
AMINOGLYCOSIDES IN CHILDREN

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| <ul style="list-style-type: none">• Introduction• Recommended Doses• Doses in Obese Children | <ul style="list-style-type: none">• Monitoring and Adjusting Doses• References |
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Introduction

ADHB Pharmacy and the Paediatric Infectious Disease Service at Starship Hospital have developed these guidelines.

Patients excluded from these guidelines include those with renal impairment and endocarditis.

These doses apply only to full term newborns more than 4 weeks of age. Refer to NICU guidelines via Newborn Services website for infants < 4 weeks of age.

- Baseline creatinine levels should be performed for all patients and repeated whenever levels are being checked (may be required more often if renal function is abnormal).
- Therapeutic drug monitoring is mandatory in all cases except where a course duration <72 hours e.g. surgical prophylaxis.
- Consider audiology testing (at baseline if possible as well as during and after) therapy in "at risk patients". If there is a family history of deafness acquired post antibiotic administration, consider other alternative antibiotic therapy.

At risk patients:

Patients in whom drug administration has been ≥ 7 days

Patients on concomitant nephro / ototoxic drugs

Patients with renal impairment, changing renal function, or altered fluid balance.

CF patients:

Discuss with the Respiratory Consultant before starting aminoglycosides in a CF patient.

AMINOGLYCOSIDES IN CHILDREN

Recommended Doses

Maximum doses apply to standard once daily dosing.

Children with cystic fibrosis require higher doses and usual maximums do not apply

Drug	Standard ONCE daily dosing	Cystic Fibrosis Dosing	Administration	Monitoring
Amikacin	15mg/kg ONCE daily Up to 20mg/kg ONCE daily in severe infection on consultation with ID team or as per protocol Max 1.5g/dose	Up to 30mg/kg ONCE daily Refer to CF guidelines	Dilute with sodium chloride 0.9% or glucose 5%	Trough level: <1 mg/L CF trough level: <3mg/L Peak level: N/A
Gentamicin	7mg/kg ONCE daily Max 360mg/dose	10-12mg/kg ONCE daily Refer to CF guidelines	Give over 30 minutes as IV infusion Refer to Guardrails administration guide via the reference viewer for further details	Trough level: < 0.5 mg/L CF trough level: <1 mg/L Peak level: N/A
Tobramycin	7mg/kg ONCE daily Max 360mg/dose	10-12mg/kg ONCE daily Refer to CF guidelines		Trough level: < 1 mg/L Peak level: N/A

Doses in Obese Children

To avoid excessive dosing in obese children, use ideal body weight for height to calculate dose and monitor concentrations closely.

The 'Ideal Weight' for dose calculation purposes for an obese child may be approximated using standard growth charts (e.g. on CRIS or at www.cdc.gov/growthcharts/)

(a) If the age and height are known, a height growth chart will indicate the percentile at which to read the "ideal" weight from a weight growth chart.

(b) If only the age is known, reading from the 50th percentile on a weight growth chart is a practical method for "ideal" weight estimation.

Monitoring & Adjusting Dosing Interval

Take trough level immediately before the 2nd dose.

Do not withhold the next dose if waiting on a level (except in patients with significant renal impairment where you might withhold the dose if the level is elevated)

If the patient is receiving a therapeutic dose and the level is less than the trough limits then continue on same dose.

AMINOGLYCOSIDES IN CHILDREN

If the level is above trough limits and the 2nd dose was given, repeat the trough level before the 3rd dose and then keep repeating the level at 6hr intervals until the level is below trough limits. The interval between the dose being given and a safe trough level should then become the new dosing interval (e.g. if trough level at 24 hours was high, but trough level at 30 hours was below the trough limit then give the dose every 30 hours).

If the trough level is above trough limits and the 2nd dose *wasn't* given, then keep repeating the level at 6hr intervals until the level is < trough limits. The interval between the dose being given and a level of below trough limits should then become the new dosing interval.

Continue to monitor every 3-5 days thereafter or more frequently for at risk patients

References

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