

Digoxin Toxicity Remains a Clinical Problem¹⁻³

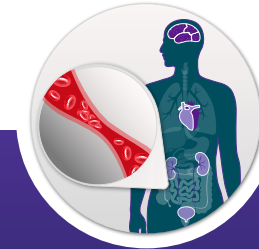
In digoxin toxicity, high digoxin levels can inhibit sodium/potassium ATPase pumps, leading to:



Cardiac dysrhythmias⁴



Potentially fatal electrolyte abnormalities³⁻⁵



Vasoconstriction contributing to end-organ dysfunction from hypoperfusion^{3,6}



Watch a video to understand how the effects of digoxin can lead to potentially life-threatening toxicity.

See next pages to review the signs of digoxin toxicity



INDICATIONS AND USAGE

DIGIFab is indicated for the treatment of patients with life-threatening or potentially life-threatening digoxin toxicity or overdose, including:

- Known suicidal or accidental consumption of fatal doses of digoxin: 10 mg or more of digoxin in healthy adults, or 4 mg (or more than 0.1 mg/kg) in healthy children, or ingestion of an amount that can cause steady-state serum concentrations of ≥ 10 ng/mL;
- Chronic ingestions causing steady-state serum digoxin concentrations >6 ng/mL in adults or 4 ng/mL in children;
- Manifestations of life-threatening toxicity of digoxin overdose such as severe ventricular arrhythmias, progressive bradycardia, and second or third degree heart block not responsive to atropine, serum potassium levels exceeding 5.5 mEq/L in adults or 6 mEq/L in children with rapidly progressive signs and symptoms of digoxin toxicity.

IMPORTANT SAFETY INFORMATION

Warnings and Precautions

General

Suicidal ingestion may result from more than one drug. Consider toxic effects of other drugs or poisons in cases where signs and symptoms of digitalis toxicity are not relieved by administration of DIGIFab.

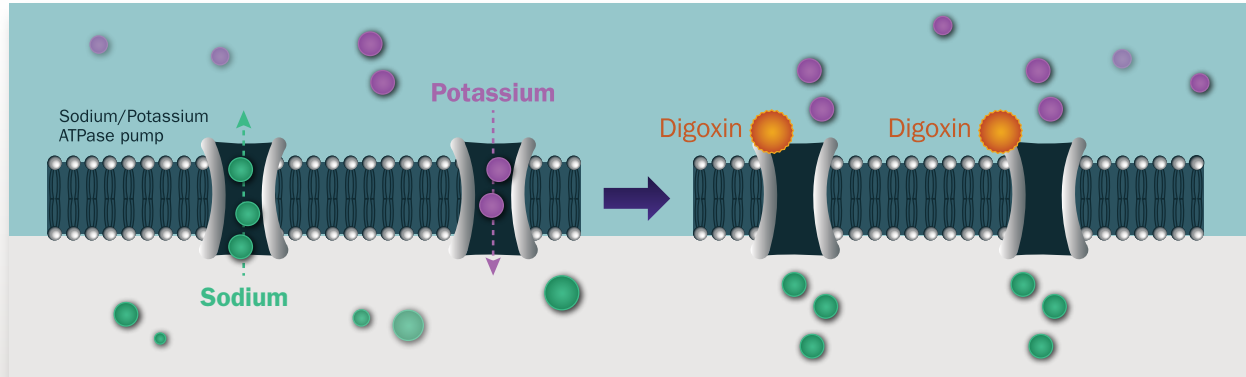
Rapid drop in serum potassium concentration may occur after treatment. Monitor frequently.

Patients with poor cardiac function may deteriorate secondary to the withdrawal of the inotropic action of digoxin by DIGIFab. Monitor frequently and provide additional inotropic support if needed. Postpone re-digitalization, if possible, until the Fab fragments have been eliminated; this may require several days or a week or longer in patients with impaired renal function.

The Science Behind Digoxin Toxicity

Effects of Digoxin at Therapeutic Concentrations

Digoxin inhibits the exchange of sodium and potassium ions at sodium/potassium ATPase pumps, resulting in stronger myocardial contractions, increased automaticity, and decreased conduction through SA and AV nodes.^{3,5}



ATPase, adenosine triphosphatase; AV, atrioventricular; SA, sinoatrial.

In digoxin toxicity, these effects are amplified and can lead to potentially life-threatening signs and symptoms.^{3,4}

IMPORTANT SAFETY INFORMATION

Warnings and Precautions

Hypersensitivity Reactions

Anaphylaxis and hypersensitivity reactions are possible. Carefully monitor patients for signs and symptoms of an acute allergic reaction and if one occurs, stop the infusion and treat immediately with appropriate emergency medical care.

