

9 Antibiotics, Antimycotics: Spectrum – Dosage – Adverse Effects – Costs

Amikacin

Amicasil® (GR, IT), Amikacin® (DE), Amikaver® (TR), Amikin® (CZ, GB, HR, HU, PL), Amiklin® (FR), Amukin® (BE, NL), BB K8® (IT), Biclin® (ES, PT), Biklin® (AT, DK, FI, SE)

Spectrum:

Gram-positive (staphylococci; not: pneumococci, streptococci, enterococci) and Gram-negative bacteria, in particular gentamicin-resistant pathogens; only weakly effective against *H. influenzae*; synergy with β -lactam antibiotics against enterobacteria

Dosage:

- Adults 10–15 mg/kg/day divided into 1–3 doses i.m., i.v. preferably 30–60 min brief infusion
- Children >1 year old 15 mg/kg/day i.m., i.v. divided into 1–3 doses; infusion over 1–2 h
- Neonates initially 10 mg/kg/day i.m., i.v. divided into 1–3 doses, then 15 mg/kg/day i.v., i.m. divided into 2 doses (even at body weight under 1,200 g); infusion over 1–2 h
- Neonates >1 week old initially 10 mg/kg/day i.v., i.m., then 15 mg/kg/day i.v., i.m. divided into 3 doses, from 4 weeks old single daily dosing possible; infusion over 1–2 h

<i>In renal insufficiency (adults):</i>	CrCl ¹	Max. dose (g)	DI(h)
	120	0.25	6
	45	0.125	8
	18	0.125	12
	8	0.1	12
	2	0.125 ²	24
	0.5	0.125 ²	24–48 ³

¹ Calculation of CrCl according to Crockroft-Gault equation

² In life-threatening circumstances initial dose of 0.5 g

³ Two to three haemodialyses/week are considered necessary in such cases. One normal dose initially

<i>In renal insufficiency (children):</i>	CrCl	Dose (% of normal dose)
	40	40 (divided into 2 doses)
	20	25 (divided into 2 doses); LD 10 mg/kg
	10	20 (divided into 2 doses); LD 7.5 mg/kg
	Anuria	10 (single dose); LD 5 mg/kg or 33% after HD

Adverse effects:

Nephro- and ototoxicity particularly with long duration of therapy (>10 days), high dosage (more than 15 g, peak level >32 µg/ml, trough level >10 µg/ml), previous aminoglycoside therapy and simultaneous administration of furosemide, ethacrynic acid or other nephro- and ototoxic substances. Blood count changes, arthralgia, fever, hypersensitivity reactions, neuromuscular blockade

Contraindications:

Parenteral administration in first 3 months of pregnancy, give from 4th month of pregnancy onward only if patient's life is

endangered; myasthenia gravis; existing kidney or hearing impairment

Remarks:

Aminoglycoside of choice for gentamicin-resistant bacteria and for *Serratia*. Aminoglycoside solutions not to be mixed with penicillins or cephalosporins (deactivation of the aminoglycosides)

Amoxicillin

Actimoxi® (ES), Agram® (FR), Akti® (HU), Alfoxil® (TR), Almacin® (HR), Almodan® (GB), Amimox® (NO, SE), Amoclen® (CZ), Amorion® (FI), Amotaks® (PL), Amox® (IT), Amoxi® (BE), Amoxillin® (NO), Amoxyphen® (DE)

Spectrum:

Gram-positive (not *S. aureus*) and Gram-negative bacteria (*H. influenzae*: ca. 10% resistance)

Dosage:

- Adults 1.5–3 g (max. 4–6 g)/day divided into 3–4 doses
- Children older than 3 months <40 kg 25–45 mg/kg/day divided into 3–4 doses

In renal insufficiency (adults):

If CrCl <30 ml/min, reduction to $\frac{2}{3}$ of normal dose;
if CrCl <20 ml/min, to $\frac{1}{3}$ of normal dose

In renal insufficiency (children):

CrCl	Dose (% of normal dose)
40	100
20	60 (divided into 2 doses)
10	30 (divided into 2 doses)
Anuria	15 (single dose) or 30 after HD

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