

Ticarcillin

Antibiotic Class:

Penicillin (carboxypenicillin)

Antimicrobial Spectrum:

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

Gram-negative: *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: 210mcg/ml; Half-life: 1.2mcg/ml; Table 6

Adverse Effects:

Hematologic: eosinophilia, hemolytic anemia, thrombocytopenia, neutropenia

Endocrine: hypokalemia

Renal: nephrotoxicity, interstitial nephritis

Hepatic: transient increases in transaminases

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

Dosage:

Adult: 3g IV q4h

Pediatric: > 1 month and < 40 kg: 100-300 mg/kg/day in 4-6 divided doses

≥40 kg: usual adult dose

Disease state based dosing:

Renal failure: CrCL 30-60 mL/min: 2g q4h

CrCL 10-30 mL/min: 2g q8h

CrCL < 10 mL/min: 2g q12h

Supplement after Hemodialysis: 3g

Contraindications/Warnings/Precautions:

Contraindications: Anaphylaxis to ticarcillin or other penicillins

Precautions:

- Cephalosporin hypersensitivity
- History of asthma, or allergic-type reactions to other medications

Drug Interactions:

Live Typhoid Vaccine - decreased immunological response to the typhoid vaccine
Probenecid - increased ticarcillin 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:

- AERUGIPEN (Beecham - GERMANY)
- TARCIL (SmithKline Beecham - AUSTRALIA)
- TICAR (GlaxoSmithKline – USA, CANADA, UK)
- TICARPEN (GlaxoSmithKline – FRANCE, NETHERLANDS)
- TICILLIN (CSL - AUSTRALIA)
- TRIACILLINE (Smith Kline Beecham - BELGIUM)