CefTRIAxone (sef-try-ax-one)

**Synonyms**

Therapeutic: anti-infective

**Pharmacologic:** third-generation cephalosporins

**Pregnancy Category:** B

**Indications**

Treatment of: Skin and skin structure infections, Bone and joint infections, Complicated and uncomplicated urinary tract infections, Uncomplicated gynecological infections including gonorrhea, Lower respiratory tract infections, Intrabdominal infections, Septicemia, Meningitis, Otitis media. Pneumocystis prophylaxis.

**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 gram-negative pathogens is greater, even for organisms resistant to first and second-generation agents. Notable is increased action against:


**Pharmacokinetics**

**Absorption:** Well absorbed following IM administration; IV administration results in complete bioavailability. **Distribution:** Widely distributed. CSF penetration better than with first- and second-generation agents. Crosses the placenta; enters breast milk in low concentrations. **Protein Binding:** 90%.

**Metabolism and Excretion:** 33-67% excreted in urine as unchanged drug; remainder excreted in feces. **Half-life:** 6-9 hr.

**TIME/ACTION PROFILE**

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
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</thead>
<tbody>
<tr>
<td>IM</td>
<td>rapid</td>
<td>1-2 hr</td>
<td>12-24 hr</td>
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<tr>
<td>IV</td>
<td>rapid</td>
<td>end of infusion</td>
<td>12-24 hr</td>
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</tbody>
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**Contraindications/Precautions**

Contraindicated in: Hypersensitivity to cephalosporins; Serum hypersensitivity to penicillins; **Pedi:** Neonates <20 days (use in hypothyroidemic neonates may facilitate kernicterus); **Pedi:** Neonates >20 days requiring calcium-containing IV solutions (risk of precipitation formation).

Use Cautiously in: Combined severe hepatic and renal impairment (dose reduction/adjustment recommended); History of GI disease, especially colitis; OB, Lactation: Pregnancy and lactation.

**Adverse Reactions/Side Effects**

**CNS:** SEIZURES (high doses).

**GI:** SEVERE DIARRHEA, pseudomembranous colitis, diarrhea, cholecystitis, gallbladder sludging.

**Derm:** Rashes, urticaria.

**Hemat:** Bleeding, eosinophilia, hemolytic anemia, leukopenia, thrombocytosis.

**Local:** Pain at IM site, phlebitis at IV site.

**Misc:** Allergic reactions including anaphylaxis, superinfection.

**Interactions**

**Drug-Drug:** Should not be administered concomitantly with any calcium-containing solutions.

**Route/Dosage**

**IM, IV (Adults):**

- Most infections—1-2 g every 12–24 hr
- Gonorrhea—250 mg (single dose).
- Meningitis—2 g every 12 hr.
- Perioperative prophylaxis—1 g 0.5–2 hr before surgery (single dose).

**IM, IV (Children):**

- Most infections—50-75 mg/kg/day (not to exceed 2 g/24 hr) divided every 12–24 hr.
- Meningitis—100 mg/kg/day (not to exceed 6 g/day) divided every 12–24 hr or equivalent parenteral dose—125 mg 28 (single dose).
- Acute otitis media—50 mg/kg (not to exceed 1 g) (single dose).

**NURSING IMPLICATIONS**

**Assessment:**

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

**NURSE-FACED**

- Discontinued.
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 increased serum AST, ALT, alkaline phosphatase, bilirubin, LDH, BUN, and creatinine. May rarely cause leukopenia, neutropenia, agranulocytosis, thrombocytopenia, eosinophilia, lymphocytosis, and thrombocytosis.

Laboratory Testing: Risk for infection (Indications) (Side Effects) Diarrhea (Adverse Reactions) Implementation

Do not confuse ceftriaxone with cefazolin, cefoxitin, cefotetan, or ceftazidime.

IV Administration:

- pH: 6.6–6.7
- IV: Monitor infusion and rate to prevent phlebitis (pain, redness, swelling). Change sites every 48–72 hr to prevent phlebitis.

If aminoglycosides are administered concurrently, administer in separate sites, if possible, at least 1 hr apart. If second site is unavailable, flush lines between medications.

Intermittent Infusion: Diluent: Reconstitute each 250-mg vial with 1.5 mL, each 500-mg vial with 3 mL, each 1-g vial with 6 mL, and each 2-g vial with 10 mL of sterile water for injection, 0.9% NaCl, or D5W for a concentration of 100 mg/mL. Solution should be further dilution 50–100 mL of 0.9% NaCl, D5W, D5/100, D5/0.45% NaCl, or D5/0.9% NaCl. Solution may appear light yellow to amber. Solution is stable for 5 days at room temperature.

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Potential Nursing Diagnoses

- Risk for infection (Evidence-Based Nursing Practice)
- Diarrhea (Nursing Interventions)

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caspofungin, chloramphenicol, chlorpromazine, clenbuterol, codeine, dapsone, diazoxide, diphenhydramine, dobutamine, dextrose in water for injection, epinephrine, filgrastim, famciclovir, haloperidol, heparin, hidrocortisone, hydrocortisone, idarubicin, imipenem/cilastatin, intravenous labetalol, magnesium sulfate, minocycline, morphine sulfate, pentamidine, procainamide, quinine, racemic epinephrine, ranolazine, tacrolimus, teicoplanin, troleandomycin, vancomycin, Calcium-containing solutions, including parenteral nutrition, should not be mixed or co-administered, even via different infusion lines at different sites in patients 28 days old. In older patients, flush lines thoroughly between infusions.

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.

● Instruct patient to notify health care professional if fever and diarrhea develop, especially if diarrhea contains blood, mucus, or pus. Advise patient not to treat diarrhea without consulting health care professional.

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.

● Decreased incidence of infection when used for prophylaxis.

Why was this drug prescribed for your patient?