Mezlocillin

**Antibiotic Class:**
Penicillin (ureidopenicillin)

**Antimicrobial Spectrum:**
Gram-positive: *Streptococcus spp., Enterococcus, Listeria monocytogenes*
Gram-negative: *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: 263mcg/ml; Half-life: 0.8 hours; Table 6

**Adverse Effects:**
Hematologic: anemia, thrombocytopenia, neutropenia, agranulocytosis
CNS: seizures, dizziness
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: 3-4g IV q4-6h
Pediatric: < 1 week: 75 mg/kg q12h
≥ 1 week and < 1 month: 75 mg/kg q6-8 hrs
≥ 1 month and < 12 yrs: 50-75 mg/kg q4h
≥ 12 years: usual adult dose

Disease state based dosing:
Renal failure: CrCL 10-50 mL/min: 1.5-3g q6-8h
CrCL < 10 mL/min: 1.5-2g q8h
Supplement after Hemodialysis: 3-4g

**Contraindications/Warnings/Precautions:**
Contraindications: Anaphylaxis to mezlocillin or other penicillins
Precautions:
- Cephalosporin hypersensitivity
- Patients with mononucleosis are more likely to develop a skin rash
- Coagulation abnormalities (bleeding time, platelet disorders)
- Electrolyte/fluid status (1.85 mEq sodium per gram or Hypokalemia)
- Prolonged neuromuscular blockade if used with vecuronium-type agents

**Drug Interactions:**
Live Typhoid Vaccine - decreased immunological response to the typhoid vaccine
Methotrexate – increased methotrexate toxicity
Probenecid - increased mezlocillin 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:**
- BAYPEN (Bayer - ITALY, GERMANY, AUSTRIA, FRANCE, ISRAEL)
- BAYPEN (Bayer - SPAIN)
- MELOCIN (Curasan - GERMANY)
- MEZLIN (Bayer - USA)
- OPTOCILLiN (Bayer – AUSTRIA, GERMANY)