

Cefuroxime

Antibiotic Class:

Second-Generation Cephalosporin (true 2nd generation cephalosporin)

Antimicrobial Spectrum:

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

Mechanism of Action:

Cephalosporins exert bactericidal activity by interfering with bacterial cell wall synthesis and inhibiting cross-linking of the peptidoglycan. 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 exhibit time-dependent killing ($T > MIC$)

Pharmacokinetics:

Dose of 500mg: Cmax: 7 mcg/L; Tmax: 3 hours; Half-life: 1.2 hours; Table 10

Adverse Effects:

Hypersensitivity: Maculopapular rash, Urticaria, Pruritis, Anaphylaxis/angioedema, eosinophilia

Hematologic: Neutropenia, Leukopenia, Thrombocytopenia

GI: Diarrhea, *C. difficile* disease

Renal: Interstitial nephritis

Table 14

Dosage:

PO: 125mg, 250mg, 500mg tablet

Powder for Suspension: 125mg/5mL, 250mg/5mL

IV: Injection Powder for Solution: 1.5g, 7.5g, 75g, 225g, 750g

Intravenous Solution: 1.5g/50mL, 750mg/50mL

Dosing in adults

Acute exacerbation of chronic bronchitis: 250mg to 500mg PO q12h x 10 days

Uncomplicated UTI: 125mg - 250mg PO q12h x 7-10 days

Gonorrhea: 1g PO x 1 dose

Lower respiratory tract infection: 750mg - 1.5g IV/IM q8h

Bone/joint infection: 1.5 g IV/IM q8h

Table 12

Dosing in pediatrics:

PO: 30mg/kg/day divided q12h

IV/IM: 50-100mg/kg/day divided q6 to q8h

Disease state based dosing:

Renal failure (IV dosing): CrCl > 20mL/min: Standard dosing

CrCl 10-20mL/min: 0.75g q12h

CrCl < 10mL/min: 0.75g q12h

Table 13

Hepatic failure: No dosing changes recommended at this time.

Contraindications/Warnings/Precautions:

Contraindications: Hypersensitivity to cephalosporins

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

Drug Interactions:

Live Typhoid Vaccine - decreased immunological response to the typhoid vaccine

Pregnancy:

Category B: No evidence of risk in humans but studies inadequate.

Monitoring Requirements:

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,

Prothrombin time in patients with renal or hepatic impairment or poor nutritional state, as well as patients receiving a protracted course of antimicrobial therapy, and patients previously stabilized on anticoagulant therapy.

Brand names/Manufacturer:

Available by many names and manufacturers