Meropenem
Newborn Use Only

2017

<table>
<tr><td>Alert</td><td>The Antimicrobial Stewardship Team recommends this drug is listed under the following category: Restricted.
Widespread use of carbapenems has been linked with increasing prevalence of infections caused by methicillin-resistant Staphylococcus aureus (MRSA), vancomycin-resistant enterococci (VRE), multi-resistant Gram-negative organisms and Clostridium difficile.</td></tr>
<tr><td>Indication</td><td>Severe infections (e.g., sepsis or meningitis) caused by Gram-negative organisms resistant to other conventional antibiotics but susceptible to meropenem e.g., Extended Spectrum Beta Lactamase (ESBL)-producing organisms.
Note: Meropenem is NOT active against many resistant Gram-positive organisms, such as MRSA and most Staphylococcus epidermidis. Vancomycin is first-line therapy for these. Meropenem does have activity against penicillin-susceptible Gram-positive organisms and most anaerobic organisms. For individual advice, discuss therapy with a microbiologist or infectious diseases physician.</td></tr>
<tr><td>Action</td><td>Meropenem is a carbapenem. It inhibits cell wall synthesis.[1]

Meropenem is a better choice than imipenem for central nervous system infections. Meropenem attains a higher concentration in the cerebrospinal fluid particularly with inflamed meninges and has a lower incidence of seizures than imipenem.</td></tr>
<tr><td>Drug Type</td><td>Carbapenem antibiotic.</td></tr>
<tr><td>Trade Name</td><td>Meropenem APOTEX, Meropenem DBL, Meropenem Kabi, Meropenem Ranbaxy, Meropenem Sandoz, Merrem</td></tr>
<tr><td>Presentation</td><td>500 mg vial
1000 mg vial</td></tr>
<tr><td>Dosage / Interval</td><td>Non-CNS and Non-Pseudomonas Sepsis
<table>
<tr><th>Gestational Age at birth</th><th>Postnatal Age</th><th>Dose</th><th>Interval</th></tr>
<tr><td>< 32^{+0} weeks</td><td>0–13 days</td><td>20 mg/kg</td><td>12 hourly</td></tr>
<tr><td>< 32^{+0} weeks</td><td>14+ days</td><td>20 mg/kg</td><td>8 hourly</td></tr>
<tr><td>≥ 32^{+0} weeks</td><td>0–13 days</td><td>20 mg/kg</td><td>8 hourly</td></tr>
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</table>
Meningitis and Pseudomonas Sepsis*
<table>
<tr><th>Gestational Age at birth</th><th>Postnatal Age</th><th>Dose</th><th>Interval</th></tr>
<tr><td>Any</td><td>Any</td><td>40 mg/kg</td><td>8 hourly</td></tr>
</table>
*Assess for any renal impairment prior to using higher doses as meropenem is primarily excreted via the kidneys.</td></tr>
<tr><td>Route</td><td>IV infusion.</td></tr>
<tr><td>Maximum Daily Dose</td><td></td></tr>
<tr><td>Preparation/Dilution</td><td>Add 9.6 mL of WFI to the 500 mg powder for reconstitution to make a volume of 10 mL with a concentration of 50 mg/mL.
Draw up 2 mL (100 mg of meropenem) of solution and add 8 mL sodium chloride 0.9% to make a final volume of 10 mL with a concentration of 10 mg/mL.

<u>Larger doses or neonates with a fluid restriction</u>.
Add 9.6 mL of WFI to the 500 mg powder for reconstitution to make a volume of 10 mL with a concentration of 50 mg/mL.
Draw up 4 mL (200 mg of meropenem) of solution and add 6 mL sodium chloride 0.9% to make a final volume of 10 mL with a concentration of 20 mg/mL.</td></tr>
<tr><td>Administration</td><td>IV infusion over 4 hours.
May be given over 15 to 30 minutes if longer infusion not feasible due to line access issues from other infusions.</td></tr>
<tr><td>Monitoring</td><td>Monitor renal function. Dose may need to be adjusted in impaired renal function.</td></tr>
<tr><td>Contraindications</td><td>Hypersensitivity to penicillins, cephalosporins and carbapenems.</td></tr>
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Precautions	Colitis−due to risk of pseudomembranous colitis. Renal impairment.
Drug Interactions	Sodium valproate− meropenem may result in clinically significant reduction in concentration of sodium valproate, which may cause seizures.
Adverse Reactions	Injection site inflammation, diarrhoea (up to 6% in children), anaemia and eosinophilia.
Compatibility	Fluids: Glucose 5%, glucose 10%, sodium chloride 0.9%. Y-site: Amino acid solutions, anidulafungin, caspofungin, linezolid, atropine sulfate monohydrate, dexamethasone sodium, gentamicin, heparin sodium, metronidazole.
Incompatibility	Fluids: No information Y-site: Dolasetron, ketamine, mycophenolate mofetil, zidovudine.
Stability	Merrem: Solutions in sodium chloride are stable for 3 hours below 25°C and 24 hours at 2−8 °C. Use solutions in glucose 5% immediately. Meropenem (DBL, Kabi, Ranbaxy, Sandoz): Solutions in sodium chloride are stable for 8 hours below 25°C and 24 hours at 2−8 °C. Solutions in glucose 5% are stable for 3 hours below 25 °C and 14 hours at 2−8°C. Diluted solutions are potentially unstable, particularly glucose containing solutions and should be discarded if not used immediately.
Storage	Vial: Store at room temperature.
Special Comments	Meropenem 1 g vial contains 3.92 mmol of sodium.
Evidence summary	Refer to full version.
References	Refer to full version.

Original version Date: 05/12/2015	**Author: NMF Consensus Group**
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