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| Alert | Amikacin and gentamicin are both AMINOGLYCOSIDE antibiotics and MUST NOT be prescribed at the same time. The Antimicrobial Stewardship Team has listed this drug under the following category: Restricted. | | | |
| Indication | Treatment of suspected or proven gram-negative infection resistant to other aminoglycosides. Used in combination with a beta-lactam antibiotic for sepsis in the newborn. | | | |
| Action | Bactericidal agent that acts by inhibiting protein synthesis in susceptible bacteria. | | | |
| Drug Type | Aminoglycoside | | | |
| Trade Name | DBL Amikacin, Amikacin SXP, Amikacin Wockhardt. | | | |
| Presentation | 500 mg/2 mL Excipients: Sodium citrate, sodium metabisulfite. | | | |
| Dosage/Interval | Postmenstrual age/corrected gestational age | Postnatal age | Dose | Interval |
| | ≤29 weeks | 0–7 days | 14 mg/kg | 48-hourly |
| | | 8–28 days | 12 mg/kg | 36-hourly |
| | | ≥29 days | 12 mg/kg | 24-hourly |
| | 30–34 weeks | 0–7 days | 12 mg/kg | 36-hourly |
| | | ≥8 days | 12 mg/kg | 24-hourly |
| | ≥35 weeks | All | 12 mg/kg | 24-hourly |
| | <p>Infants with perinatal asphyxia and on therapeutic hypothermia: Increase dose interval by 12 hours [1-3].</p> <p>Infants treated with cyclo-oxygenase inhibitors (indomethacin or ibuprofen): Increase dose interval by 12 hours [1-3]</p> | | | |
| Maximum daily dose | | | | |
| Route | Intravenous infusion Intramuscular injection | | | |
| Preparation/Dilution | <p>Two-step dilution:</p> <p>Step 1: Add 1 mL (250 mg) of amikacin to 9 mL of sodium chloride 0.9% to make a 25 mg/mL solution.</p> <p>Step 2: FURTHER DILUTE 1 mL (25 mg) of this solution to 9 mL of sodium chloride 0.9% to make 2.5 mg/mL solution.</p> | | | |
| Administration | IV infusion over 60 minutes using the proximal IV port. IM: May be given if IV route not available. | | | |
| Monitoring | <p>Routine therapeutic drug monitoring for ≤48 hours duration of therapy is not necessary unless renal function is impaired.</p> <p>For infants on continuing treatment, perform early trough and peak levels (prior to and 1 hour after the second amikacin dose). Target peak levels 24–35 mg/L and troughs <5 mg/L [2].</p> <p>Assess renal function.</p> | | | |
| Contraindications | Hypersensitivity to amikacin or other aminoglycosides. Myasthenia Gravis ¹³ | | | |
| Precautions | <p>Treatment with amikacin for more than 14 days has not been established as being safe.</p> <p>CAUTION in patients with pre-existing renal impairment, auditory or vestibular impairment, hypocalcaemia, depressed neuromuscular transmission.</p> <p>Gastrointestinal: Amikacin has been associated with <i>Clostridium difficile</i> diarrhoea; discontinue use if suspected.</p> <p>Immunological: Allergic-type reactions, including anaphylaxis and life-threatening or less severe asthmatic reactions, may occur in patients with sulfite sensitivity as preparation contains sodium metabisulfite.</p> <p>Neurological: Use caution in patients with parkinsonism; muscle weakness may be aggravated.</p> | | | |
| Drug Interactions | Diuretics may cause ototoxicity or enhance aminoglycoside toxicity by altering antibiotic concentrations. | | | |

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| | <p>Neurotoxic and/or nephrotoxic agents: Avoid concurrent or sequential use of other neurotoxic and/or nephrotoxic antibiotics, including other aminoglycosides, polymyxin B, colistin, cisplatin, vancomycin, amphotericin B, clindamycin and cephalosporins.</p> <p>Anaesthetics/neuromuscular blocking agents or medications with neuromuscular blocking activity: succinylcholine, tubocurarine, decamethonium, halogenated hydrocarbon inhalation anaesthetics, opioid analgesics and massive transfusions with citrate anticoagulated blood may increase neuromuscular blockade. Treatment with anticholinesterase agents or calcium salts may help to reverse the blockade.</p> <p>Penicillins: Aminoglycosides are inactivated by solutions containing penicillins. Ensure line is adequately flushed between antibiotics.</p> |
| Adverse Reactions | Serious reactions include neuromuscular blockade with subsequent respiratory paralysis, ototoxicity and nephrotoxicity (see evidence review). |
| Compatibility | <p>Fluids: Glucose 5%, glucose 10%, glucose 20%, sodium chloride 0.9%, amino acid solutions.</p> <p>Aciclovir, amiodarone, atenolol, atracurium, atropine, aztreonam, buprenorphine, calcium chloride/gluconate, caspofungin, cefazolin, cefotaxime, ceftaxime, ceftazidime, ceftriaxone, chloramphenicol, cimetidine, clindamycin, dexamethasone, dexmedetomidine, digoxin, dobutamine, adrenaline (epinephrine), epoetin alfa, erythromycin, esmolol, fentanyl, filgrastim, fluconazole, foscarnet, furosemide (frusemide), gentamicin, isoprenaline, ketamine, labetalol, lidocaine (lignocaine), linezolid, magnesium sulfate, methadone, methylprednisolone, midazolam, milrinone, morphine, glyceryl trinitrate, noradrenaline (norepinephrine), octreotide, ondansetron, pancuronium, pethidine, phenobarbital (phenobarbitone), piperacillin, piperacillin-tazobactam, potassium chloride, procainamide, propranolol, protamine, pyridoxine, ranitidine, remifentanyl, rocuronium, sodium acetate, sodium bicarbonate, succinylcholine, vancomycin, vasopressin, vecuronium, warfarin, zidovudine</p> |
| Incompatibility | <p>Fluids: No information</p> <p>Penicillins and cephalosporins, amphotericin, azathioprine, azithromycin, diazepam, diazoxide, folic acid, ganciclovir, heparin, hydralazine, ibuprofen, indomethacin, insulin, pentamidine, pentobarbital (pentobarbitone), phenytoin, potassium chloride, propofol, sulfamethoxazole-trimethoprim, teicoplanin</p> |
| Stability | <p>Administer immediately, discard unused portion.</p> <p>The diluted solution is stable for 24-hours at room temperature.</p> |
| Storage | Store below 25°C. |
| Special Comments | |
| Evidence summary | Refer to full version. |
| References | Refer to full version. |

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