NEONATAL Medication Monograph

AMIKACIN

This document should be read in conjunction with this **DISCLAIMER**

Highly Restricted: Requires Neonatologist/Microbiologist approval before commencing

⚠ HIGH RISK Medication

Incorrect dosing with respect to age, body weight and renal function may result in significant ototoxicity and nephrotoxicity. Under dosing may result in treatment failure. Monitoring of serum levels, with appropriate dose adjustment, should be undertaken in all patients expected to receive therapy for greater than 72 hours (patients with unstable renal function should be monitored daily).

Presentation	Vial: 500mg/2mL = 250mg/mL
Description	Aminoglycoside antibiotic
Indications	Treatment of serious infections due to susceptible strains of; • Gram negative bacilli resistant to other aminoglycosides. • Mycobacteria susceptible to amikacin.
Contraindication	Hypersensitivity to amikacin or other aminoglycosides
Precaution	Extreme caution in neonates with renal dysfunction. Caution in concurrent therapy with cefalosporins, potent diuretics such as furosemide and neuromuscular blocking agents. Concurrent administration with other ototoxic and/or nephrotoxic drugs e.g vancomycin
Dosage	**Susceptible infection** **IV:**

Corrected Gestational Age	Postnatal Age	Dose	Frequency
< 30 weeks	≤ 14 days	15mg/ kg/ dose	48 hourly
	≥ 15 days	15mg/ kg/ dose	24 hourly
30-34 weeks	All	15mg/ kg/ dose	24 hourly
≥ 35 weeks	≤ 7 days	15mg/ kg/ dose	24 hourly
	≥ 8 days	17.5mg/ kg/ dose	24 hourly

	Renal Impairment: Dose adjustment is required in renal impairment. Consult microbiologist or pharmacy for dosing.
Compatible Fluids	Glucose 5%, Glucose 10%, Sodium Chloride 0.9%.
Preparation	**IV:** Available from CIVAS (KEMH & PCH) ***Dilution*** Dilute 1mL (250mg) of amikacin solution with 49mL of compatible fluid. Final Volume is 50mL. Concentration is 250mg/50mL Final Concentration is 5 mg/mL
Administration	**IV Infusion:** Infuse over 1 to 2 hours
Monitoring	Monitor serum levels, urinalysis, urine output, serum creatinine. Patients with changing renal function should be **monitored daily.**
Drug levels	**Sample Times:** **Trough level:** 0.4mL blood immediately prior to dose. First levels to be taken: 24 hourly dosing regimen: **72 hours** after commencing course 48 hourly dosing regimen: **96 hours** after commencing course If level is in range - Check levels every four days subsequently . Blood levels are to be repeated at the next dose if the dose is adjusted or if the infant's clinical situation (ie renal failure) is likely to lead to unpredictable levels. **Target level:** **Trough:** < 5microg/L
Dosage Adjustment	Consult microbiologist or pharmacy for dosing adjustment in renal impairement or differing trough levels.
Adverse Reactions	**Common:** Reduced renal function, vertigo, anaemia, arthralgia
	Serious: Renal failure, ototoxicity, neuromuscular blockade Toxicity may be enhanced by concurrent administration of diuretics or NSAID

Interactions	Furosemide – possible increased risk of nephrotoxicity and ototoxicity Indometacin - possible increased risk of nephrotoxicity and ototoxicity Pancuronium – possible increase and prolongation of neuromuscular blockade Vancomycin, gentamicin – possible potentiation of nephrotoxicity and ototoxicity
Related clinical guidelines	WNHS Policy: Antimicrobial Stewardship High risk medicines list Antimicrobial restriction category list
Storage	Vial: Store at room temperature, below 25°C
References	Takemoto CK, Hodding JH, Kraus DM. Pediatric & neonatal dosage handbook with international trade names index : a universal resource for clinicians treating pediatric and neonatal patients. 24th ed. Hudson (Ohio): Lexicomp; Truven Health Analytics. Amikacin. In: NeoFax [Internet]. Greenwood Village (CO): Truven Health Analytics; 2020 [cited 2020 Jan 17]. Available from: https://neofax.micromedexsolutions.com/ British National Formulary. BNF for Children. 2018-19 ed. London, UK: BMJ Group and Pharmaceutical Press; 2018. p. 311 Smits A, Kulo A, van den Anker J, Allegaert K. The amikacin research program: a stepwise approach to validate dosing regimens in neonates. Expert Opin Drug Metab Toxicol. 2017;13:157-66 Society of Hospital Pharmacists of Australia. Amikacin. In: Australian Injectable Drugs Handbook [Internet]. [St Leonards, New South Wales]: Health Communication Network; 2020 [cited 2020 Jan 17]. Available from: http://aidh.hcn.com.au

Publishing:	☒ Intranet ☒Internet		
Document owner:	Head of Department - Neonatology		
Author / Reviewer:	KEMH & PCH Pharmacy / Neonatology Directorate		
Date first issued:	August 2013	Version:	3.1
Last reviewed:	January 2020	Next review date:	January 2023
Endorsed by:	Neonatal Directorate Management Group	Date:	January 2020
Standards Applicable:	NSQHS Standards: 1 Governance, 3 Infection Control, 4 Medication Safety		

Printed or personally saved electronic copies of this document are considered uncontrolled.
Access the current version from the WNHS website.
For any enquiries relating to this guideline, please email KEMH.PharmacyAdmin@health.wa.gov.au