Patients with known allergies to sheep protein or those who have previously received intact ovine antibodies or Fab are particularly at risk for an anaphylactic reaction.

Please see additional Important Safety Information throughout and scan the QR code on last page for [full Prescribing Information](#).

Early Recognition of Digoxin Toxicity Is Essential^{3,7}

Signs of digoxin toxicity include:



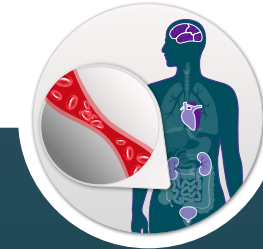
Cardiac Dysrhythmias^{2,8}

- Severe ventricular dysrhythmias (e.g., ventricular tachycardia, ventricular fibrillation)
- Progressive bradydysrhythmias (e.g., severe sinus bradycardia, second- or third-degree heart block unresponsive to atropine)



Laboratory Parameters^{3,8}

- Severely elevated serum potassium levels with rapidly progressive signs and symptoms (e.g., >5.5 mEq/L in adults or >6 mEq/L in children)
- Severely elevated serum digoxin levels with clinically significant signs and symptoms (e.g., steady-state concentrations >6 ng/mL in adults or >4 ng/mL in children)



Evidence of End-Organ Dysfunction³

- Signs and symptoms of end-organ dysfunction from hypoperfusion (e.g., renal failure, altered mental status, abdominal pain)

Any ONE may indicate the need for IMMEDIATE INTERVENTION.^{3,8}

IMPORTANT SAFETY INFORMATION

Warnings and Precautions

Hypersensitivity Reactions

Do not administer DIGIFab to patients with a known history of hypersensitivity to papaya or papain unless the benefits outweigh the risks and appropriate management for anaphylactic reactions is readily available.

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THE Antidote for Potentially Life-Threatening Digoxin Toxicity^{3,7,8}

DIGIFab is indicated for the treatment of life-threatening or potentially life-threatening digoxin toxicity or overdose.⁸

With over 20 years of clinical experience, DIGIFab rapidly binds and neutralizes digoxin to resolve the cardiotoxic effects and other clinical manifestations of potentially life-threatening digoxin toxicity.⁸

IMPORTANT SAFETY INFORMATION, cont.

Warnings and Precautions

Use of DIGIFab in Renal Failure

The elimination half-life of DIGIFab in renal failure has not been clearly defined. Monitor patients with severe renal failure who receive DIGIFab for a prolonged period for possible recurrence of toxicity. Monitoring of free (unbound) digoxin concentrations after the administration may be appropriate.

Laboratory Tests

DIGIFab may interfere with digitalis immunoassay measurements. Thus, standard serum digoxin concentration measurements may be clinically misleading until the Fab fragments are eliminated from the body. This may take several days or a week or more in patients with markedly impaired renal function. If possible, obtain serum digoxin samples before DIGIFab administration to establish the level of serum digoxin at the time of diagnosis.

The total serum digoxin concentration may rise precipitously following administration of DIGIFab, but this will be almost entirely bound to the Fab fragment and not able to react with receptors in the body.

Adverse Reactions

The most common adverse reactions (>7%) related to DIGIFab administration are worsening congestive heart failure (13%), hypokalemia (13%), and worsening atrial fibrillation (7%).

References: 1. Angraal S et al. *Am J Med.* 2019;132(10):1191-1193. 2. Goldberger AL, Traub SJ. UpToDate. Accessed January 30, 2023. <https://www.uptodate.com/contents/cardiac-arrhythmias-due-to-digoxin-toxicity> 3. Levine MD, O'Connor A. UpToDate. Accessed January 30, 2023. <https://www.uptodate.com/contents/digitalis-cardiac-glycoside-poisoning> 4. Hack JB. In: Nelson LS et al. *Goldfrank's Toxicologic Emergencies.* 11th ed. McGraw-Hill Education; 2019:969-976. 5. Digoxin oral solution. Package insert. Roxane Laboratories, Inc.; 2011. 6. Longhurst JC, Ross J. *J Am Coll Cardiol.* 1985;5(5):99A-105A. 7. Dart RC et al. *Ann Emerg Med.* 2018;71(3):314-325. 8. DIGIFab Digoxin Immune Fab (ovine). Package insert. BTG International Inc.; 2017.



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