Iminem® Injection

Imipenem plus cilastatin sodium

Description

Iminem® is a sterile preparation of imipenem and cilastatin sodium. Imipenem is a broad spectrum antibiotic which belongs to carbapenem class of antibiotics. It has the ability to kill a wide variety of bacteria. It works by interfering with their ability to form cell walls, and therefore the bacteria break up and die. Imipenem, the active antibiotic ingredient, is partially inactivated by an enzyme in the kidney which can reduce its effectiveness. Therefore it is combined with cilastatin sodium which blocks the effect of this enzyme. Cilastatin sodium does not have any antibacterial effects and does not affect the antibacterial activity of the imipenem.

Indication and usage

Iminem® is indicated for the treatment of serious infections caused by susceptible strains of the designated microorganisms in the conditions listed below:

- **Lower respiratory tract infections:** *Staphylococcus aureus*, *Acinetobacter* species*, Enterobacter* species*, Escherichia coli, Haemophilus influenzae, Haemophilus parainfluenzae, Klebsiella* species*, Serratia marcescens*
- **Urinary tract infections** (complicated and uncomplicated): *Enterococcus faecalis*, *Staphylococcus aureus*, *Enterobacter* species, *Escherichia coli*, *Klebsiella* species, *Morganella morganii*, *Proteus vulgaris*, *Providencia rettgeri*, *Pseudomonas aeruginosa*
- **Intra-abdominal infections:** *Enterococcus faecalis*, *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Citrobacter* species, *Enterobacter* species, *Escherichia coli*, *Klebsiella* species, *Morganella morganii*, *Proteus* species, *Pseudomonas aeruginosa*, *Bifidobacterium* species, *Clostridium* species, *Eubacterium* species, *Peptococcus* species, *Peptostreptococcus* species, *Propionibacterium* species, *Bacteroides* species including *B. fragilis*, *Fusobacterium* species
- **Gynecologic infections:** *Enterococcus faecalis*, *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Streptococcus agalactiae* (Group B streptococci), *Enterobacter* species, *Escherichia coli*, *Gardnerella vaginalis*, *Klebsiella* species, *Proteus* species, *Bifidobacterium* species, *Peptococcus* species, *Peptostreptococcus* species, *Propionibacterium* species, *Bacteroides* species including *B. fragilis*
- **Bacterial septicemia:** *Enterococcus faecalis*, *Staphylococcus aureus*, *Enterobacter* species, *Escherichia coli*, *Klebsiella* species, *Pseudomonas aeruginosa*, *Serratia* species, *Bacteroides* species including *B. fragilis*
- **Bone and joint infections:** *Enterococcus faecalis*, *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Enterobacter* species, *Pseudomonas aeruginosa*
- **Skin and skin structure infections:** *Enterococcus faecalis*, *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Acinetobacter* species, *Citrobacter* species, *Enterobacter* species, *Escherichia coli*, *Klebsiella* species, *Morganella morganii*, *Proteus vulgaris*, *Providencia rettgeri*, *Pseudomonas aeruginosa*, *Serratia* species, *Peptococcus*

species, *Peptostreptococcus* species, *Bacteroides* species including *B. fragilis*, *Fusobacterium* species

- **Endocarditis:** *Staphylococcus aureus*
- **Polymicrobic infections:** polymicrobic infections including those in which *S. pneumoniae* (pneumonia, septicemia), *S. pyogenes* (skin and skin structure), or nonpenicillinase producing *S. aureus* is one of the causative organisms
- **Mixed infections and presumptive therapy** prior to the identification of the causative organisms
- **Surgical prophylaxis**

Dosage and administration

The dosage recommendation for **Iminem**® represents the quantity of imipenem to be administered. An equivalent amount of cilastatin sodium is also present in the solution. **Iminem**® is administered by intravenous infusion.

Adult: 1-2 gm daily (in 3-4 divided doses); less sensitive organisms, up to 50mg/kg daily (maximum 4 gm daily) in 3-4 divided doses. *In surgical prophylaxis,* 1 gm at induction repeated after 3 hours, supplemented in high risk (e.g. colorectal) surgery by doses of 500 mg 8 and 16 hours after induction.

