn and the patient should be given symptomatic and supportive treatment.

GLEPTAL is not dialyzable; however, the major hydrolysis metabolite can be removed by haemodialysis.

Pharmacological Properties

GLEPTAL (Vildagliptin) is a dipeptidyl-peptidase-4 (DPP-4) inhibitor.

Administration of Vildagliptin inhibits DPP-4 activity, resulting in increased fasting and postprandial endogenous levels of the incretin hormones GLP-1 (glucagon-like peptide 1) and GIP (glucose-dependent insulinotropic polypeptide). By increasing the endogenous levels of these incretin hormones, Vildagliptin enhances the sensitivity of beta cells to glucose, resulting in improved glucose-dependent insulin secretion. Treatment with 50 to 100 mg Vildagliptin daily in patients with type 2 diabetes significantly improved markers of beta cell function, including HOMA- β (Homeostasis Model Assessment- β), proinsulin to insulin ratio and measures of beta cell responsiveness from the frequently employed meal tolerance test. In non-diabetic (normoglycaemic) individuals, Vildagliptin does not stimulate insulin secretion or reduce glucose levels.

By increasing endogenous GLP-1 levels, Vildagliptin enhances the sensitivity of alpha cells to glucose, resulting in more glucose-appropriate glucagon secretion.

The enhanced increase in the insulin/glucagon ratio during hyperglycaemia due to increased incretin hormone levels results in a decrease in fasting and postprandial hepatic glucose production, leading to reduced glycaemia.

Pharmacokinetics

Linearity: Vildagliptin is rapidly absorbed with an oral bioavailability of 85%.

Absorption: Vildagliptin is rapidly absorbed with peak plasma concentrations reached after about 1 hour. Ingestion of food has no relevant effect on absorption. Food does not alter overall exposure (AUC).

Distribution: The plasma protein binding of Vildagliptin is low (9.3%), and Vildagliptin distributes equally between plasma and red blood cells. The mean volume of distribution of Vildagliptin at steady state after intravenous administration (Vss) is 71 litres.

Metabolism: Vildagliptin is largely metabolized (69% of the dose), partly by DPP-4. The major metabolite, LAY151 (57% of the dose), which is formed by hydrolysis, is inactive. There is also an amide hydrolysis product (4% of the dose). Vildagliptin is not metabolized by cytochrome P450 enzymes.

Elimination: 85% of the dose is excreted in the urine and 15% of the dose is recovered in the faeces. Unchanged Vildagliptin accounts for 23% of the dose. The elimination half-life is approximately 3 hours.

Pharmacokinetics in special patient populations

No differences in the pharmacokinetics of Vildagliptin have been observed between men and women.

Elderly patients: Plasma concentrations are elevated in patients over 70 years of age. However, the change in exposure to Vildagliptin is not clinically relevant.

Children: The pharmacokinetics have not been studied.

Special precautions for storage:

Do not store above 30°C.

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This is a medication
• A medication is a product which affects your health, and its consumption contrary to instructions is dangerous for you.
• Follow strictly the doctor's prescription, the method of use and the instructions of the pharmacist who sold the medication.
• The doctor and the pharmacist are experts in medicine, its benefits and risks.
• Do not by yourself interrupt the period of treatment prescribed for you.
• Do not repeat the same prescription without consulting your doctor.
• Keep medication out of the reach of children.
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