**MEROPENEM**

**Indication**
- Treatment of susceptible aerobic and anaerobic gram-positive and gram-negative infections\(^1\) resistant to or not responding to other antibiotics\(^2\)
- Meningitis (good penetration into the CSF and most body tissues\(^2,3)\)

**Presentation**
- Vial 500 mg | 1 gram

**Dosage**
- Standard infection: 20 mg/kg (frequency according to day of life)\(^1\)
- Severe infection: 40 mg/kg (frequency according to day of life)\(^1\)

<table>
<thead>
<tr>
<th>Day of life (days)</th>
<th>Frequency</th>
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<tbody>
<tr>
<td>0–6</td>
<td>every 12 hours</td>
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<tr>
<td>7 or more</td>
<td>every 8 hours</td>
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**Preparation**
- 500 mg vial
  - Add 7.5 mL of 0.9% sodium chloride and shake well
  - Allow to stand until solution clear or pale yellow
  - Draw up solution and make up to 10 mL total volume with 0.9% sodium chloride
  - **Concentration now equal to 50 mg/mL**

- 1 g vial
  - Add 15 mL of 0.9% sodium chloride and shake well
  - Allow to stand until solution clear or pale yellow
  - Draw up solution and make up to 20 mL total volume with 0.9% sodium chloride
  - **Concentration now equal to 50 mg/mL**

**Administration**
- IV injection
  - Draw up the prescribed dose
  - IV injection over 5 minutes\(^1,4\)

- IV infusion according to dose
  - For doses 35 mg or less
    - Draw up 1 mL of 50 mg/mL solution and make up to 4 mL total volume with 0.9% sodium chloride
    - **Concentration now equal to 12.5 mg/mL**
    - Draw up double the volume required from the 12.5 mg/mL solution, prime infusion line and reduce total syringe volume to prescribed dose
  - For doses more than 35 mg
    - Draw up double the volume required from the 50 mg/mL solution, prime infusion line and reduce total syringe volume to prescribed dose
  - Infuse via syringe driver pump over 15–30 minutes\(^4\)
    - On completion, disconnect syringe and infusion line
    - Flush access port at same rate as infusion

**Special considerations**
- If renal impairment, may need dosage adjustment\(^1,2\)
- If anuria, consider cessation
- Each 1 g contains 3.92 mmol (90.2 mg) of sodium
- UAC route: discuss with neonatologist/paediatrician prior to use

**Monitoring**
- FBC\(^1\), LFT\(^1\)
- Renal function\(^2\)

**Compatibility**
- Fluids\(^4\)
  - 0.9% sodium chloride, 5% glucose, 10% glucose
- Y-site\(^3\)
  - Atropine, azithromycin, caspofungin, dexamethasone, digoxin, dobutamine, dopamine, fluconazole, furosemide (frusemide), gentamicin, heparin, insulin, morphine, noradrenaline (norepinephrine), phenobarbital (phenobarbitone), potassium chloride, ranitidine, vancomycin
Incompatibility

- PN and fat emulsion: co-infusion with meropenem not recommended (evidence limited). If unavoidable, seek pharmacist advice first, filter infusion and flush before and after.
- Aciclovir, amiodarone, amphotericin B, calcium gluconate, sodium bicarbonate, zidovudine.

Interactions

- May result in clinically significant reduction in concentration of sodium valproate which may cause seizures.

Stability

- Vial:
  - Store below 25 °C
- Reconstituted solution:
  - In sodium chloride solutions, stable for 8 hours below 25 °C and 24 hours at 2–8 °C
  - In glucose solutions, stable for 3 hours below 25 °C and 14 hours at 2–8 °C
- Stability information may vary between brands—check with pharmacist.

Side effects

- Hypersensitivity reactions: rare in neonates. May present as erythema and rash (maculopapular rash, red purple plaques or urticarial type plaques).
- Blood pathology: raised liver enzymes, thrombocytopenia, eosinophilia, leukopenia, may give positive Coombs test.
- Digestive: diarrhea, vomiting.
- Integumentary: inflammation at injection site, rash.
- Nervous system: seizures reported in patients with renal impairment.

Actions

- Broad-spectrum carbapenem antibiotic

Abbreviations

- FBC: full blood count, IV: intravenous, LFT: liver function test, UAC: umbilical arterial catheter

Keywords

- meropenem, carbapenem, antibiotic, gram-positive, gram-negative, infection, neonatal sepsis

The Queensland Clinical Guideline Neonatal Medicines is integral to and should be read in conjunction with this monograph. Refer to the disclaimer. Destroy all printed copies of this monograph after use.

References


Document history

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<th>ID number</th>
<th>Effective</th>
<th>Review</th>
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<td>NMedQ19.009-V1-R24</td>
<td>26/06/2019</td>
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<td>Endorsed by Queensland Neonatal Services Advisory Group (QNSAG)</td>
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