**Deferasirox (de-fe-raz-a-zo-rx)**

**Use**

**Therapeutic Class:** Antidotes

**Pharmacologic Class:** Chelating Agents

**Pregnancy Category:** B

**Indications**

Chronic iron overload due to blood transfusions. Chronic iron overload in non-transfusion dependent thalassemia syndromes in patients with a liver iron concentration of >5 mg/g of liver dry weight and a serum ferritin >300 mcg/L.

**Action**

Selectively chelates iron and eliminates it in feces. Therapeutic Effects: Decreased iron with decreased sequelae of iron excess (hemosiderosis).

**Pharmacokinetics**

**Absorption:** Well absorbed (70%) following oral administration, absorption is lower in children.

**Distribution:**

**Protein Binding:** 99%.

**Metabolism and Excretion:** Mostly metabolized by the liver, followed by enterohepatic recycling. 84% excreted in feces (deferasirox and metabolites); minimal renal excretion.

**Half-life:** 8–16 hr.

**TIME/ACTION PROFILE (blood level)**

<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>1.5–4 hr</td>
<td>24 hr</td>
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**Contraindications/Precautions**

- Use cautiously in: Renal impairment (risk of worsening renal function); Mild or moderate hepatic impairment; GI: risk of oral ulceration and GI hemorrhage. PO: Use cautiously if renal or hepatic impairment; Platelet count <50,000/mm^3; Severe hepatic impairment.

**Adverse Reactions/Side Effects**

- **CNS:** Headache, dizziness.
- **EENT:** Hearing loss, ocular disturbances.
- **Resp:** Cough.
- **GI:** Abdominal pain, drug-induced hepatitis, nausea.
- **GU:** Renal failure.
- **Hemat:** Agranulocytosis, neutropenia, thrombocytopenia, worsening anemia.
- **MS:** Arthralgia.

**Interactions**

- **Drug-Drug:** Aluminum-containing antacids may affect effectiveness. Cholestyramine, colestipol, phenoxybenzamine, and imipramine may affect effectiveness; avoid concurrent use or decrease dose. Avoid concurrent use with other iron chelators. Risk of GI bleeding ulceration with NSAIDs, corticosteroids, bisphosphonates, or anticoagulants. May affect levels of CYP3A4 substrates.

**Route/Dosage**

**Chronic Iron Overload Due to Blood Transfusions**

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>DOSAGE</th>
<th>COMMENTS</th>
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| PO (Adults and Children ≥2 yr) | 20 mg/kg/day; adjusted by 5–10 mg/kg every 3–6 mos on the basis of serum ferritin levels (not to exceed 30 mg/kg/day) | PO: Use cautiously if renal or hepatic impairment; PO: Use cautiously if renal or hepatic impairment; PO: Use cautiously if renal or hepatic impairment; PO: Use cautiously if renal or hepatic impairment; PO: Use cautiously if renal or hepatic impairment; PO: Use cautiously if renal or hepatic impairment; PO: Use cautiously if renal or hepatic impairment; PO: Use cautiously if renal or hepatic impairment; PO: Use cautiously if renal or hepatic impairment; PO: Use cautiously if renal or hepatic impairment; PO: Use cautiously if renal or hepatic impairment; PO: Use cautiously if renal or hepatic impairment; PO: Use cautiously if renal or hepatic impairment; PO: Use cautiously if renal or hepatic impairment; PO: Use cautiously if renal or hepatic impairment; PO: Use cautiously if renal or hepatic impairment; PO: Use cautiously if renal or hepatic impairment; 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Hepatic Impairment (Adults and Children ≥ 12 yr):

Moderate hepatic impairment (Child-Pugh B)—

initial dose by 50%.

Renal Impairment (Adults and Children ≥ 12 yr):

CCr 40–60 mL/min—

initial dose by 50%.

Chronic Iron Overload in Non-Transfusion Dependent Thalassemia Syndromes

PO (Adults and Children ≥ 12 yr): 10 mg/kg/day; if baseline liver iron concentration >15 mg/g dry weight, consider 75% dose in 2 or 3 divided doses. If liver iron concentration remains >15 mg/g liver dry weight after 4 wk, continue therapy with no more than 10 mg/kg/day. When liver iron concentration <15 mg/g liver dry weight, may discontinue therapy (restart when liver iron concentration >15 mg/g liver dry weight).

