Cefazolin

Antibiotic Class:
First-Generation Cephalosporin

Antimicrobial Spectrum:
Gram-negative bacteria: *Moraxella catarrhalis*, *Escherichia coli*, *Klebsiella pneumoniae*, *Proteus mirabilis*

Mechanism of Action:
Cephalosporins exert bactericidal activity by interfering with the later stages of bacterial cell wall synthesis through inactivation of one or more penicillin-binding proteins and inhibiting cross-linking of the peptidoglycan structure. The cephalosporins are also thought to play a role in the activation of bacterical cell autolysins which may contribute to bacterial cell lysis.

Pharmacodynamics
Cephalosporins produce time-dependent killing

Pharmacokinetics:
Cmax: 188mcg/ml
Half-life: 1.8 hours
Volume of distribution: 10L
Table 11

Adverse Reactions:
Hematologic: Neutropenia, leukopenia, eosinophilia, thrombocytopenia, thrombocytosis, impaired platelet aggregation
Dermatologic: Rash (maculopapular), pruritis, urticaria
Gastrointestinal: Diarrhea
Hepatic: Abnormal liver function tests
Renal: Interstitial nephritis
Other: Anaphylaxis

Dosage:
IV/IM: 500mg/10ml injection
1 gram powder for reconstitution (IM)

Adult dose: 1-2g IV/IM q8h
Mild infections: 250-500 mg IV/IM q8h
Moderate to severe infections: 0.5-1 g IV/IM q6-8h
Severe, life-threatening infections: 1-1.5 g IV/IM q6h
Perinatal GBS disease, intrapartum prophylaxis: 2 g IV x 1 dose (started at time of labor or rupture of membranes) then 1 g IV q8h until delivery
Pre-operative use: 1 g IV/IM 0.5-1 hr prior to surgery, then 0.5-1 g IV/IM q6-8h x 24 hr
Urinary tract infections (uncomplicated): 1 g IV/IM q12h

Pediatric dose (1 month and older):
50-100mg/kg/day, divided q6-8h, maximum of 6g per day

**Disease state based dosing:**
Renal failure: Renal failure: CrCl 35-54ml/min 0.5q q8h or 1g q12h
CrCl 11-34ml/min 0.5q q12h or 1g q24h
CrCl ≤ 10ml/min 0.5q q18-24h
Hemodialysis: 0.5 to 1g IV post dialysis dose
Hepatic failure: No dosing changes recommended at this time.

**Dosing during Continuous Renal Replacement Therapy**
CVVH (Continuous venovenous hemofiltration): 1-2g IV q12h
CVVHD (Continuous venovenous hemodialysis): 2g IV q12h
CVVHDF (Continuous venovenous hemodiafiltration) 2g IV q12h
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:**
Contraindications: Hypersensitivity to cephalosporins
Precautions: hypersensitivity to penicillins

**Drug Interactions:**
Live Typhoid Vaccine - decreased immunological response to the typhoid vaccine

**Pregnancy Risk Factor:**
B

**Monitoring parameters:**
Therapeutic: Culture and sensitivities, serum levels, signs and symptoms of infection (e.g. fever, WBC)
Toxic: Urinalysis, BUN, SCr, AST and ALT, skin rash, neutropenia and leukopenia

