

Digoxin Toxicity and DigiFab®

Please call x58002 if you are considering Digifab®

Normal Therapeutic Range of Digoxin:

- 0.5-2 ng/mL (lower end for heart failure; higher end for afib)

Risk Factors for Digoxin Toxicity:

- Advanced age (>80 years), decrease in renal clearance
- Hypokalemia, hypomagnesemia
- Hypothyroidism
- Macrolide antibiotics

Signs and Symptoms of Life-Threatening Digoxin Toxicity:

- Manifestations of life-threatening digoxin toxicity due to overdose:
 - Severe ventricular arrhythmias (including ventricular tachycardia or fibrillation)
 - Progressive bradycardia; 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
- Acute digoxin ingestion: >10 mg in adults, >4 mg in children, serum digoxin level >10 ng/ml
- Chronic ingestion leading to digoxin serum levels >6 ng/ml in adults or >4 ng/ml in children.

DIGIFAB®

Background:

DigiFab® is indicated for the treatment of patients with life-threatening or potentially life-threatening digoxin overdose or toxicity. DigiFab® is an immunoglobulin that binds to molecules of digoxin thus lowering free digoxin levels. Each vial of DigiFab® 40 mg will bind ~0.5 mg of digoxin

Dosing (IV only):

When level or amount ingested is known

When steady-state digoxin level is known: Dose (in # vials) = $\frac{\text{Serum digoxin concentration in ng/mL} \times (\text{weight kg})}{100}$

When amount of digoxin ingested is known: Dose (# of vials) = $\frac{\text{amount ingested (mg)}}{0.5\text{mg of digitalis bound/vial}}$

IMPORTANT: Multiply amount ingested in mg by 0.80 if digoxin tablets involved to account for incomplete absorption – as opposed to the injection.

When level or amount ingested is unknown

For acute ingestion (last 6-8 hrs) of unknown amount and no level available: Consider giving 10 vials, which is usually adequate to treat most life threatening ingestions and observe the patient's response. If needed an additional 10 vials may be administered.

For toxicity during chronic therapy (if immediate treatment is necessary before availability of serum level): 6 vials should be adequate to reverse most cases of chronic toxicity.

Monitoring:

- The reversal of digoxin toxicity shifts **potassium** back into the cell resulting in hypokalemia
- DigiFab® will interfere with digitalis immunoassay measurements and thus serum digoxin concentration measurement can be clinically misleading until the Fab fragment is eliminated from the body. This may take several days to weeks in patients with renal failure.
- Temperature and blood pressure

Administration:

DigiFab® should be administered slowly as an intravenous infusion over at least 30 minutes. If infusion rate-related reactions occur, the infusion should be stopped and re-started at a slower rate. If cardiac arrest is imminent, DigiFab® can be given by bolus injection.

****Please remember: DigiFab® is an antidote so timing of administration is very important****