**Pantoprazole**  (pan-toe-pra-zole)

**Classification**
Therapeutic: acid-lowering agents
Pharmacologic: proton-pump inhibitors

**Pregnancy Category B**

**Indications**
Erosive esophagitis associated with GERD. Decrease relapse rates of daytime and nighttime heartburn symptoms in patients with GERD. Pathologic gastric hypersecretory conditions. Enlisted Use: Adjunctive treatment of duodenal ulcers associated with *Helicobacter pylori*.

**Action**
Binds to an enzyme in the presence of acidic gastric pH, preventing the final transport of hydrogen ions into the gastric lumen.

**Therapeutic Effects:**
Diminished accumulation of acid in the gastric lumen, with lessened acid reflux. Healing of duodenal ulcers and esophagitis. Decreased acid secretion in hypersecretory conditions.

**Pharmacokinetics**
Absorption: Tablet is enteric-coated; absorption occurs only after tablet leaves the stomach.

Distribution: Unknown.

Protein Binding: 98%.

Metabolism and Excretion: Mostly metabolized by the liver via the cytochrome P450 (CYP) system (primarily CYP2C19 isoenzyme, but also the CYP3A4 isoenzyme) (the CYP2C19 enzyme system exhibits genetic polymorphism; 15–20% of Asian patients and 3–5% of Caucasian and Black patients may be poor metabolizers and may have significantly q pantoprazole concentrations and an q risk of adverse ef-
fects); inactive metabolites are excreted in urine (71%) and feces (18%).

Half-life: 1 hr.

**TIME/ACTION PROFILE (effect on acid secretion)**

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PO</td>
<td>2.5 hr</td>
<td>unknown</td>
<td>1 wk</td>
</tr>
<tr>
<td>IV</td>
<td>15–30 min</td>
<td>2 hr</td>
<td>unknown</td>
</tr>
</tbody>
</table>

†Onset: 51% inhibition; duration: return to normal following discontinuation.

**Contraindications/Precautions**
Contraindicated in: Hypersensitivity; OB: Should be used during pregnancy only if clearly needed; Lactation: Discontinue breast feeding due to potential for serious adverse reactions in infants.

Use Cautiously in:
Patients using high-doses for >1 year (q risk of hip, wrist, or spine fractures); Pedi: Safety not established.

**Adverse Reactions/Side Effects**
CNS: headache.

GI: PSEUDOMEMBRANOUS COLITIS, abdominal pain, diarrhea, eructation, flatulence.

Endo: hyperglycemia.

F and E: hypomagnesemia (especially if treatment duration >3 mo).

MS: bone fracture.

**Interactions**
Drug-Drug: May p absorption of drugs requiring acid pH, including ketoconazole, itraconazole, atazanavir, ampicillin esters, and iron salts. May q risk of bleeding with warfarin (monitor INR/PT). May q risk of digoxin toxicity. May q methotrexate levels.

**Route/Dosage**

**GERD**

PO (Adults): 40 mg once daily.

PO (Children ≥5 yr): 15–20 mg once daily for up to 8 wk; ≤40 kg—40 mg once daily for up to 8 wk.

IV (Adults): 40 mg once daily for 7–10 days.

**Gastric Hypersecretory Conditions**

PO (Adults): 40 mg twice daily; up to 120 mg twice daily.

IV (Adults): 80 mg, 120 mg (maximum 240 mg/day).

**NURSING IMPLICATIONS**

**Assessment**
• Assess patient routinely for epigastric or abdominal pain and for frank or occult blood in stool, emesis, or gastric aspirate.

**Potential Nursing Diagnoses**
• Pain (related to gastric ulceration or esophagitis) • Knowledge deficit related to medication regimen
Lab Test Considerations: May cause abnormal liver function tests, including AST, ALT, alkaline phosphatase, and bilirubin.

Monitor serum magnesium prior to and periodically during therapy.

Pantoprazole

Potential Nursing Diagnoses

Acute pain (Indications)

Implementation

- Do not confuse Protonix (pantoprazole) with Lotronex (alosetron) or prepdine.
- Patients receiving pantoprazole IV should be converted to PO dosing as soon as possible.
- Monitor bowel function. Diarrhea, abdominal cramping, fever, and bloody stools should be reported to the healthcare professional promptly as a sign of pseudomembranous colitis. May begin up to several weeks following cessation of therapy.
- PO: May be administered with or without food. Do not break, crush, or chew tablets.
- Antacids may be used concurrently.

IV Administration

- IV: Reconstitute each vial with 10 mL of 0.9% NaCl. Reconstituted solution is stable for 6 hr at room temperature.
- Direct IV: Diluent: Administer undiluted. Concentration: 4 mg/mL. Rate: Administer over at least 2 min.
- Interim Infusion: Diluent: Further dilute with D5W, 0.9% NaCl, or LR. Concentration: 0.4–0.8 mg/mL. Diluted solution is stable for 24 hr at room temperature. Rate: Administer over 15 min at a rate of 3 mg/min.

Y-Site Compatibility: Refer to manufacturer's labeling for compatibility with other medications.

Y-Site Incompatibility: Refer to manufacturer's labeling for incompatibility with other medications.

Patient/Family Teaching

- Instruct patient to take medication as directed for the full course of therapy, even if feeling better.
- Advise patient to avoid alcohol, products containing aspirin or NSAIDs, and foods that may cause an increase in GI irritation.
- Advise patient to report onset of black, tarry stools; diarrhea; or abdominal pain to the healthcare professional promptly.
- Instruct patient to notify healthcare professional immediately if rash, diarrhea, abdominal cramping, fever, or bloody stools occur and not to treat with antidiarrheals without consulting the healthcare professional.
- Instruct patient to notify healthcare professional of all Rx or OTC medications, vitamins, or herbal products being taken and consult healthcare professional before taking any new medications.

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pantoprazole

Advise female patients to notify health care professional if pregnancy is planned or suspected and to breast feed.

Evaluation/Desired Outcomes

- Decrease in abdominal pain, heartburn, gastric irritation and bleeding in patients with GERD; may require up to 4 wk of therapy.
- Healing in patients with erosive esophagitis. Therapy is continued for up to 8 wk.

Why was this drug prescribed for your patient?