

Carbenecillin

Antibiotic Class:

Penicillin (carboxypenicillin)

Antimicrobial Spectrum:

Gram positive bacteria: *Streptococcus spp.*, *Listeria monocytogenes*

Gram negative bacteria: *Pseudomonas aeruginosa*, *Enterobacter*, *Providencia*, *Morganella*, *Proteus*, *H. influenzae*, *E. coli*, *Proteus mirabilis*, *Salmonella spp.*, *Shigella spp.*

Mechanism of Action:

Exerts bactericidal activity via inhibition of bacterial cell wall synthesis by binding one or more of the penicillin binding proteins (PBPs). Exerts bacterial autolytic effect by inhibition of certain PBPs related to the activation of a bacterial autolytic process.

Pharmacodynamics

Penicillins produce time-dependent killing

Pharmacokinetics:

Cmax: 223mcg/ml; Half-life: 1.1 hours; Table 6

Adverse Effects:

Hematologic: anemia, thrombocytopenia, neutropenia, agranulocytosis

CNS: seizures

Renal: nephrotoxicity, interstitial nephritis

Hepatic: transient increases in transaminases

Other: Jarisch-Herxheimer Reaction (fever, chills, sweating, tachycardia, hyperventilation, flushing, and myalgia)

Dosage:

Adult: 382-764 mg po qid

Pediatric: No data

Disease state based dosing:

Renal failure: No data

Contraindications/Warnings/Precautions:

Contraindications: Anaphylaxis to carbenecillin or other penicillins

Precautions:

- Cephalosporin hypersensitivity
- Congestive heart failure or hypertension (the sodium content of high doses of parenteral carbenecillin should be considered in patients who require sodium restriction).

Drug Interactions:

Contraceptives - decreased contraceptive effectiveness

Live Typhoid Vaccine - decreased immunological response to the typhoid vaccine

Probenecid - increased carbenecillin levels

Pregnancy:

Category B: No evidence of risk in humans but studies inadequate.

Monitoring Requirements:

Therapeutic: Culture and sensitivities, signs and symptoms of infection

Toxic: Periodic CBC, urinalysis, BUN, SCr, AST and ALT, diarrhea, skin rash

Brand names/Manufacturer:

- CARBAPEN (CSL - AUSTRALIA)
- CARBECIN (Sanfer - MEXICO)
- CARINDAPEN (Pfizer - GERMANY)
- GEOCILLIN (Pfizer - USA)
- GEOPEN (PFIZER – INDIA, CANADA, HONG KONG, USA, ITALY, SPAIN)
- MYCICLID - (Wayne - MEXICO)
- PYOPEN (WYETH - CANADA)
- PYOPEN (Beecham – FRANCE, CANADA, UK)
- SAFEPEN (Beecham - SPAIN)
- UNIPEN (Pfizer - SPAIN)
- UROCARF (SPA - ITALY)
- UTICILLIN (Beecham Research, UK)