cefOXitin (se-fox-in)

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

Pregnancy Category B

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

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, Escherichia coli, Klebsiella pneumoniae, Proteus mirabilis, Neisseria gonorrhoeae. Also active against Bacteroides fragilis. Not active against methicillin-resistant staphylococci or enterococci.

Pharmacokinetics
Absorption: Well absorbed following IM administration; IV administration results in complete bioavailability. Distribution: Widely distributed. Penetration into CSF is poor. Crosses the placenta and enters breast milk in low concentrations. Protein Binding: 65–79%. Metabolism and Excretion: Excreted primarily unchanged by the kidneys. Half-life: Adults: ~40–60 min; (↑ in renal impairment); Infants—1.4 hr.

TIME/ACTION PROFILE
ROUTE ONSET PEAK DURATION
IM rapid 30 min 4–8 hr
IV rapid end of infusion 4–8 hr

Contraindications/Precautions
Contraindicated in: Hypersensitivity to cephalosporins; Serious hypersensitivity to penicillins. Use Cautiously in: Renal impairment (dose ↓ if ↓ in renal function); GI disease, especially colitis; Geri: Dose adjustment due to age-related ↓ in renal function may be necessary; OB, Lactation: Has been used safely.

Adverse Reactions/Side Effects

Interactions

Route/Dosage
IM, IV (Adults): Most infections—1 g every 6–8 hr. Severe infections—1 g every 4 hr or 2 g every 6–8 hr. Life-threatening infections—2 g every 4 hr or 3 g every 6 hr. Perioperative prophylaxis—2 g 30–60 min before initial incision, then 2 g every 4 hr for up to 24 hr.

IM, IV (Children and Infants <1 mo): Mild to moderate infections—180–100 mg/kg/day divided every 6 hr. Severe infections—100–160 mg/kg/day divided every 4–6 hrs (maximum: 12 g/day). Perioperative prophylaxis—30–40 mg/kg vancomycin every 6 hr, or 40 mg/kg teicoplanin every 12 hr.

IM, IV (Neonates): 90–100 mg/kg/day divided every 8 hr.

Renal Impairment
IM, IV (Adults): CGCr ≥50 mL/min—Administer every 8–12 hr. CGCr 20–29 mL/min—Administer every 12–24 hr. CGCr <10 mL/min—Administer every 24–48 hr.

Dosage Forms
Injection: 500 mg, 1 g, 2 g. Injectable Powder for Injection: 2.5 g, 5 g. Patch: 100 mg, 200 mg (transdermal). Injection: 500 mg/5 ml, 1000 mg/10 ml. Injection: Concentrate for Injection: 500 mg/5 ml, 1000 mg/10 ml. Solution for Injection: 2 g/20 ml, 4 g/40 ml. Neomycin sulfate: 2.5%, 5% w/v.

Trade Name(s)
Mefoxin

Generic Equivalent
Yes

OPDR indicates life-threatening; underline indicates most frequent. Italics = Discontinued.
NURSING IMPLICATIONS

Assessment

- Assess for infection (signs, appearance of wound, sputum, urine, and stool).
- 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 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, especially in patients with azotemia.
- May cause falsely elevated test results for serum and urine creatinine; do not obtain serum samples within 2 hr of administration.

Potential Nursing Diagnoses

- Risk for infection (Indications) (Side Effects)
- Diarrhea (Adverse Reactions)
- Deficient knowledge, related to medication regimen (Patient/Family Teaching)

Implementation

- Do not confuse cefoxitin with cefazolin, cefotetan, ceftazidime, or ceftriaxone.
- IM: Reconstitute IM doses with sterile or bacteriostatic water for injection or 0.9% NaCl. May be diluted with lidocaine to minimize injection discomfort.
- IV Administration
  - pH: 4.2–8.0.
  - IV: Change sites every 48–72 hr to prevent phlebitis. Monitor site frequently for tenderness (pain, redness, swelling).
  - If aminoglycosides are administered concurrently, administer in separate sites if possible; at least 1 hr apart. If second site is unavailable, flush line between medications.
  - Intravenous Infusion: Dose: Reconstituted solution may be further diluted in 50–100 mL of D5W, D10W, 0.9% NaCl, 0.9% NaCl, 0.45% NaCl, D5/LR, or Lactated Ringer's solution. Stable for 24 hr at room temperature and 1 wk if refrigerated. Darkening of powder does not alter potency. Concentration: 200 mg/mL. Rate: Administer slowly over 3–5 min.
  - Intermittent Infusion: Dose: Reconstituted solution may be further diluted in 50–100 mL of D5W, D10W, 0.9% NaCl, 0.45% NaCl, D5/LR, or Lactated Ringer's solution. Stable for 24 hr at room temperature and 1 wk if refrigerated. Darkening of powder does not alter potency. Concentration: 40 mg/mL. Rate: Administer over 30–60 min.

Y-Site Compatibility:

- heparin.

Syringe Compatibility:

- heparin.
CONTINUED

CefoXXitin

Id, metronidazole, midazolam, morphine, multivitamins, nalbuphine, naloxone, norepinephrine, ondansetron, oxacillin, oxaliplatin, oxycodone, paclitaxel, palonosetron, pamidronate, papaverine, penicillin G, perphenazine, phenylephrine, phytonadione, pneumonia, prochlorperazine, propofol, promethazine, promethazine, propranolol, pyridoxine, ranitidine, remifentanil, rituximab, rocuronium, sodium acetate, succinylcholine, tranexamic acid, vecuronium, verapamil, vincristine, voriconazole, zoledronic acid.

Y-Site Incompatibility: alemtuzumab, ampicillin/sulbactam, aztreonam, captopril, chlorpromazine, dantrolene, diazepam, diphenhydramine, dobutamine, doxorubicin hydrochloride, doxycycline, epinephrine, fenoldopam, fligrastim, ganciclovir, haloperidol, hydralazine, hydroxyzine, idarubicin, insulin, labetalol, levofloxacin, metoprolol, methylprednisolone, mitoxantrone, mycophenolate, papaverine, penicillin G, pentamidine, pentazocine, pentobarbital, phenobarbital, phenol, phenylephrine, prochlorperazine, propranolol, promethazine, quinupristin/dalfopristin, sodium bicarbonate, teniposide, trimethoprim/sulfamethoxazole, vinorelbine.

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 stool contains blood, pus, or mucus. Advise patient not to treat diarrhea without consulting health care professional.

Evaluation/Desired Outcomes

● Resolution of 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?

?-Generic Implication. OPTICS indicate risk-determining, underline indicate most frequent. Discontinued = Discontinued.