Cefotetan (sef-o-tee-tan)

**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. 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 (including β-lactamase-producing strains), Escherichia coli, Klebsiella pneumoniae, Morganella morganii, Neisseria gonorrhoeae, Proteus, Providencia, Serratia marcescens, Morganella morganii. Also has activity 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. Metabolism and Excretion: Excreted primarily unchanged by the kidneys. Protein Binding: 88%. Half-life: 3–4.6 hr.

**Contraindications/Precautions**
Contraindicated in: Hypersensitivity to cephalosporins; Serious hypersensitivity to penicillins.
Use Cautiously in: Renal impairment (dosage adjustments recommended if CCr < 30 mL/min); History of glomerulonephritis, poor nutritional state, or cancer (may be at risk of bleeding); Severe liver disease; Patients with hepatic function. If renal function may be necessary, also may be at risk of bleeding. OB: Lactation: Has been used safely.

**Adverse Reactions/Side Effects**

**Interactions**
Drug-Drug: Probenecid decreases excretion and blood levels. If alcohol is ingested within 48–72 hr of cefotetan, a disulfiram-like reaction may occur. May potentiate the effects of anticoagulants and the risk of bleeding. Concurrent use of aminoglycosides may the risk of nephrotoxicity.

**Route/Dosage**
**IM, IV (Adults):**
- Most infections—1–2 g every 12 hr.
- Severe/life-threatening infections—2–3 g every 12 hr.
- Urinary tract infections—500 mg–2 g every 12 hr or 1–2 g every 24 hr.
- Perioperative prophylaxis—1–2 g 30–60 min before initial incision (one-time dose).

**Renal Impairment**
**IM, IV (Adults):**
- CCr 10–30 mL/min—Usual adult dose every 24 hr or (usual adult dose every 12 hr) × 10 mg/m²/hr; usual adult dose every 12 hr.
- CCr < 10 mL/min—Usual adult dose every 48 hr or 1/4 usual adult dose every 12 hr.

**TIME/ACTION PROFILE**
ROUTE ONSET PEAK DURATION
IM rapid 1–3 hr 12 hr
IV rapid end of infusion 12 hr

**TIME/ACTION PROFILE**

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>IM</td>
<td>rapid</td>
<td>1–3 hr</td>
<td>12 hr</td>
</tr>
<tr>
<td>IV</td>
<td>rapid</td>
<td>end of infusion</td>
<td>12 hr</td>
</tr>
</tbody>
</table>

**Contraindications/Precautions**
Contraindicated in: Hypersensitivity to cephalosporins; Serious hypersensitivity to penicillins.

Use Cautiously in: Renal impairment (dosage adjustments recommended if CCr < 30 mL/min); History of glomerulonephritis, poor nutritional state, or cancer (may be at risk of bleeding); Severe liver disease; Patients with hepatic function. If renal function may be necessary, also may be at risk of bleeding. OB: Lactation: Has been used safely.

**Adverse Reactions/Side Effects**

**Interactions**
Drug-Drug: Probenecid decreases excretion and blood levels. If alcohol is ingested within 48–72 hr of cefotetan, a disulfiram-like reaction may occur. May potentiate the effects of anticoagulants and the risk of bleeding. Concurrent use of aminoglycosides may the risk of nephrotoxicity.

**Route/Dosage**
**IM, IV (Adults):**
- Most infections—1–2 g every 12 hr.
- Severe/life-threatening infections—2–3 g every 12 hr.
- Urinary tract infections—500 mg–2 g every 12 hr or 1–2 g every 24 hr.
- Perioperative prophylaxis—1–2 g 30–60 min before initial incision (one-time dose).

**Renal Impairment**
**IM, IV (Adults):**
- CCr 10–30 mL/min—Usual adult dose every 24 hr or (usual adult dose every 12 hr) × 10 mg/m²/hr; usual adult dose every 12 hr.
- CCr < 10 mL/min—Usual adult dose every 48 hr or 1/4 usual adult dose every 12 hr.

**TIME/ACTION PROFILE**
ROUTE ONSET PEAK DURATION
IM rapid 1–3 hr 12 hr
IV rapid end of infusion 12 hr

**Contraindications/Precautions**
Contraindicated in: Hypersensitivity to cephalosporins; Serious hypersensitivity to penicillins.

Use Cautiously in: Renal impairment (dosage adjustments recommended if CCr < 30 mL/min); History of glomerulonephritis, poor nutritional state, or cancer (may be at risk of bleeding); Severe liver disease; Patients with hepatic function. If renal function may be necessary, also may be at risk of bleeding. OB: Lactation: Has been used safely.

**Adverse Reactions/Side Effects**

**Interactions**
Drug-Drug: Probenecid decreases excretion and blood levels. If alcohol is ingested within 48–72 hr of cefotetan, a disulfiram-like reaction may occur. May potentiate the effects of anticoagulants and the risk of bleeding. Concurrent use of aminoglycosides may the risk of nephrotoxicity.

**Route/Dosage**
**IM, IV (Adults):**
- Most infections—1–2 g every 12 hr.
- Severe/life-threatening infections—2–3 g every 12 hr.
- Urinary tract infections—500 mg–2 g every 12 hr or 1–2 g every 24 hr.
- Perioperative prophylaxis—1–2 g 30–60 min before initial incision (one-time dose).

