VANCOMYCIN

DESCRIPTION AND INDICATION FOR USE

Vancomycin is a glycopeptide antibiotic. Vancomycin is bactericidal against many Gram-positive bacteria including staphylococci, streptococci and enterococci. It is used for suspected or proven MRSA infections or infections caused by other organisms when sensitivity indicates.

DOSE

IV: 15mg/kg/dose

Interval
Corrected age: < 28 weeks 24 hourly
28 to 32 weeks 18 hourly
> 32 to 36 weeks 12 hourly
≥ 37 weeks 8 hourly

RECONSTITUTION/DILUTION

Ampoule = 500 mg

Use only 0.9% sodium chloride or 5% dextrose as dilution fluids.

IV: Reconstitute with 10 mL of Water for Injection per 500 mg vial (concentration = 50mg/mL)
1. Withdraw exact dose required
2. Further dilute with 0.9% sodium chloride or dextrose 5% to **5mg/mL**

NOT FOR IM OR SC USE

ROUTE AND METHOD OF ADMINISTRATION

IV: Using Minimum Volume Extension tubing and a syringe pump, prime line with syringe containing exact dose of vancomycin. **Infuse over 2 hours (120 minutes).**

Draw up 3 mL of 0.9% sodium chloride in a 10mL syringe. Following completion of the infusion, infuse 2 mL of the saline at the same infusion rate as vancomycin to flush the line (set volume limit for 2 mL). Following completion of infusion & flush disconnect & discard line.

COMPATIBILITY INFORMATION

Please contact your ward pharmacist for information on drugs or fluids not appearing in the table below. Medications that are not routinely used in the Special Care Nursery have not been included in this table and may be incompatible.

	Compatible	Incompatible
Fluids	Dextrose 5%, Dextrose 10%, 0.9% Sodium chloride	
Drugs	Calcium gluconate, Midazolam, Morphine, Pancuronium bromide, Ranitidine.	Aminophylline, Cefotaxime, Phenobarbitone, Phenytoin, Sodium bicarbonate

Vancomycin is **physically incompatible** with **beta-lactam antibiotics** (eg: benzylpenicillin) – it is preferable to separate administration by 1 hour. If it is not possible to separate doses, ensure IV lines are adequately flushed with 0.9% sodium chloride before and after administration of these antibiotics.

SIDE EFFECTS

- Infusion related events - rapid bolus administration may cause:
  - hypotension, tachycardia, cardiac arrest (rare)
  - skin flushing, itch
  - thrombophlebitis (at injection site)
  - "Red Man" Syndrome – flushing or rash on the upper body and neck, muscle spasm of the chest and back. "Red Man" syndrome appears rapidly and resolves within minutes to hours of ceasing infusion. If this occurs:
    - cease infusion
    - re-check dosage and infusion rate
    - wait for symptoms to resolve
    - resume infusion at a slower rate
    - give all subsequent doses at the slower infusion rate
    - report and document the adverse reaction
- Transient neutropenia, thrombocytopenia (rare)
- Ototoxicity, nephrotoxicity (rare – most reports occur in patients with pre-existing hearing loss or renal impairment and when used in conjunction with other nephrotoxic or ototoxic agents)
- Hypersensitivity reactions (chills, fever, rash)

SPECIAL PRECAUTIONS

- Renal impairment – careful monitoring of blood levels is recommended to guide adjustments of dose/dosage interval

CONTRAINDICATIONS

- Known hypersensitivity to vancomycin
  - Caution in patients allergic to Teicoplanin as allergic cross reactions have been reported
- Concurrent use of other ototoxic/nephrotoxic drugs, unless clearly indicated and closely monitored.

DRUG INTERACTIONS

Aminoglycoside antibiotics, Amphotericin, Indomethacin and other nephrotoxic agents:
Risk of additive nephrotoxicity, monitor renal function closely

Indomethacin:
Reduced renal clearance of Vancomycin, a reduction in Vancomycin dose may be necessary

Frusemide:
Concurrent use increases the risk of ototoxicity

Neuromuscular blocking agents eg*: pancuronium, suxamethonium, vecuronium:*
Neuromuscular blockade may be enhanced

NURSING RESPONSIBILITIES

- Observations/Monitoring:
  - Observe urinary output
  - Visually inspect IV tubing for particulate matter/discoloration
- Do not inject IM as it is very irritating to tissue, and can cause necrosis
- Infuse slowly to avoid reactions associated with rapid infusion and thrombophlebitis
- If extravasation occurs, check with Medical Staff regarding possibility of using hyaluronidase around the periphery of the affected area

- Therapeutic Drug Monitoring

	Start Monitoring*	Samples Required		Repeat Monitoring*	Therapeutic Range	
		Trough	Peak		Trough	Peak
Vancomycin	2nd Dose	✔ (sample immediately pre-dose)	Not required	Every 3 - 5 days	5 - 10 mg/L	Not applicable

* Assuming normal renal function. Neonates with renal dysfunction require closer monitoring - take spot trough levels and repeat dose only when trough level is < 10 mg/L