Louth: Antimicrobial Guidelines - Louth Hospitals: Antimicrobial Guidelines: Neonatal - ■Meropenem IV

Neonatal - Meropenem IV

Meropenem is a broad-spectrum carbapenem antibiotic [1]. It is a restricted antimicrobial in LH and should only be prescribed following consultation with the Clinical Microbiologist.

MEDICATION SAFETY ISSUES

- Meropenem is a beta-lactam antibiotic. Avoid if history of immediate hypersensitivity reaction to beta-lactam antibacterials (e.g. penicillins or cephalosporins). Use with caution in patients with sensitivity to beta-lactam antibacterials [2,3].
- Incompatible with Aciclovir, Amphotericin B, Calcium Gluconate, Metronidazole, Sodium Bicarbonate and Zidovudine [1].

USES

Treatment of multi-drug resistant infection caused by certain gram-negative and gram-positive organisms, hospital-acquired septicaemia and meningitis [2]. Not licensed for use in children < 3 months of age [3].

PRESENTATION

Meropenem 500 mg Powder for Solution for Injection or Infusion [6].

DOSAGE [3,4]

Age	Dose	Interval
Neonate <7 days	40mg/kg	Every 12 hours
Neonate 7 – 28 days	40mg/kg	Every 8 hours
Child 1 to 3 months	40mg/kg	Every 8 hours

RECONSTITUTION [3,7]

NB. There are TWO STEPS for reconstitution. BOTH Step 1 and Step 2 below must be followed.

Step 1 : Reconstitute 500mg vial with 9.5mL WFI (Displacement volume 0.5mL) to give 50mg/mL. The displacement value of 0.5mL is for Hikma/Demo/Noridem brands (Fannin) of Meropenem 500mg. Check the displacement value if a different brand is used.

Step 2 : **Further dilute** 4mL of this solution with 6mL sodium chloride 0.9% or glucose 5% to a final volume of 10mL. The resulting solution contains meropenem 20mg/mL.

ADMINISTRATION

Administer as an IV infusion over 30 minutes.

SAMPLE CALCULATION

A 10 day old baby with meningitis weighing 2.3kg. Dose = 40mg/kg = 92mg every 8 hours.

Reconstitue meropenem as above to a solution containing 20mg/mL.

Withdraw 4.6mL (92mg) and administer by IV infusion over 30 minutes.

STORAGE

After reconstitution the solution should be used immediately. The time interval between the beginning of reconstitution and the end of intravenous infusion should not exceed 1 hour [6].

MONITORING

- Monitor renal, hepatic, and hematologic function tests [8].
- Dose reduction may be required in renal impairment – refer to BNFc and seek advice [3].
- Observe for changes in bowel frequency (Pseudomembranous colitis has been reported with the use of meropenem) [4].

ADVERSE EFFECTS

Nausea, vomiting, diarrhoea (antibiotic-associated colitis reported), abdominal pain, disturbances in liver function tests, headache, thrombocythaemia, rash, pruritus; *less commonly* paraesthesia, eosinophilia, thrombocytopenia, leucopenia; *rarely* convulsions; also reported haemolytic anaemia, positive Coombs' test, Stevens-Johnson syndrome, toxic epidermal necrolysis [3].

REFERENCES

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Summary of Changes from Previous Versions

Date	Change
Feb 2021: Rev. No. 2	Updated based on Rotunda Meropenem Monograph Mar 2019. Changes to OLOL monograph: • Addition that meropenem is restricted in LH and should only be prescribed following consultation with the clinical microbiologist. • Caution on use in patients with previous reaction to beta-lactams reworded as per current BNFc wording. • Dose for child 1 to 3 months changed from 20 – 40mg/kg to 40mg/kg as per Rotunda monograph. Doses referenced to BNFc also. • References updated.
June 2017: Rev. No. 1	Meropenem Hikma Fannin brand stocked in OLOL. Displacement value changed to 0.5ml and calculation updated.
Jan 2015	This is the first version of this guideline. It is based on the Rotunda Hospital Neonatal Monograph for Meropenem, Doc. No. 1, Revision No. 0, date of issue 10/11/14. Changes in OLOL monograph compared to the Rotunda monograph: • Medication Safety: Do not use if previous severe hypersensitivity reaction to penicillin as per BNF for Children ("severe hypersensitivity" added) • Uses: added that meropenem not licensed for children under 3 months • Dose: added dosing for children 1 to 3 months • Reconstitution: Further dilution added to give a standard concentration of 20mg/mL for all doses. BNF for Children advises 1 – 20mg/mL. • Monitoring: added that dose reduction may be required for renal impairment • Adverse Effects: full list from BNF for Children included.