

Amikacin Dosing Algorithm

Amikacin

1. SELECT PATIENT APPROPRIATELY

For EMPIRIC therapy (pathogen not known) use AMIKACIN instead of Gentamicin in patients with:

- A history of gentamicin resistant Gram negative pathogens (review previous microbiology test results).
- Sepsis requiring ICU review/admission, or septic shock.
- Sepsis when using concurrent ciprofloxacin in patients with IgE-mediated allergy/anaphylaxis to or severe reaction to penicillin (due to risk of co-resistance).

Contraindications: Myasthenia gravis.



2. PRESCRIBE DOSE

Max. amikacin dose = 1.5g daily

Use Obese Dosing Weight (ODW) if BMI > 30kg/m² or if ABW is 20% more than IBW.

In oliuria (urine output < 500ml/day), dose as per CrCl < 10ml/min.

Creatinine Clearance	Dose
>50 ml/min	15 mg/kg q24h
21-50 ml/min	10 mg/kg q24h
10-20 ml/min	4 mg/kg stat. Redose based on level.
<10 ml/min	2 mg/kg stat. Redose based on level.
Dialysis	Seek specialist advice.

BMI = Weight (kg) / Height²(m²)

ODW = IBW + 0.4 (Actual weight – IBW)

IBW = R + (2.3kg for every inch over 5ft)

R = 50 for males and 45.5 for females

CrCl = $\frac{n \times (140 - \text{age}) \times \text{weight (kg)} (\text{ODW if obese})}{\text{Serum Creatinine } (\mu\text{mol/l})}$
n = 1.23 for males and 1.045 for females

IBW = Ideal Body Weight

ODW = Obese Dosing Weight



3. ORDER A TROUGH LEVEL TO BE TAKEN 16-24H AFTER THE FIRST DOSE

> Ensure request form and serum sample are labelled with 1) Date & time of the last dose and 2) Date & time level was taken.

> Monitor renal function.



4. CHECK AND INTERPRET TROUGH LEVEL RESULT

Trough level	Action
≤ 5mcg/ml	Review need for further doses. Administer same dose again if ongoing aminoglycoside treatment indicated and renal function is stable.
> 5mcg/ml (<i>high</i>)	Ensure level was taken >16h post dose. Recheck level and redose if required when level ≤5mcg/ml. May need to extend dosing interval and/or reduce dose for subsequent doses depending on the creatinine clearance - discuss with Clinical Microbiology/Pharmacy.