Hepatic Impairment (Adults and Children ≥ 10 yr):

Moderate hepatic impairment (Child-Pugh B)—

initial dose by 50%.

Renal Impairment (Adults and Children ≥ 2 yr):

CCr 40–60 mL/min—

initial dose by 50%.

NURSING IMPLICATIONS

Assessment

● Assess hearing and vision (split lamp and dilated fundoscopy) prior to and periodically during therapy. May cause high frequency hearing loss and visual disturbances (lens opacities, cataracts, increased intraocular pressure, retinal disorders).

● Assess patient for rash during therapy. Mild to moderate rashes usually resolve without change in dose. If severe rash occurs, deferasirox may be interrupted and reintroduced at a lower dose with escalation and a short period of oral steroid administration.

● Assess for GI pain and bleeding during therapy; especially in patients receiving medications that increase risk of bleeding (NSAIDs, corticosteroids, oral bisphosphonates, or anticoagulants).

● Lab Test Considerations: Prior to starting therapy measure serum ferritin level, baseline serum creatinine in duplicate, creatinine clearance, serum transaminases and bilirubin, and baseline auditory and ophthalmic examinations. Evidence of chronic iron overload is considered with a transfusion of 100 mL/kg of packed red blood cells and a serum ferritin consistently >1000 mcg/L. Measure serum ferritin monthly to assess response and to evaluate overchelation of iron. Make dose adjustments every 3–6 mo in steps of 3–5 or 5–10 mg/kg based on serum ferritin. If serum ferritin consistently falls below 500 mcg/L, temporary interruption of therapy should be considered. In Non-Transfusion Dependent Thalassemia Syndromes, iron overload is considered when liver iron concentration (LIC) is at least 5 mg Fe/g dry weight and serum ferritin greater than 300 mcg/L. Monitor serum ferritin monthly. If serum ferritin >300 mcg/L, obtain an LIC to determine whether LIC has fallen to <3 mg Fe/g dw. Monitor LIC every 6 months. After 6 months of therapy, if the LIC remains >3 mg Fe/g dw, increase dose of deferasirox. If after 6 months of therapy, LIC is 3–5 mg Fe/g dw, continue treatment deferasirox at an initial dose of 10 mg/kg/day. When LIC is <3 mg Fe/g dw, interrupt therapy and continue to monitor LIC.

● Monitor blood counts periodically during therapy. Interrupt therapy if blood counts drop until cause is determined. Do not administer if platelet counts <50 x 10^9/L.

● Monitor serum creatinine prior to and weekly during first month or modification of dose and at least monthly thereafter. Measure serum creatinine and/or creatinine clearance more frequently if creatinine levels are increasing. Elevations require dose reduction, interruption, or discontinuation.

● Monitor liver function tests every 2 wk during first month and monthly during therapy. May cause q AST and ALT.

● Monitor urine protein periodically during therapy.

Potential Nursing Diagnoses

Deficient knowledge, related to medication regimen (Patient/Family Teaching)

Implementation

● PO: Administer once daily on an empty stomach at least 30 min prior to food, preferably at the same time each day. Do not chew or swallow tablet whole. Tablets must be completely dispersed in water, orange juice, or apple juice and the resulting suspension drank immediately. Retain small amount of liquid in mouth and drink.

● Do not administer aluminum-containing antacids simultaneously with deferasirox.

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CONTINUED
**Patient/Family Teaching**

- Instruct patient to take deferasirox as directed at same time each day.
- Advise patient to take aluminum-containing antacids containing amounts with deferasirox.
- May cause dizziness. Advise patient to avoid driving and other activities requiring alertness until response to medication is known.
- Advise patient to maintain adequate hydration if vomiting or diarrhea occurs.
- Advise patient to notify health care professional if rash, stomach pain, bleeding, or changes in vision or hearing occur.
- Instruct patient to notify health care professional of all Rx or OTC medications, vitamins, or herbal products being taken and to consult health care professional before taking any other Rx, OTC, or herbal products.

**Evaluation/Desired Outcomes**

- Decreased iron with decreased sequelae of iron excess (hemosiderosis).

*Why was this drug prescribed for your patient?*