**Renal Impairment**
**IM, IV (Adults):**
- CCr 10–30 mL/min—Usual adult dose every 24 hr or (usual adult dose every 12 hr) × 10 mg/m²/hr; usual adult dose every 12 hr.
- CCr < 10 mL/min—Usual adult dose every 48 hr or 1/4 usual adult dose every 12 hr.
NURSING IMPLICATIONS

Assessment
- Assess for infection (local 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.
- Monitor prothrombin time and assess patient for bleeding (guaiac stools; check for hematuria, bleeding gums, ecchymosis) daily in high-risk patients; may cause hypoprothrombinemia.
- May cause serum AST, ALT, alkaline phosphatase, bilirubin, LDH, BUN, and creatinine.
- May rarely cause leukopenia, neutropenia, agranulocytosis, thrombocytopenia, and eosinophilia.

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

Implementation
- IV: Administer IV doses with normal or lactated Ringer’s solution or sterile water for injection. May be administered concurrently, administration in separate sites is possible, at least 1 hr apart. IV second site is unavailable, think line between medications.
- IV: Change sites every 48–72 hr to prevent phlebitis. Monitor site frequently for discomfort (pain, redness, swelling).
- IV: Aminoglycosides are administered concurrently, administration in separate sites is possible, at least 1 hr apart. IV second site is unavailable, think line between medications.
- IV: Administer IV doses with normal or lactated Ringer’s solution or sterile water for injection. May be administered concurrently, administration in separate sites is possible, at least 1 hr apart. IV second site is unavailable, think line between medications.
- IV: Administer IV doses with normal or lactated Ringer’s solution or sterile water for injection. May be administered concurrently, administration in separate sites is possible, at least 1 hr apart. IV second site is unavailable, think line between medications.
- IM: Reconstitute IM doses with sterile or bacteriostatic water for injection or 0.9% NaCl for injection. May be diluted with lidocaine to minimize injection discomfort. Intramuscular injection can be self-administered in mass, massage well.

© 2015 F.A. Davis Company
CONTINUED
CONTINUED

Cefotetan

- amoxicillin, aspirin, chloramphenicol, cimetidine, ciprofloxacin, codeine, corticosteroids, digoxin, disopyramide, dodorfanil, doxycycline, drotaverine, ethanol, etravirine, famotidine, fenfluramine, fluoxetine, furosemide, gentamicin, glyceryl trinitrate, heparin, isoniazid, ketorolac, lidocaine, losartan, methotrexate, midazolam, morphine, nafcillin, norfloxacin, nonsteroidal anti-inflammatory drugs (NSAIDs), panitumumab, penicillin, phenytoin, prednisone, propranolol, quinine, quinupristin/dalfopristin, ranitidine, ranolazine, ropivacaine, salicylates, sulfonylurea, tacrine, tacrolimus, theophylline, ticlopidine, ticarcillin/clavulanate, tolbutamide, toremifene, trimethoprim/sulfamethoxazole, vancomycin, verapamil, voriconazole, warfarin, zonisamide.

- Y-Site Incompatibility: aluminum, calcium, dextran, dextrose, ethanol, folic acid, methotrexate, mannitol, meperidine, metoclopramide, methylprednisolone, naloxone, nalufen, nafamostat mesilate, piperacillin/tazobactam, potassium, propofol, quetiapine, ranitidine, remifentanil, rituximab, rocuronium, sargramostim, sodium acetate, streptokinase, succinylcholine, sufentanil, tacrolimus, teniposide, theophylline, thiamine, thiotepa, ticarcillin/clavulanate, tirofiban, trifluperazine, tranexamic acid, tizanidine, 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.
- Caution patients that concurrent use of alcohol and cefotetan may cause a disulfiram-like reaction (abdominal cramps, nausea, vomiting, headache, hypotension, palpitations, dyspnea, tachycardia, sweating, flushing). Alcohol and alcohol-containing medications should be avoided during and for several days after therapy.
- Instruct patient to notify health care professional if fever and diarrhea develop, especially if stool contains blood, pus, or mucus.

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?

- Genetic Implication. CAPI TALS indicate if life-threatening, underline indicate most frequent. Strikethrough indicate discontinued.

- Y-Site Incompatibility: aluminum, calcium, dextran, dextrose, ethanol, folic acid, metoclopramide, methylprednisolone, naloxone, nalufen, nafamostat mesilate, piperacillin/tazobactam, potassium, propofol, quetiapine, ranitidine, remifentanil, rituximab, rocuronium, sargramostim, sodium acetate, streptokinase, succinylcholine, sufentanil, tacrolimus, teniposide, theophylline, thiamine, thiotepa, ticarcillin/clavulanate, tirofiban, trifluperazine, tranexamic acid, tizanidine, 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.
- Caution patients that concurrent use of alcohol and cefotetan may cause a disulfiram-like reaction (abdominal cramps, nausea, vomiting, headache, hypotension, palpitations, dyspnea, tachycardia, sweating, flushing). Alcohol and alcohol-containing medications should be avoided during and for several days after therapy.
- Instruct patient to notify health care professional if fever and diarrhea develop, especially if stool contains blood, pus, or mucus.

- 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?