DIGOXIN

Read in conjunction with Disclaimer

HIGH RISK Medication

Formulary: Highly Restricted Requires cardiologist approval **before** commencing.	
Presentation	**Ampoule:** 50 microg/2 mL (Lanoxin Infant®) **Oral liquid:** 50 microg/mL
Classification	Cardiac glycoside
Indication	Congestive heart failure, atrial fibrillation, supraventricular tachycardia (SVT). • Increases myocardial contractility and cardiac output. • Slows atrioventricular (AV) conduction.
Contraindications	**Do not use in patients with:** • Ventricular fibrillation. • Second or third-degree heart block (without pacemaker). • Hypertrophic obstruction. • Cardiomyopathy. • Cor pulmonale. • Constrictive pericarditis.
Precautions	**Use with caution in patients with:** • SVT involving accessory pathway (Wolff-Parkinson-White syndrome). • Hyperthyroidism or hypothyroidism. • Electrolyte imbalance. • Acidosis. • Hypoxia. • Direct current cardioversion.
Monitoring	• Monitor serum electrolytes and renal function. • Continuous cardiac monitoring is recommended.
Therapeutic Drug Monitoring	Digoxin has a narrow therapeutic range. Digoxin toxicity is more commonly associated with serum digoxin concentration greater than 2 microg/mL. Serum digoxin concentration is **not an absolute indicator** of absence/presence of toxicity. Interpret values in conjunction with clinical signs and symptoms. **Sampling time:** At least 6 hours after the last dose. Therapeutic range: **Heart failure:** 0.5- 0.8 micrograms/L **Atrial fibrillation:** Use lowest dose that treats symptoms rather than aiming for specific digoxin concentration. Time to steady state without loading dose is approximately 1 week.

Compatibility	**Fluids:** Sodium chloride 0.9%, glucose 5%, water for injection. **Y-site:** Amikacin, calcium chloride, calcium gluconate, cefazolin, cefotaxime, ceftazidime, ceftriaxone, ciprofloxacin, clindamycin, furosemide, ganciclovir, gentamicin, heparin sodium, hydrocortisone sodium succinate, linezolid, midazolam, morphine sulfate, sodium bicarbonate, tobramycin, vancomycin.
Incompatibility	**Y-site:** Amiodarone, fluconazole, pantoprazole. ***This list is not exhaustive, contact pharmacy for more information.***
Interactions	• Digoxin interacts with a number of medications – contact Pharmacy for further information. • Medications that affect renal function (e.g. indometacin) may increase digoxin exposure.
Adverse Effects	**Common:** Feeding intolerance, decreased appetite, vomiting, diarrhoea, bradycardia, dizziness, arrhythmia, rash/skin reactions, lethargy, vision disturbance.
	Infrequent: Shortened QRS complex, atrial or ventricular extrasystoles, paroxysmal atrial tachycardia with AV block, ventricular tachycardia or fibrillation, heart block.
	Rare: Thrombocytopenia, seizures, gynaecomastia (long-term use).
Storage & Stability	**Ampoule:** Store at room temperature, below 30ºC. Protect from light. **Oral liquid:** Store at room temperature, below 25ºC. Protect from light.

ORAL

Presentation (for oral use)	**Oral liquid:** 50 microg/mL
Dosage	**Loading dose:** **Loading dose is given divided into 3 administrations.** **Loading dose should ONLY be used under the direction of the cardiologist.**

Corrected Gestational Age	Dose
Less than 34 weeks	20 to 30 microg/kg **divided into 3 doses given 8 hours apart.**
34 weeks or greater	25 to 40 microg/kg **divided into 3 doses given 8 hours apart.**

Maintenance dose:
5 microg/kg/dose every 12 hours

Dose Adjustment	• Adjust dose based on clinical response. • **Renal impairment:** dose reduction and level monitoring recommended due to increased risk of toxicity.
Administration	• Draw prescribed dose into oral/enteral syringe. • Give consistently regarding feeds (i.e. always give with feeds or always give on an empty stomach).

INTRAVENOUS

Presentation (for IV use)	**Ampoule:** 50 microg/2 mL (Lanoxin Infant®)
Dosage	**Loading dose:** **Loading dose is given divided into 3 administrations.** **Loading dose should ONLY be used under the direction of the cardiologist.**

Corrected Gestational Age	Dose
Less than 34 weeks	15 to 25 microg/kg **divided into 3 doses given 8 hours apart.**
34 weeks or greater	20 to 30 microg/kg **divided into 3 doses given 8 hours apart.**

	Maintenance dose: 4 microg/kg/dose every 12 hours.
Dose Adjustment	• Adjust dose based on clinical response. • **Renal impairment:** dose reduction and level monitoring recommended due to increased risk of toxicity.
Preparation	**Ampoule**: 50 microg/2 mL = 25 microg/mL **Use undiluted if possible.**
	If dilution required, contents of ampoule must be diluted at least 4-fold. The use of less than a 4-fold volume of diluent could lead to precipitation of the digoxin. **Dilution:** • Draw up 2 mL (50 microg) of digoxin and make up to 10 mL total volume with compatible fluid. *Concentration now equal to* **5 microg/mL**
Administration	**IV infusion:** • Infuse via syringe driver pump over at least 10 minutes. • Do not flush the syringe after administration to avoid inadvertent overdose.

Related Policies, Procedures, and Guidelines

HDWA Mandatory Policies:

OD 0561/14: High Risk Medication Policy

Clinical Practice Guidelines:

CAHS Neonatology – Cardiac: Arrythmias

Pharmaceutical and Medicines Management Guidelines:

CAHS Neonatology – Medication Administration Guideline

High Risk Medicines

References

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Document history

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NSQHS Standards Applicable:	☒ Std 1: Clinical Governance		☒ Std 4: Medication Safety		
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