Tobramycin
Newborn use only

2020

<table>
<tr><td>Alert</td><td>Aminoglycosides can be inactivated by penicillin and cephalosporin antibiotics. As commonly co-prescribed, where feasible, give at separate sites or separate the administration time of the antibiotics.</td></tr>
<tr><td>Indication</td><td>Treatment of gram-negative infections, including susceptible Pseudomonas aeruginosa</td></tr>
<tr><td>Action</td><td>Aminoglycoside</td></tr>
<tr><td>Drug type</td><td>Antibiotic</td></tr>
<tr><td>Trade name</td><td>Tobramycin-PF Injection (Pfizer – preservative free), DBL Tobramycin, Tobra-Day, Tobramycin Injection (Pfizer), Tobramycin Mylan</td></tr>
<tr><td>Presentation</td><td>80mg/2mL ampoule</td></tr>
<tr><td>Dose</td><td>5 mg/kg/dose with dosing interval as follows (1)

<table>
<tr><td>Current Bodyweight</td><td colspan="3"><1200 g</td><td colspan="2">≥1200 g</td></tr>
<tr><td>Postnatal Age</td><td>≤7 days</td><td>8-30 days</td><td>>30 days</td><td>≤7 days</td><td>>7 days</td></tr>
<tr><td>Dose interval*</td><td>48 hourly</td><td>36 hourly</td><td>24 hourly</td><td>36 hourly</td><td>24 hourly</td></tr>
</table>

*Extend dose interval by 12 hours in
1. Perinatal asphyxia and therapeutic hypothermia (2, 3, 4).
2. Concurrent cyclo-oxygenase inhibitors (indometacin or ibuprofen) (4,5)</td></tr>
<tr><td>Dose adjustment</td><td>Therapeutic hypothermia – Extend the dosing interval by 12 hours. Measure trough concentration before every dose. (2,6-8)
ECMO - Measure trough concentration before 2nd dose. (9)
Renal impairment – Measure trough concentration before every dose. (10)
Hepatic impairment – No specific dose adjustment.</td></tr>
<tr><td>Maximum dose</td><td>No information.</td></tr>
<tr><td>Total cumulative dose</td><td>No information.</td></tr>
<tr><td>Route</td><td>IV</td></tr>
<tr><td>Preparation</td><td>Draw up 1 mL (40 mg of tobramycin) and add to 19 mL sodium chloride 0.9% or glucose 5% to make a final volume of 20 mL with a final concentration of 2 mg/mL.</td></tr>
<tr><td>Administration</td><td>Infusion over 30 minutes (20-60 minutes) (1,10,11)</td></tr>
<tr><td>Monitoring</td><td>Urine output, urine analysis, blood urea, nitrogen and creatinine
Anaphylaxis
Trough concentrations – Targeted <2 mg/L (1,10).
Trough concentrations are not required routinely unless:
1. duration of therapy is longer than 5 days –prior to dose on day 5 (10),
2. renal impairment or perinatal hypoxia with Apgar <5 at 5 minutes and/or concomitant use of nephrotoxic agents (10) or therapeutic hypothermia (10) - prior to every dose.
If trough concentration ≥2 mg/L (µg/mL), withhold the dose, repeat trough concentrations before the subsequent dosing and discuss with infectious disease specialist/clinical microbiologist for either extended dosing interval or alternate antibiotic.

Peak concentrations – Not required routinely. Target peak concentrations: 5-12 mg/L, to be measured 2 hours after the end of transfusion. (1)</td></tr>
<tr><td>Contraindications</td><td>Hypersensitivity to aminoglycosides.</td></tr>
<tr><td>Precautions</td><td>Renal impairment
Auditory impairment
Myasthenia gravis (maternal) and other conditions with neurotransmission depression – May cause or prolong neuromuscular blockade and respiratory paralysis</td></tr>
<tr><td>Drug interactions</td><td>Muscle relaxants and anaesthesia: May exacerbate neuromuscular blockade and respiratory paralysis.</td></tr>
</table>

	Potent diuretics: Do not give tobramycin in conjunction with ethacrynic acid, furosemide or other potent diuretics which may themselves cause ototoxicity or enhance aminoglycoside toxicity by altering antibiotic concentrations in serum and tissue. Other neurotoxic and/or nephrotoxic agents: Avoid concurrent or sequential use of neurotoxic and/or nephrotoxic antibiotics, particularly other aminoglycosides, amphotericin B, vancomycin, ibuprofen. Penicillins and cephalosporins: Aminoglycosides may be inactivated by solutions containing penicillin and cephalosporin antibiotics. Where feasible, give at separate sites or separate the administration time of the antibiotics. If this is not possible, flush the line well before and after giving each antibiotic. In renal impairment separate the administration of the antibiotics for the longest duration that is practical.
Adverse reactions	Renal: Increased blood urea nitrogen, increased serum creatinine, oliguria, nephrotoxicity Ototoxicity: Auditory and vestibular impairment, hearing loss. Endocrine: Decreased serum calcium, magnesium, potassium and sodium Dermatologic: Dermatitis, rash, urticarial Central nervous system: Lethargy Haematologic: Anaemia, leucocytosis, leukocytopenia, thrombocytopenia Gastrointestinal: Diarrhoea, vomiting Local: Pain at injection site.
Compatibility	Fluids: Glucose 5%, glucose 10%, Hartmann's, mannitol, Ringer's, sodium chloride 0.9%, glucose in sodium chloride solutions. Y-site: Aciclovir, calcium chloride, calcium gluconate, ciprofloxacin, dobutamine, dopamine, fluconazole, furosemide (frusemide), adrenaline (epinephrine), linezolid, magnesium sulfate, metronidazole, morphine sulfate, noradrenaline (norepinephrine), sodium bicarbonate, vecuronium, zidovudine
Incompatibility	Penicillins and cephalosporins, allopurinol, amphotericin (all formulations), azathioprine, azithromycin, clindamycin, dexamethasone, diazepam, diazoxide, folic acid, heparin sodium, indomethacin, lansoprazole, pantoprazole, pentamidine, phenytoin, piperacillin/tazobactam, propofol, sulfamethoxazole/trimethoprim
Stability	Administer immediately, discard unused portion.
Storage	Tobramycin-PF and Tobra-Day: Refrigerate at 2-8°C. Protect from light All other brands: Store at room temperature below 25°C. Protect from light.
Excipients	Tobramycin-PF: Disodium edetate. DBL: Sodium metabisulfite, disodium edetate, sulfuric acid and/or sodium hydroxide. Pfizer: Sodium metabisulfite, disodium edetate, sulfuric acid and/or sodium hydroxide, phenol. Tobra-Day: Sulfuric acid and sodium hydroxide.
Special comments	
Evidence	Refer to full version.
Practice points	Refer to full version.
References	Refer to full version.

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