Zidovudine
Newborn use only

2020

<table>
<tr><td>Alert</td><td>No Australian registered intravenous products are available. Retrovir IV ampoules are only available via the Special Access Scheme (SAS) in Australia.
Also known as azidothymidine (AZT).</td></tr>
<tr><td>Indication</td><td>Monotherapy or part of a combination therapy for prevention of maternal-foetal HIV transmission.</td></tr>
<tr><td>Action</td><td>Nucleoside analogue that inhibits HIV replication by interfering with viral reverse transcriptase.</td></tr>
<tr><td>Drug type</td><td>Antiretroviral medication</td></tr>
<tr><td>Trade name</td><td>Retrovir</td></tr>
<tr><td>Presentation</td><td>Oral: syrup 10 mg/mL
IV: 10 mg/mL in a 20mL single-use vial (SAS)
Note: Retrovir is also available in oral capsules, however only the syrup is used in neonates.</td></tr>
<tr><td>Dose</td><td>Oral
Start therapy within 4 hours of birth.
<table>
<tr><th>Gestation at birth</th><th>Dose</th><th>Interval</th></tr>
<tr><td><30 weeks</td><td>2 mg/kg</td><td>12 hourly</td></tr>
<tr><td>30^{+0}-33^{+6} weeks</td><td>2 mg/kg</td><td>12 hourly for 2 weeks and then 8 hourly</td></tr>
<tr><td>≥34 weeks</td><td>4 mg/kg</td><td>12 hourly*</td></tr>
</table>
*Dose can be rounded up to the nearest 0.5 mg to assist administration.

IV
If neonates are unable to take oral zidovudine
<table>
<tr><th>Gestation at birth</th><th>Dose</th><th>Interval</th></tr>
<tr><td>≤33^{+6} weeks gestation*</td><td>1.5 mg/kg/dose</td><td>12 hourly</td></tr>
<tr><td>≥34 weeks gestation</td><td>1.5 mg/kg/dose</td><td>6 hourly</td></tr>
</table>
∗ Change interval to 6 hourly at 34 weeks gestation.
Switch to oral once the neonate is tolerating oral feeds.

Total duration IV/oral dosing
• Very low risk monotherapy – 2 weeks
• Low risk monotherapy – 4 weeks
• High risk / combination therapy – 4 weeks</td></tr>
<tr><td>Dose adjustment</td><td>Therapeutic hypothermia: no information.
ECMO: no information.
Renal: see monitoring and interactions.
Hepatic: see monitoring and adverse reactions.</td></tr>
<tr><td>Maximum dose</td><td></td></tr>
<tr><td>Total cumulative dose</td><td></td></tr>
<tr><td>Route</td><td>Oral
IV</td></tr>
<tr><td>Preparation</td><td>Oral: Syrup
IV: Draw up 1mL (10mg of ziduvodine) and add 9mL of glucose 5% to make a final volume of 10mL with a final concentration of 1mg/mL. [1]</td></tr>
<tr><td>Administration</td><td>Oral: Can be given without food.
IV: infusion over 30 minutes - 1 hour.</td></tr>
<tr><td>Monitoring</td><td>Full blood count, blood sugar level, liver function, renal functions, viral load, CD4 counts should be obtained.
The panel should be repeated within 2-4 weeks of commencement of therapy and then every 3-4 months. [2-4]</td></tr>
<tr><td>Contraindications</td><td>Life-threatening hypersensitivity reactions (e.g., anaphylaxis, Stevens-Johnson syndrome) to zidovudine or any components of the formulations. [5]
Zidovudine infusions should not be given to patients with abnormally low neutrophils or haemoglobin levels. [5]</td></tr>
</table>

Precautions	There have been reports of pancytopenia associated with the use of zidovudine, which was reversible in most instances after discontinuance of the drug.
Drug interactions	Stavudine - zidovudine should not be administered in combination with stavudine because of in vitro virologic antagonism. Co-administration of zidovudine with drugs that are nephrotoxic, cytotoxic, or which interfere with red blood cell and white blood cell number or function (e.g. ganciclovir, amphotericin B or interferon) may increase the risk of toxicity. If concomitant therapy with any of these drugs is necessary then extra care should be taken in monitoring renal function and haematological parameters. Ribavirin antagonizes in vitro antiviral activity of zidovudine and so concomitant use should be avoided. Doxorubicin - simultaneous use of doxorubicin and zidovudine should be avoided. Doxorubicin may inhibit the phosphorylation of zidovudine to its active form. Phenytoin - phenytoin blood levels have been reported to be low in some patients receiving zidovudine. Monitor phenytoin levels if neonate is receiving both medications. [5] Clarithromycin - oral clarithromycin reduces the absorption of zidovudine. This can be avoided by separating the doses by at least 2 hours. [5]
Adverse reactions	Anaemia and neutropenia are common. Transient lactic acidemia, vomiting, headache, insomnia, hepatomegaly with hepatic steatosis, lipodystrophy, lipoatrophy, myopathy, cardiomyopathy and myositis. [6, 7] In most cases the adverse events are mild and self-limiting. Prolonged use increases the risk of adverse events.
Compatibility	Fluids: glucose 5%, sodium chloride 0.9% Y site: aciclovir, amikacin, amphotericin B, aztreonam, cefepime, ceftazidime, ceftriaxone, cimetidine, clindamycin, dexamethasone, dobutamine, dopamine, erythromycin lactobionate, fluconazole, gentamicin, heparin, imipenem, linezolid, lorazepam, metoclopramide, morphine, nafcillin, oxacillin, piperacillin, piperacillin-tazobactam, potassium chloride, ranitidine, remifentanil, rocuronium, tobramycin, trimethoprim-sulfamethoxazole, and vancomycin. Note: This is not an exhaustive list. Please refer to the relevant resources eg. Micromedex, Australian Injectable Drugs Handbook for detailed information.
Incompatibility	Fluids: no information Y site: lansoprazole, meropenem
Stability	Vial: store below 30°C After dilution, the drug solution is stable for 24 hours if stored below 25°C or in refrigerator. Protect from light. [5]
Storage	Oral syrup and any unused vials are to be stored at room temperature and protected from light. [5]
Excipients	Retrovir Oral Syrup: Each 5 mL contains zidovudine 50 mg, and glycerol, citric acid, sodium benzoate, saccharin sodium, maltitol solution, Flavour Strawberry 500286E, Flavour White Sugar 3112044, and water-purified. Retrovir IV vials: hydrochloric acid, sodium hydroxide, water for injection.
Special comments	Dose adjustment is required in renal and hepatic impairment. Fixed drug combinations should be avoided in infants with renal and hepatic insufficiency.
Evidence	Refer to full version.
Practice points	Refer to full version.
References	Refer to full version.

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