**CefTAZidime**

**Classification:** anti-infectives

**Pharmacologic:** third-generation cephalosporins

**Pregnancy Category:** B

**Indications**

Treatment of the following infections caused by susceptible organisms: Skin and skin structure infections, Bone and joint infections, Urinary tract infections, Gynecological infections, Lower respiratory tract infections, Intra-abdominal infections, Septicemia, Febrile neutropenia, Meningitis.

**Action**

Binds to the bacterial cell wall membrane, causing cell death. **Therapeutic Effects:** Bactericidal action against susceptible bacteria. **Spectrum:** Similar to that of second-generation cephalosporins, but activity against staphylococci is less, while activity against gram-negative pathogens (especially *Pseudomonas aeruginosa*) is greater, even for organisms resistant to line- and second-generation agents. Notable is increased action against *Citrobacter*, *Enterobacter*, *Haemophilus influenzae*, *Escherichia coli*, *Klebsiella pneumoniae*, *Neisseria meningitidis*, *Proteus*, *Providencia*, *Pseudomonas aeruginosa*, *Serratia*, *Moraxella catarrhalis*. Not active against methicillin-resistant staphylococci or enterococci.

**Pharmacokinetics**

**Absorption:** Well absorbed following IM administration; IV administration results in complete bioavailability. **Distribution:** Widely distributed. Crosses the placenta; enters breast milk in low concentrations. CSF penetration better than with first- and second-generation agents. **Protein Binding:** 17%. **Metabolism and Excretion:** 80–90% excreted unchanged in urine. **Half-life:** Neonates: 2.2–4.7 hr; Adults: 2 hr (in renal impairment). **TIME/ACTION PROFILE**

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<th>ROUTE</th>
<th>ONSET</th>
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<td>IV</td>
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**Contraindications/Precautions**

Contraindicated in: Hypersensitivity to cephalosporins; Serious hypersensitivity to penicillins.

Use Cautiously in: Renal impairment (dosing in renal impairment recommended), History of lactic acidosis, especially obesity. **Lactation:** Direct drug effects and modification of bowel flora may occur in the nursing infant. **Geri:** Dose adjustment may be necessary due to age-related renal function.

**Adverse Reactions/Side Effects**

**CNS:** SEIZURES (high doses in patients with renal impairment), encephalopathy. **GI:** PSEUDOMEMBRANOUS COLITIS, abdominal pain, diarrhea, nausea, vomiting. **Derm:** Rashes, pruritis, urticaria. **Hemat:** bleeding, blood dyscrasias, hemolytic anemia. **Local:** pain at IM site, phlebitis at IV site. **Misc:** allergic reactions including ANAPHYLAXIS, superinfection, fever.

**Interactions**

**Drug-Drug:** Concurrent use of loop diuretics or nephrotoxic agents including *aminoglycosides* may ↑ risk of nephrotoxicity. Bactericidal action ↓ by chloramphenicol.

**Route/Dosage**

**IM, IV (Adults and Children ≥12 yr):**

- Pneumonia and skin/skin structure infections—500 mg–1 g every 8 hr.
- Bone and joint infections—2 g every 12 hr.
- Severe and life-threatening infections—2 g every 8 hr.
- Complicated urinary tract infections—500 mg every 8–12 hr.
- Uncomplicated urinary tract infections—250 mg every 12 hr. **Cystic fibrosis lung infection caused by *Pseudomonas aeruginosa*—30–50 mg/kg every 6 hr (max daily dose: 6 g).**

**IM, IV (Children 1 mo–12 yr):**

- 100–150 mg/kg/day divided every 8 hr (max: 6 g/day).

**IM, IV (Neonates ≥4 wk):**

- 50 mg/kg every 6–12 hr.

**Renal Impairment**

**IM, IV (Adults):**

- *CrCl* 50–80 mL/min—1 g every 12 hr.
- *CrCl* 26–30 mL/min—1 g every 24 hr.
- *CrCl* <15 mL/min—0.5 g every 24 hr.
- *CrCl* <5 mL/min—0.5 g every 48 hr.

**TIME/ACTION PROFILE**

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NURSING IMPLICATIONS

Assessment

- Assess for infection (e.g., purulent wound, sputum, urine, stool and/or sputum 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.
- 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.

Implementation

- Do not confuse ceftazidime with cefazolin, cefoxitin, cefotetan, or ceftriaxone.
- IM: Reconstitute IM doses with sterile or bacteriostatic water for injection. May be diluted with lidocaine to a concentration of 280 mg/mL to minimize injection discomfort.
- Inject deep into a well-developed muscle mass; massage well.
- IV Administration
  - pH: 5.0–8.0.
  - IV: Monitor injection site frequently for phlebitis (pain, redness, swelling). Change sites every 48–72 hr to prevent phlebitis.
  - If aminoglycosides are administered concurrently, administer to separate sites, if possible, at least 1 hr apart. If second site is unavailable, flush lines between medications.
  - Direct IV: Reconstitute with 10 mL of 0.9% NaCl, DSW, or sterile water. Do not use preparations containing benzyl alcohol for aminoglycosides. Rate: Administer at a maximum concentration of 180 mg/mL slowly over 3–5 min.
  - Intermittent Infusion: Diluent: Reconstituted solution may be further diluted with 0.9% NaCl, D5W, D10W, D5/0.25% NaCl, D5/0.45% NaCl, or lactated Ringer's solution. Concentration: Maximum of 40 mg/mL. Solution causes carbon dioxide to form inside vial, resulting in positive pressure; vial may require venting after dissolution to preserve sterility of vial. Solution may appear yellow to amber; darkening does not alter potency. Solution is stable for 18 hr at room temperature and 7 days refrigerated.
  - Direct IV: Reconstitute with 10 mL of 0.9% NaCl, DSW, or sterile water. Do not use preparations containing benzyl alcohol for aminoglycosides. Rate: Administer at a maximum concentration of 180 mg/mL slowly over 3–5 min.
  - IV Administration
    - pH: 4.5–7.0.
    - IV: Monitor injection site frequently for phlebitis (pain, redness, swelling). Change sites every 48–72 hr to prevent phlebitis.
    - If aminoglycosides are administered concurrently, administer to separate sites, if possible, at least 1 hr apart. If second site is unavailable, flush lines between medications.
    - Direct IV: Reconstitute with 10 mL of 0.9% NaCl, DSW, or sterile water. Do not use preparations containing benzyl alcohol for aminoglycosides. Rate: Administer at a maximum concentration of 180 mg/mL slowly over 3–5 min.

Toxicity

- Nephrotoxicity: May cause positive results for Coombs' test.
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CONTINUED

**CEFtAZidime**

- Additive: potassium acetate, potassium chloride, procainamide, propranolol, pyridoxime, ranitidine, remifentanil, rocuronium, sodium acetate, sodium bicarbonate, sodium citrate, streptokinase, succinylcholine, sufentanil, tacrolimus, telavancin, thiotepa, ticarcillin/clavulanate, trimethoprim, trimethoprim/sulfamethoxazole, valproic acid.


**Patient/Family Teaching**

- Advise patient to report signs of superinfection (furry overgrowth on the tongue, vaginal itching or discharge, loose or foul-smelling stools) and allergy.

**Evaluation/Desired Outcomes**

- Resolution of the signs and symptoms of infection. Length of time for complete resolution depends on the organism and site of infection.

* Why was this drug prescribed for your patient? *