

Cefazolin

Antibiotic Class:

First-Generation Cephalosporin

Antimicrobial Spectrum:

Gram-positive bacteria: methicillin-susceptible *Staphylococcus aureus* (MSSA), coagulase – negative *Staphylococci*, penicillin-susceptible *Streptococcus pneumoniae*, *Streptococci spp.*
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 bacterial cell autolysins which may contribute to bacterial cell lysis.

Pharmacodynamics

Cephalosporins produce time-dependent killing

Pharmacokinetics:

C_{max}: 188mcg/ml

Half-life: 1.8hours

Volume of distribution: 10L

Table 11

Adverse Reactions:

Hematologic: Neutropenia, leukopenia, eosinophilia, thrombocytopenia, thrombocytosis, impaired platelet aggregation

Dermatologic: Rash (maculopapular), puritis, urticaria

Gastrointestinal: Diarrhea

Hepatic: Abnormal liver function tests

Renal: Interstitial nephritis

Other: Anaphylaxis

Dosage:

IV/IM: 500mg/10ml injection

1gram 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 \leq 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 (Aru - 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)
- CEFA RESAN (Alacan - SPAIN)
- CEFAZIL (Italfarmaco - ITALY)
- CEFAZILLIN (TP- THAILAND)
- CEFAZINA (Chemil - ITALY)
- CEFAZOL (General Drugs - THAILAND)
- CEFAZOLIN (various generic manufacturers -USA, CANADA))

- CEFAZOPEN (Tobishi, JAPAN)
- CEFTRAT (Uniao Quimica - BRAZIL)
- CEZOLIN (Biochimico - BRAZIL)
- CILICEF (Hortel - SPAIN)
- CROMEZIN (SoSe - ITALY)
- DACOVO (Tafir - SPAIN)
- DAREN (Antibioticos - 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)
- RECEP (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)