digoxin immune Fab (digoxin immune globulin fragment) (Digibind, DigiFab)

**Classification**
Therapeutic: antidotes
Pharmacologic: antibody fragments

**Pregnancy Category C**

**Indications**
Serious life-threatening toxicity caused by digoxin.

**Action**
An antibody produced in sheep that binds antigenically to unbound digoxin in serum. Prevents toxic effects in overdose.

**Pharmacokinetics**

- **Absorption:** Administered IV only, resulting in complete bioavailability.
- **Distribution:** Widely distributed throughout extracellular space.
- **Metabolism and Excretion:** Excreted by the kidneys as the bound complex (digoxin immune Fab plus digoxin).
- **Half-life:** 14–20 hr.

**TIME/ACTION PROFILE** (reversal of arrhythmias and hyperkalemia; reversal of inotropic effect may take several hr)

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
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</thead>
<tbody>
<tr>
<td>IV</td>
<td>30 min</td>
<td>variable</td>
<td>unknown</td>
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**Contraindications/Precautions**

- **Contraindicated in:** No known contraindications.
- **Use Cautiously in:** Known hypersensitivity to sheep proteins or products; Children, pregnancy, or lactation (safety not established).

**Adverse Reactions/Side Effects**

- **CV:** re-emergence of atrial fibrillation, re-emergence of HF, hypotension, HTN
- **F and E:** HYPOKALEMIA.

**Interactions**

- **Drug-Drug:** Prevents therapeutic response to digoxin.

**Route/Dosage**

- **Digibind—** 38 mg of digoxin immune Fab will bind 0.5 mg of digoxin. Each vial contains 38 mg of digoxin immune Fab. Digibind—40 mg of digoxin immune Fab will bind 0.5 mg of digoxin. Each vial contains 40 mg of digoxin immune Fab.

**Known Amount of Digoxin Ingested (Administered)**

- **IV (Adults and Children):** For digitalis glycoside toxicity due to digoxin tablets, oral solution, or IM digoxin—Dose of digoxin ingested (mg)/0.8/100 = 38.
- **For digitalis glycoside toxicity due to digoxin capsules, IV digoxin—**Dose of digoxin ingested (mg)/0.5/38.

**Known Serum Digoxin Concentrations (SDCs)**

- **IV (Adults and Children):** Digibind—Dose (mg)/body weight (kg)/100 = 38; DigiFab—Dose (mg)/body weight (kg)/100 = 40.

**Unknown Amount Ingested/SDCs Unavailable**

- **IV (Adults and Children):** Digibind—760 mg (20 vials); DigiFab—800 mg (20 vials).

**Toxicity during chronic digoxin therapy**

- **IV (Adults and Children):** Digibind—228 mg (6 vials); DigiFab—240 mg (6 vials).

**NURSING IMPLICATIONS**

- **Assessment:**
  - Monitor ECG, pulse, BP, and body temperature before and during treatment. Patients with atrial fibrillation may develop a rapid ventricular response as a result of decreased digoxin levels.
  - Assess patient for increase in signs of HF (peripheral edema, dyspnea, rales/crackles, weight gain).

- **Lab Test Considerations:** Monitor serum digoxin levels before administration.

- **Monitor serum potassium levels frequently during treatment. Before treatment, hypokalemia usually coexists with toxicity. Levels may decrease rapidly; hypokalemia should be treated promptly.

**Pharmacokinetic and Dynamic Properties**

- **Distribution:** Widely distributed throughout extracellular space.

**Unlabeled Use**

- **Toxicity during chronic digoxin therapy:**
  - Monitor ECG, pulse, BP, and body temperature before and during treatment. Patients with atrial fibrillation may develop a rapid ventricular response as a result of decreased digoxin levels.

- **Lab Test Considerations:** Monitor serum digoxin levels before administration.

- **Monitor serum potassium levels frequently during treatment. Before treatment, hypokalemia usually coexists with toxicity. Levels may decrease rapidly; hypokalemia should be treated promptly.

**Discontinued**
Free serum digoxin levels fall rapidly after administration. Total serum concentrations rise suddenly after administration but are bound to the Fab molecule and are inactive. Total serum concentrations will decrease to undetectable levels within several days. Serum digoxin levels are not valid for 5–7 days after administration.

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

Implementation
Cardiopulmonary resuscitation equipment and medications should be available during administration.
Delay redigitalization for several days until the elimination of digoxin immune Fab from the body is complete.

IV Administration
pH: 6.0–8.0
Intermittent Infusion: Diluent: Reconstitute each vial in 4 mL of sterile water for injection and mix gently. Solution will contain a concentration of 9.5 mg/mL (Digibind) or 10 mg/mL (DigiFab). May be further diluted with 0.9% NaCl to achieve the concentration below. Reconstituted solution should be used immediately but is stable for 1 hr if refrigerated. For small doses in infants and children, a reconstituted 50-mg vial can be diluted with 34 mL of 0.9% NaCl (Digibind) or 36 mL of 0.9% NaCl (DigiFab) for a concentration of 1 mg/mL. Concentration: 1 mg/mL. Rate: Infuse over 30 min through a 0.22-micron membrane filter. If cardiac arrest is imminent, rapid direct IV injection may be used. Do not use rapid direct injection in other patients because of increased risk of adverse reactions. Small doses in infants and children may be administered with a tuberculin syringe.

Patient/Family Teaching
Explain the procedure and purpose of the treatment to the patient.
Instruct patient to notify health care provider immediately if signs of delayed allergic reaction (rash, pruritus, urticaria) occur after hospital discharge.

Evaluation/Desired Outcomes
Resolution of signs and symptoms of digoxin toxicity.
Decreased digoxin level without major side effects.

Why was this drug prescribed for your patient?