epoprostenol (e-poe-pros-te-nole)

Flolan, Prostacyclin, Prostaglandin I2 (PGI2), Prostaglandin X (PGX), Veletri

**Classification**
Therapeutic: vasodilators
Pharmacologic: prostaglandins, vasodilators

**Pregnancy Category B**

**Indications**
Pulmonary arterial hypertension (WHO Group I).

**Action**
A prostaglandin that directly dilates pulmonary and systemic arterial vasculature. Also inhibits platelet aggregation.

**Therapeutic Effects:**
Improved exercise capacity.

**Pharmacokinetics**

<table>
<thead>
<tr>
<th>Route</th>
<th>Onset</th>
<th>Peak</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV</td>
<td>rapid (within min)</td>
<td>unknown</td>
<td>2–3 min†</td>
</tr>
</tbody>
</table>

†Following discontinuation

**Contraindications/Precautions**
Contraindicated in: Hypersensitivity to epoprostenol or similar compounds; HF due to severe left ventricular systolic dysfunction; Patients who develop pulmonary edema during dose initiation.

Use Cautiously in:
Geri: Dose adjustments may be necessary;
OB, Lactation; Pedi: Safety not established.

**Adverse Reactions/Side Effects**

- CNS: anxiety, headache, dizziness
- Resp: dyspnea, pulmonary edema
- CV: chest pain, hypotension, bradycardia
- GI: nausea, vomiting, abdominal pain, diarrhea
- Derm: flushing, rash
- MS: myalgia, jaw pain
- Hemat: bleeding, thrombocytopenia
- Other: flu-like symptoms, injection site reactions

**Interactions**
Drug-Drug: Additive hypotension may occur with antihypertensives, diuretics, or other vasodilators. Although concurrent use is common and accepted, risk of bleeding may be increased by anticoagulants or other agents affecting platelet function.

**NURSING IMPLICATIONS**

**Assessment**
- Monitor hemodynamic parameters (cardiac index, mean pulmonary arterial pressure, pulmonary vascular resistance, total pulmonary resistance, mean systemic arterial pressure) frequently during acute dose ranging and periodically during chronic infusions.
- Acute Dose Ranging: Monitor for dose-limiting side effects (nausea, vomiting, headache, abdominal pain, chest pain, flushing, flushing, chest pain, anxiety, dizziness, hypotension, hypoxia) frequently.
- Chronic Infusion: Monitor BP (supine and standing) and heart rate closely for several hours after dose adjustments.
- Make dose adjustments during chronic therapy at the first sign of recurrence or worsening of symptoms of pulmonary hypertension or adverse effects of epoprostenol.
- Most common adverse effects occurring during chronic therapy include headache, jaw pain, flushing, diarrhea, nausea, vomiting, flu-like symptoms, and anxiety.

**Potential Nursing Diagnoses**
- Decreased cardiac output (Indications)
- Ineffective tissue perfusion (Adverse Reactions)
- Deficient knowledge, related to medication regimen (Patient/Family Teaching)

**Patient/Family Teaching**
- Notify health care professional immediately if significant adverse effects occur.
- Patient should have personal contact information available.
- Essential therapy includes monthly laboratory tests and close ambulatory monitoring.
Implementation

IV Administration

Anticoagulant therapy is usually administered concurrently, unless contraindi-
cated, to decrease the risk of pulmonary or systemic embolism.

Administer via peripheral infusion during acute dose ranging and by chronic
continuous infusion via Broviac or Hickman central venous catheter using a
programmable ambulatory infusion pump for chronic administration.

Continuous Infusion: Diluent: For either the 3000- or 5000-ng/mL concen-
tration, dissolve contents of one 0.5-mg vial with 5 mL of sterile diluent for epo-
prostenol. Withdraw 3 mL for the 3000-ng/mL concentration and add a sufficient quantity of ster-
ile diluent for epoprostenol to make a total of 100 mL. Concentration: 3000
ng/mL or 5000 ng/mL.

Diluent: For the 10,000-ng/mL concentration, dissolve the contents of one 0.5-mg vial with 5 mL of sterile diluent for epoprostenol. Withdraw the entire vial contents, and add to a sufficient quantity of sterile diluent for epoprostenol to make a total of 100 mL. Concentration: 10,000 ng/mL.

Diluent: For the 15,000-ng/mL concentration, dissolve the contents of one 0.5-mg vial with 5 mL of sterile diluent for epoprostenol or with 5 mL of 0.9% NaCl or Sterile Water for Injection if using Veletri. Withdraw the entire vial contents, and add to a sufficient quantity of sterile diluent to make a total of 100 mL; use same diluent as for reconstitution with Veletri. Do not re-
constitute or mix with any other parenteral medications or solutions. Concentra-
tion: 15,000 ng/mL.

May require more than one solution strength during acute dose ranging. Usually
3000 and 10,000 ng/mL are used to deliver an infusion rate between 2–16 ng/
kg/min.

Unopened vials and reconstituted solutions must be protected from light. Recon-
situted solutions are stable for 8 hr at room temperature or 48 hr if refrigerated.
Do not freeze. Unopened reconstituted solutions that have been frozen, have been
reconstituted more than 48 hr, or have been at room temperature for more than 8
hr.

Solutions have been administered while in cold pouches. May be administred
while in cold pouches with frozen gel packs over 24 hr, with gel packs changed
every 12 hr. Note: Infusion rate usually ranges from 2–16 ng/kg/min in adults.

Patient/Family Teaching

Home Care Issues:

Instruct patient on reconstitution, administration, and care
of the permanent central venous catheter.

Advise patient of the importance of continuous therapy. Inform patient that even
brief interruptions of the infusor rate cause symptoms of rebound pulmonary hy-
pertension (dyspnea, dizziness, asthenia). Provide patient with access to a backup
infusion pump and intravenous infusion sets to prevent potential interruptions in
drug delivery. Also inform patients that therapy may be prolonged, possibly lasting
years.

Evaluation/Desired Outcomes

Increase in cardiac index and stroke volume and decrease in pulmonary vascular
resistance, total pulmonary resistance, and mean systemic arterial pressure in pa-
tients with PPH.

Why was this drug prescribed for your patient?