

Piperacillin/tazobactam

Antibiotic Class:

Beta-lactam/beta-lactamase inhibitor

Antimicrobial Spectrum:

Staphylococcus aureus (methicillin susceptible), Coagulase negative Staphylococci, *Streptococcus pneumoniae* (penicillin susceptible), *Streptococcus spp.*, *Haemophilus influenzae*, *Moraxella catarrhalis*, *Neisseria meningitides*, *Neisseria gonorrhoeae*, *Enterobacteriaceae*, *E. coli*, *Pseudomonas aeruginosa*

Mechanism of Action:

The beta-lactamase inhibitors are recognized as substrates for the beta-lactamases produced by bacteria. This allows the actual beta-lactams to attack the bacterial cell wall by binding to penicillin binding proteins

Pharmacodynamics

Time dependent killer (Time > MIC)

Pharmacokinetics:

(of the tazobactam)

Dose 200mg

Cmax: 29 mcg/L

Protein binding: 20-23%

Volume of distribution: 0.18-0.33L/kg

Table 5

Adverse Reactions:

No new adverse effects are seen as a result of adding beta-lactamase inhibitors to beta-lactam antibiotics. The adverse reactions would remain the same for the parent compound

Dosage:

IV: Complete listing on Table 6

Dosing in adults:

Mild/Moderate: 2.25-3.375g q6h

Severe: 3.375-4.5g q6h

Dosing in pediatrics:

Not indicated in children < 12 years of age

Table 8

Disease state based dosing:

Renal failure: CrCl > 40mL/min: 3.375g q4-6h

CrCl 20-40mL/min: 2.25g q6h

CrCl < 20mL/min: 2.25g q8h

Hepatic failure: Dosage adjustment not necessary

Table 9

Dosing during Continuous Renal Replacement Therapy

CVVH (Continuous venovenous hemofiltration): 2.25g IV q6h

CVVHD (Continuous venovenous hemodialysis): 2.25-3.375g IV q6h

CVVHDF (Continuous venovenous hemodiafiltration) 2.25g-3.375g IV q6h

Note: CVVH is mainly for fluid removal alone. Many institutions will employ more CVVHD or CVVHDF which combine dialysis with fluid removal.

Contraindications/Warnings/Precautions:

Precautions: hypersensitivity to penicillins, history of gastrointestinal disease, particularly colitis, renal impairment

Drug Interactions:

See piperacillin

Pregnancy Risk Factor:

B

Monitoring parameters:

Therapeutic: Culture and sensitivities, serum levels, signs and symptoms of infection, white blood cell count

Toxic: Urinalysis, BUN, SCr, AST and ALT, skin rash, Neutropenia and leukopenia,

Brand names/Manufacturer: Zosyn/Wyeth pharmaceuticals