Children *(3 months and older):* 60 mg/kg (up to maximum of 2 gm) daily in 4 divided doses; over 40 kg adult dose.

Use in pregnancy & lactation

There are no adequate and well-controlled studies in pregnant women. It should be used during pregnancy only if the potential benefit justifies the potential risk to the mother and fetus. It is not known whether imipenem-cilastatin is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when imipenem-cilastatin is administered to a nursing woman.

Geriatric use

No overall differences in efficacy or safety were observed between geriatric patients and younger patients, but greater sensitivity of some older individuals cannot be ruled out.

Precaution

For patients on hemodialysis, imipenem-cilastatin sodium is recommended only when the benefit outweighs the potential risk of seizures. Close adherence to the recommended dosage and dosage schedules is urged, especially in patients with known factors that predispose to convulsive activity. Prescribing imipenem-cilastatin sodium in the absence of a proven or strongly suspected bacterial infection or a prophylactic indication is unlikely to provide benefit to the patient and increases the risk of the development of drug-resistant bacteria.

Side effect

Imipenem-cilastatin sodium is generally well tolerated. The most frequently reported systemic side effects are nausea, diarrhea, vomiting, diarrhea (antibiotic associated colitis reported), taste disturbances, tooth or tongue discoloration, hearing loss; blood disorders,

positive Coomb's test; allergic reactions (with rash, pruritus, urticaria, Stevens-Johnson syndrome, fever, anaphylactic reactions, rarely toxic epidermal necrolysis, exfoliative dermatitis); myoclonic activity, convulsions, confusion and mental disturbances; slight increases in liver enzymes and bilirubin, hepatitis; increases in serum creatinine and blood urea; red coloration of urine in children. Local side effects include- erythema, pain and induration, and thrombophlebitis.

Contraindication

Imipenem-cilastatin sodium is contraindicated in patients who are hypersensitive to any component of this product.

Overdose

In the case of overdosage, discontinuation of treatment, symptomatic treatment, and institutional supportive measures are required. Imipenem-cilastatin sodium is hemodialyzable. However, usefulness of this procedure in the overdosage setting is questionable.

Warning

Serious and occasionally fatal hypersensitivity (anaphylactic) reactions have been reported in patients receiving therapy with beta-lactams. Before initiating therapy with imipenem-cilastatin sodium, careful inquiry should be made concerning previous hypersensitivity reactions to penicillins, cephalosporins, other beta-lactams, and other allergens. If an allergic reaction occurs, imipenem-cilastatin sodium should be discontinued.

Drug interaction

Since concomitant administration of imipenem-cilastatin sodium and probenecid results in only minimal increases in plasma levels of imipenem and plasma half-life, it is not recommended that probenecid be given with imipenem-cilastatin sodium. Risk of convulsion increases when imipenem –cilastatin sodium is given with ganciclovir. Imipenem-cilastatin sodium should not be mixed with or physically added to other antibiotics. However, imipenem-cilastatin sodium may be administered concomitantly with some antibiotics, such as aminoglycosides.

Pharmaceutical precaution

Store in a cool and dry place (below 25^{o}C). Protect from light and moisture.

Preparation of solution

Dissolve the content of the infusion bottle with 100 ml of diluent (see list of diluents under compatibility and stability) and shake until a clear solution is obtained. After reconstitution the solution contains 5 mg/ml of imipenem and cilastatin respectively.

Compatibility and stability

Iminem® Injection, as supplied in single use infusion bottles and reconstituted with the following diluents, maintains satisfactory potency for 4 hours at room temperature or for 24 hours under refrigeration (5^{o}C).

0.9% Sodium Chloride Injection

5% or 10% Dextrose Injection

5% Dextrose and 0.9% Sodium Chloride Injection
5% Dextrose Injection with 0.225% or 0.45% saline solution
5% Dextrose Injection with 0.15% Potassium Chloride solution
Mannitol 5% and 10%

Solutions of **Iminem**® Injection should not be frozen.

Presentation

Iminem® Injection: A white sterile powder mixture. Each vial contains 500 mg imipenem equivalent and 500 mg cilastatin equivalent and 20 mg sodium bicarbonate as buffer.

Package quantities

Iminem® Injection: Carton of one vial containing a sterile powder mixture.

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