Intrapen
Meropenem

Presentation

Intrapen 500 mg IV injection: Each vial contains sufficient Meropenem USP to deliver 500 mg for intravenous administration with 1 ampoule of 10 ml of water for injections (WFI) BP as solvent.

Intrapen 1 gm IV injection : Each vial contains sufficient Meropenem USP to deliver 1g for intravenous administration with 2 ampoules of 10 ml of water for injections (WFI) BP as solvent.

Pharmacodynamic Properties

Meropenem is a broad-spectrum carbapenem antibiotic. It is active against Gram-positive and Gram-negative bacteria.

The bactericidal activity of meropenem results from the inhibition of cell wall synthesis. Meropenem readily penetrates the cell wall of most Gram-positive and Gram-negative bacteria to reach penicillin-binding-protein (PBP) targets. Its strongest affinities are toward PBPs 2, 3 and 4 of *Escherichia coli* and *Pseudomonas aeruginosa* and PBPs 1, 2 and 4 of *Staphylococcus aureus*. Meropenem has significant stability to hydrolysis by β-lactamases of most categories, both penicillinases and cephalosporinases produced by Gram-positive and Gram-negative bacteria.

Pharmacokinetics Properties

At the end of a 30 minute intravenous infusion of a single dose of Meropenem for Injection I.V. in normal volunteers, mean peak plasma concentrations are approximately 23 mcg/mL (range 14 to 26) for the 500 mg dose and 49 mcg/mL (range 39 to 58) for the 1 g dose. A 5 minute intravenous bolus injection of Meropenem for Injection I.V. in normal volunteers results in mean peak plasma concentrations of approximately 45 mcg/mL (range 18 to 65) for the 500 mg dose and 112 mcg/mL (range 83 to 140) for the 1 g dose.

Following intravenous doses of 500 mg, mean plasma concentrations of meropenem usually decline to approximately 1 mcg/mL at 6 hours after administration. Plasma protein binding of meropenem is approximately 2%. The pharmacokinetics of Meropenem for Injection I.V. in pediatric patients 2 years of age or older are essentially similar to those in adults. The elimination half-life for meropenem was approximately 1.5 hours in pediatric patients of age 3 months to 2 years.

Indications

- Pneumonias and Nosocomial Pneumonias
- Urinary Tract Infections
- Intra Abdominal Infections
- Gynaecological Infections, such as endometritis
- Skin and Skin Structure Infections
- Bacterial Meningitis
- Septicaemia
- Treatment of polymicrobial infections

Dosage and Application

Adults

The dosage and duration of therapy shall be established depending on type and severity of infection and the condition of the patient.

The recommended daily dose

500 mg IV every 8 hours in the treatment of pneumonia, UTI, gynaecological infections such as endometritis and skin and skin structure infections.

1 g IV every 8 hours in the treatment of Nosocomial Pneumonias, intra abdominal infections, Septicaemia and peritonitis.

Usual Adult Dose for Meningitis

1 to 2 g IV every 8 hours for 7 to 21 days

Use in Adults with Renal Impairment

Dosage should be reduced in patients with creatinine clearance less than 51 mL/min.

Recommended Meropenem for Injection I.V. Dosage Schedule for Adults With Impaired Renal Function

Creatinine Clearance (mL/min)	Dose(dependent on type of infection)	Dosing Interval
≥51	Recommended dose (500 mg cSSSI and 1g Intra-abdominal)	Every 8 hours
26 to 50	Recommended dose	Every 12 hours
10 to 25	One-half recommended dose	Every 12 hours
<10	One-half recommended dose	Every 24 hours

Use in Adults With Hepatic Insufficiency

No dosage adjustment is necessary in patients with impaired hepatic function.

Use in Pediatric Patients

For pediatric patients from 3 months of age and older, the Meropenem for Injection I.V. dose is 10, 20 or 40 mg/kg every 8 hours (maximum dose is 2 g every 8 hours), depending on the type of infection (complicated skin and skin structure, intra-abdominal or meningitis). Pediatric patients weighing over 50 kg should be administered Meropenem for Injection I.V. at a dose of 500 mg every 8 hours for complicated skin and skin structure infections, 1 g every 8 hours for intra-abdominal infections and 2 g every 8 hours for meningitis. Meropenem for Injection I.V. should be given as intravenous infusion over approximately 15 to 30 minutes or as an intravenous bolus injection (5 to 20 mL) over approximately 3 to 5 minutes.

Contraindications

Meropenem for Injection I.V. is contraindicated in patients with known hypersensitivity to any component of this product or to other drugs in the same class or in patients who have demonstrated anaphylactic reactions to β-lactam antibiotics or β-lactamase inhibitors.

Seizures and other CNS adverse experiences have been reported during treatment with Meropenem for Injection I.V.

Side Effects

Local Adverse Reactions

Local adverse reactions that were reported irrespective of the relationship to therapy with Meropenem for Injection I.V. were as follows:

Inflammation at the injection site	2.4%
Injection site reaction	0.9%
Phlebitis/thrombophlebitis	0.8%
Pain at the injection site	0.4%
Edema at the injection site	0.2%

Systemic Adverse Reactions

Systemic adverse clinical reactions that were reported irrespective of the relationship to Meropenem for Injection I.V. occurring in greater than 1% of the patients were diarrhea, nausea/vomiting, headache, rash, sepsis, constipation, apnea, shock, and pruritus.

Precautions

Seizures and other adverse CNS experiences have been reported during treatment with Meropenem for Injection I.V. These experiences have occurred most commonly in patients with CNS disorders (e.g. brain lesions or history of seizures) or with bacterial meningitis.

Drug Interaction

Probenecid competes with Meropenem for active tubular secretion and thus inhibits the renal excretion of meropenem. This led to statistically significant increases in the elimination half-life (38%) and in the extent of systemic exposure (56%). Therefore, the coadministration of probenecid with meropenem is not recommended.

Use in Pregnancy and Lactation

Pregnancy Category B

Reproductive studies have been performed with meropenem in rats at doses of up to 1000 mg/kg/day and cynomolgus monkeys at doses of up to 360 mg/kg/day. These studies revealed no evidence of impaired fertility or harm to the fetus due to meropenem, although there were slight changes in fetal body weight at doses of 250 mg/kg/day and above in rats. There are, however, no adequate and well-controlled studies in pregnant women.

Nursing Mothers

It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when Meropenem for Injection I.V. is administered to a nursing woman.

Overdose

Treatment of accidental over dosage should be symptomatic. In normal individuals rapid renal elimination will occur; in subjects with renal impairment haemodialysis will remove Meropenem and its metabolite.

Storage Condition

Store in a cool and dry place, away from light. Keep out of reach of the children.

Commercial Pack

Intrapen 500 mg IV injection: Pack of 1 vial containing sterile Meropenem USP 500 mg accompanied by 1 ampoule of 10 ml of sterile water for injections BP, a 10 ml sterile disposable syringe, scalp vein set, alcohol pad for I.V. Injection.

Intrapen 1g IV injection: Pack of 1 vial containing sterile Meropenem USP 1 g accompanied by 2 ampoules of 10 ml of sterile water for injections BP, a 20 ml sterile disposable syringe, scalp vein set, alcohol pad for I.V. Injection.

Manufactured for:
GENERAL Pharmaceuticals Ltd.
Gazipur, Bangladesh
by Popular Pharmaceuticals Ltd.:,
Tongi, Bangladesh

Revision No.:00