

IMIPENEM

Imipenem belongs to the carbapenem class of antibiotics, acting through the inhibition of bacterial cell-wall synthesis by binding to penicillin-binding proteins. It is co-administered IV with cilastatin, a renal dehydropeptidase inhibitor that reduces the renal metabolism of imipenem. Imipenem has better Gram-positive activity coverage than meropenem. Carbapenems have one of the broadest antibacterial spectra and should not be used to treat infections if a narrower spectrum antibiotic with a lower impact on antibacterial resistance is an option.

ANTIMICROBIAL SPECTRUM

- **Gram-positive cocci:** methicillin-susceptible *Staphylococcus aureus* (penicillinase-producing), *Staphylococcus epidermidis*, enterococci, streptococci, *Streptococcus pneumoniae*.
- **Gram-negative bacilli:** *Escherichia coli*, *Klebsiella* spp., *Morganella morganii*, *Proteus vulgaris*, *Providencia rettgeri*, *Enterobacter* spp., *Serratia marcescens*, *Citrobacter* spp., *Acinetobacter* spp, *Pseudomonas aeruginosa* (see comment below), *Haemophilus influenzae*.
- **Anaerobes:** *Bacteroides* spp., *Clostridium* spp., other than *Clostridioides difficile* and *Cutibacterium* spp.
- **Other:** *Alcaligenes xylosoxidans*, *Gardnerella vaginalis*, *Nocardia* spp., *Rhodococcus equi*.

Imipenem has no or reduced activity against carbapenemase-producing *Enterobacterales* (e.g., *Klebsiella pneumoniae*, *Proteus* spp., *Enterobacter* spp., *Serratia marcescens*). Due to the risks of increasing daily dose (see adverse effects) and that the MIC of *Enterobacterales* is usually higher than that of meropenem, the latter is preferred in combination with another active drug (e.g., polymyxins) to treat these infections.

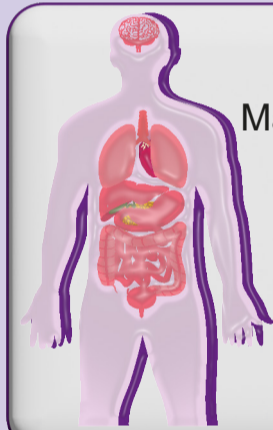
Additionally, *Acinetobacter* spp. and *P. aeruginosa* resistant to carbapenems are increasing worldwide.



EXCRETION

Approximately 70% excreted in urine unchanged.

MAIN INDICATIONS



May be used for the treatment of the following healthcare-associated infections:

- Sepsis
- Lower respiratory tract
- Urinary tract
- Skin and skin structure infections
- Intra-abdominal
- Bone and joint
- Endocarditis

ADULT DOSE

- **Usual Dose:** 500 mg q6h for most indications.
- **Reduced dose:** 250 mg q6h for uncomplicated UTI.

RENAL IMPAIRMENT a,b,c,d

Caution advised if creatinine clearance less than 90 mL/minute.

SIDE EFFECTS

- ! Phlebitis (2-5%)
- ! Eosinophilia (4%)
- ! Transient increase in blood urea nitrogen (BUN) or serum creatinine (<2%)
- ! Seizures (1.5%; significantly increases in patients with predisposing CNS factors)
- ! Nausea, diarrhoea, vomiting (1-2%)



CAUTIONS

Use with caution in CNS disorders (e.g., history of seizures); adjust dosage in renal impairment to avoid risk of seizures.

MONITORING

- Monitor renal function.
- Observe for seizures in patients with any CNS disorder.
- Observe for *Clostridioides difficile*-associated diarrhoea, multi-drug resistant bacteria and fungal superinfection.

PREGNANCY

FDA Category

D

Imipenem crosses the placenta. Present in milk but unlikely to be absorbed.



Legal Disclaimer

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References can be found at www.APUA.org
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