**Brand names/Manufacturer:**
- ACEF (SmithKline Beecham – USA, CANADA, )
- AREUZOLIN (Areu - SPAIN)
- BAKTOZIL (Chephasaar - GERMANY)
- BASOCEF (DeltaSelect - GERMANY)
- BIAZOLINA (Fermenti - ITALY)
- BIOZOLIN (Novartis - GREECE)
- BOR-CEFAZOL (Proter - ITALY)
- BRIZOLINA (Bristol-Myers Squibb - SPAIN)
- CAMIL (Martin - SPAIN)
- CARICEF (Antibioticos - SPAIN)
- CEFABIOZIM (IPA - ITALY)
- CEFACENE (Centrum - SPAIN)
• CEFACIDAL (Bristol-Myers Squibb – FRANCE, NETHERLANDS, BELGIUM, SOUTH AFRICA, MEXICO, THAILAND)
• CEFADREX (Vir - SPAIN)
• CEFAKES (Inexfa - SPAIN)
• CEFALIN (Atlantic - THAILAND)
• CEFAMEZIN (Pharmacia – ITALY, JAPAN, HONG KONG, ISRAEL, THAILAND)
• CEFAMEZIN (Knoll – SPAIN, PORTUGAL, BRAZIL, AUSTRALIA)
• CEFAMUSEL (Cruz - SPAIN)
• CEFAZIL (Italfarmaco - ITALY)
• CEFAZILLIN (TP - THAILAND)
• CEFAZINA (Chemil - ITALY)
• CEFAZOL (General Drugs - THAILAND)
• CEFAZOLEN (various generic manufacturers - USA, CANADA)
• CEFAPROXOL (Tobishi, JAPAN)
• CEFTRAT (Uniao Quimica - BRAZIL)
• CEZOLIN (Biochimico - BRAZIL)
• CILECEF (Hortel - SPAIN)
• CROMEZIN (SoSe - BRAZIL)
• DACOVO (Tafir - SPAIN)
• DAREN (Antibiotics - SPAIN)
• ELZOGRAM (Lilly - GERMANY)
• FAZOLIN (Siam Bheasach - THAILAND)
• FAZOPLEX (Inkeysa - SPAIN)
• FILOKLIN (Generfarma - SPAIN)
• FIRMACEF (FIRMA - ITALY)
• GENCEFAL (Llorente - SPAIN)
• GRAMAXIN (Roche – AUSTRIA, GERMANY)
• INTERCEFAL (Interpharma- SPAIN)
• INTRAZOLINA (Torlan - SPAIN)
• IZACEF (Intramed - SOUTH AFRICA)
• KARIDINA (Kerifarm - SPAIN)
• KEFAZIN (Vitamed - ISRAEL)
• KEFAZOL (Lilly - BRAZIL)
• KEFOL (Irisfarma - SPAIN)
• KEFZOL (Lilly – ISRAEL, NEW ZEALAND, AUSTRALIA, CHILE, CZECH REPUBLIC, CANADA, NETHERLANDS, SOUTH AFRICA, SWITZERLAND, BELGIUM, AUSTRIA, INDIA, THAILAND, USA, UK, IRELAND)
• KURGAN (Normon - SPAIN)
• KURGAN (APS - PORTUGAL)
• LAMPOCEF (Lampugnani - ITALY)
• NEFAZOL (New Research - ITALY)
• NEOFAZOL (Rubio - SPAIN)
• ORIZOLIN (Cadila – CZECH REPUBLIC)
• PRINDERIN (Hosbon - SPAIN)
• RANZOL (Ranbaxy- SOUTH AFRICA)
• RECEF (Uno - ITALY)
• SERVAZOLIN (Biochemie - AUSTRIA)
• SERVICEF (Servipharm - SWITZERLAND)
• SICEF (Benedetti - ITALY)
• SILZOLIN (Savio - ITALY)
• TASEP (IPS - SPAIN)
• TECFAZOLINA (Bohm- SPAIN)
• TOTACEF (Bristol-Myers Squibb- ITALY, ISRAEL, HUNGARY)
• VIFAZOLIN (Vianex- GREECE)
• VULMIZOLIN (Biotika – CZECH REPUBLIC)
• ZEFA (M & H - THAILAND)
• ZEPILEN (Medochemie - THAILAND)
• ZOLICEF (Apothecon – USA, AUSTRALIA)
• ZOLIN (San Carlo - ITALY)
• ZOLISINT (Benedetti - ITALY)
• ZOLIVAL (Septa - SPAIN)
• ZOLIVAL (Reig Jofre - SPAIN)