cefuroxime (se-fyoor-ox-eem)
Ceftin, Zinacef

Classification
Therapeutic: anti-infectives
Pharmacologic: second-generation cephalosporins

Pregnancy Category B

Indications
Treatment of: Respiratory tract infections, Skin and skin structure infections, Bone and joint infections (IV), Gynecological infections, Septicaemia (IV), Lyme disease (PO). Perioperative prophylaxis (IV).

Action
Binds to bacterial cell wall membrane, causing cell death. Therapeutic Effects: Bactericidal action against susceptible bacteria. Spectrum: Similar to that of first-generation cephalosporins but has increased activity against several other gram-negative pathogens including: Haemophilus influenzae (including β-lactamase-producing strains), Haemophilus parainfluenzae, Escherichia coli, Klebsiella pneumoniae, Neisseria, Proteus, Nocardia asteroides, Borrelia burgdorferi. Not active against methicillin-resistant staphylococci or enterococci.

Pharmacokinetics
Absorption: Well absorbed after oral and IM administration; IV administration results in complete bioavailability.
Distribution: Widely distributed. Penetrates into CSF with IV administration. Crosses the placenta and enters breast milk in low concentrations.
Protein Binding: 50%
Metabolism and Excretion: Excreted primarily unchanged in urine. Half-life: 1–2 hr (7 in renal impairment).

TIME/ACTION PROFILE
ROUTE ONSET PEAK DURATION
PO unknown 2–3 hr 8–12 hr
IM rapid 15–60 min 6–12 hr
IV rapid end of infusion 6–12 hr

Contraindications/Precautions
Contraindicated in: Hypersensitivity to cephalosporins; Serious hypersensitivity to penicillins.
Use Cautiously in: Renal impairment (dose reduction/increased dosing interval recommended if CrCl < 20 mL/min); History of GI disease, especially colitis; Geriatric patients (dose adjustment may be required due to age-related p in renal function); Pregnancy and lactation (has been used safely).

Adverse Reactions/Side Effects
CNS: SEIZURES (high doses).

Interactions
Drug-Drug: Probenecid decreases excretion and increases blood levels. Aminoglycosides and loop diuretics may increase the risk of nephrotoxicity.

Route/Dosage
Note: Cefuroxime oral tablets and oral suspension are not bioequivalent and are not substitutable on a mg/mg basis and are not substitutable on a mgbasis.
PO (Adults and Children ≥12 yr): Pharyngitis/tonsillitis, maxillary sinusitis, uncomplicated urinary tract infections—250 mg every 12 hr. Bronchitis, uncomplicated acute bacterial exacerbation of chronic bronchitis—1 g single dose. Lyme disease—500 mg every 12 hr for 20 days.
PO (Children 3 mo–12 yr): Otitis media, acute bacterial maxillary sinusitis, impetigo—15 mg/kg every 12 hr as oral suspension (not to exceed 1 g/day) or 250 mg every 12 hr as tablets. Pharyngitis/tonsillitis—10 mg/kg every 12 hr as oral suspension (not to exceed 500 mg/day).
IM, IV (Adults): Uncomplicated urinary tract infections, obstruction or structurally infected, dissemninated gonococcal infections, uncomplicated pneumonia—
750 mg every 8 hr. 

Bone/joint infections, severe or complicated infections—1.5 g every 8 hr. 

Life-threatening infections—1.5 g every 6 hr. 

Meningitis—3 g every 8 hr. 

Perioperative prophylaxis—1.5 g IV 30–60 min before initial incision; 750 mg IM/IV every 8 hr can be given when procedure prolonged. 

Prophylaxis during open-heart surgery—1.5 g IV at induction of anesthesia and then every 12 hr for 3 additional doses. 

Children and Infants (<5 yr): Most infections—50–100 mg/kg/day divided every 6–8 hr (maximum dose 6 g/day). 

Bone and joint infections—150 mg/kg/day divided every 8 hr (maximum dose 6 g/day). 

Renal Impairment IM, IV (Adults): 

CCr 10–20 mL/min—750 mg every 12 hr; CCr 10 mL/min—750 mg every 24 hr. 

NURSING IMPLICATIONS 

Assessment 

Assess for infection (vital signs, appearance of wound, sputum, urine, and stool; WBC) at beginning of and throughout therapy. 

Before initiating therapy, obtain a history to determine previous use of and reactions to penicillins or cephalosporins. Persons with a negative history of penicillin sensitivity may still have an allergic response. 

Obtain specimens for culture and sensitivity before initiating therapy. First dose may be given before receiving results. 

Observe patient for signs and symptoms of anaphylaxis (rash, pruritus, laryngeal edema, wheezing). Discontinue the drug and notify health care professional immediately if these symptoms occur. Keep epinephrine, an antihistamine, and resuscitation equipment close by in the event of an anaphylactic reaction. 

Monitor bowel function. Diarrhea, abdominal cramping, fever, and bloody stools should be reported to health care professional promptly as a sign of pseudomembranous colitis. May begin up to several weeks following cessation of therapy. 

Lab Test Considerations: May cause positive results for Coombs’ test. 

May cause ↑ serum AST, ALT, alkaline phosphatase, bilirubin, LDL, HCV, and creatinine. 

May rarely cause leukopenia, neutropenia, and eosinophilia. 

Potential Nursing Diagnoses 

Risk for infection (Indications) (Side Effects) 

Diarrhea (Adverse Reactions) 

Deficient knowledge, related to medication regimen (Patient/Family Teaching) 

Implementation 

PO: Administer around the clock. Tablets can be administered on full or empty stomach. Administration with food may minimize GI irritation. Suspension must be administered diluted. 

Tablets should be swallowed whole; not crushed, chewed tablets have a strong, persistent bitter taste. Shake well each time before using. Tablets and suspension are not interchangeable. Store reconstituted suspension in refrigerator for up to 10 days. 

IM, IV Doses with sterile water for injection. 

Inject deep into a well-developed muscle mass, massage well. 

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CONTINUED

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drug interactions with: