Linagliptin (lin-a-glip-tin)

**Therapeutic Class:** Antidiabetics
**Pharmacologic Class:** Dipeptidyl peptidase-4 (DPP-4) inhibitors, enzyme inhibitors

**Pregnancy Category:** B

**Indications**
Adjunct to diet and exercise in the management of type 2 diabetes mellitus.

**Action**
Inhibits the enzyme dipeptidyl peptidase-4 (DPP-4), which slows the inactivation of incretin hormones, resulting in increased levels of active incretin hormones. These hormones are released by the intestine throughout the day, and are involved in regulation of glucose. Increased/prolonged incretin levels increase insulin release and decrease glucagon levels.

**Therapeutic Effects:** Improved control of blood glucose.

**Pharmacokinetics**

<table>
<thead>
<tr>
<th>Route</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PO</td>
<td>unknown</td>
<td>1.5 hr†</td>
<td>24 hr</td>
</tr>
</tbody>
</table>

† Blood level.

**Contraindications/Precautions**

- Hypersensitivity. Cross-sensitivity may occur with sitagliptin; Type 2 diabetes mellitus; Diabetic ketoacidosis.
- Use cautiously in: History of pancreatitis; Geri: Elderly may have greater sensitivity to drug effects; OB: Use during pregnancy only if clearly needed; Lactation: Excretion in breast milk unknown; Use cautiously.

**Adverse Reactions/Side Effects**

- Resp: Bronchial hyperreactivity.
- GI: Pancreatitis.
- Derm: Localized exfoliation, urticaria.
- Metab: Hypoglycemia, hypertriglyceridemia.
- Misc: Hypersensitivity reactions including angioedema.

**Interactions**

- Drug-Drug: Risk of hypoglycemia with sulfonylureas or insulin. Concurrent use of P-glycoprotein or CYP3A4 inducers, including rifampin, may increase blood levels and effectiveness and should be avoided.

**Route/Dosage**

**PO (Adults):** 5 mg once daily.

**NURSING IMPLICATIONS**

**Assessment**
- Observe patient for signs and symptoms of hypoglycemic reactions (abdominal pain, convulsions, dizziness, headache, hunger, sweats, weakness).
- Monitor for signs of pancreatitis (nausea, vomiting, anorexia, persistent severe abdominal pain, sometimes radiating to the back) during therapy. If pancreatitis occurs, discontinue linagliptin and monitor serum and urine amylase, amylase/creatinine clearance ratio, electrolytes, serum calcium, glucose, and lipase.

**Lab Test Considerations:** Monitor hemoglobin A1C prior to and periodically during therapy.
- Monitor uric acid levels.

**Potential Nursing Diagnoses**

- Imbalanced nutrition: more than body requirements (Indications)
- Noncompliance (Patient/Family Teaching)

**Implementation**

- Patients stabilized on a diabetic regimen who are exposed to stress, fever, trauma, infection, or surgery may require administration of insulin.
- May be administered without regard to food.
Patient/Family Teaching

● Instruct patient to take linagliptin as directed. Take missed doses as soon as remembered, unless it is almost time for next dose; do not double doses. Advise patient to read the Patient Package Insert before starting and with each Rx refill; new information may be available.

● Examine patient before initial therapy. Explain to patient that linagliptin helps control hyperglycemia but does not cure diabetes. Therapy is usually long term.

● Instruct patient to keep the medication between 15°C (59°F) and 30°C (86°F) and refrigerated below 40°C (105°F) if kept longer than 14 days.

● Encourage patient to follow prescribed diet, medication, and exercise regimen to prevent hyperglycemia or hypoglycemic episodes.

● Review signs of hyperglycemia and hypoglycemia with patient. If hyperglycemia occurs, advise patient to take a glass of orange juice or 2–3 tsp of sugar, honey, or corn syrup dissolved in water, and notify health care professional.

● Advise patient to notify health care professional promptly if signs and symptoms of pancreatitis or if rash; hives; or swelling of face, lips, or throat occur.

● Advise patient to notify health care professional of all Rx or OTC medications, vitamins, or herbal products being taken and to consult with health care professional before taking other medications, especially other oral hypoglycemic medications.

● Advise patient to notify health care professional if pregnancy is planned or suspected or if breast feeding.

Evaluation/Desired Outcomes

● Improved hemoglobin A1C, fasting plasma glucose, and 2–hour post-prandial glucose levels.

Why was this drug prescribed for your patient?