Cefepime (self-e-peem)

Streptomycin

**Classification**
Therapeutic: anti-infectives
Pharmacologic: Fourth-generation cephalosporins

**Pregnancy Category B**

**Indications**
Treatment of the following infections caused by susceptible organisms:
- Uncomplicated and complicated urinary tract infections, Respiratory tract infections, Complicated intra-abdominal infections (with metronidazole), Septicemia, Empiric treatment of febrile neutropenic patients.

**Action**
Binds to the bacterial cell wall membrane, causing cell death.

**Therapeutic Effects:**
Bactericidal action against susceptible bacteria.

**Spectrum:**
Similar to that of second- and third-generation cephalosporins, but activity against staphylococci is less, whereas activity against gram-negative pathogens is greater, even for organisms resistant to first-, second-, and third-generation agents. Notable is increased action against:
- *Enterobacter*, *Haemophilus influenzae* (including *β*-lactamase-producing strains), *Escherichia coli*, *Klebsiella pneumoniae*, *Neisseria*, *Proteus*, *Providencia*
- *Pseudomonas aeruginosa*, *Serratia*, *Moraxella catarrhalis* (including *β*-lactamase-producing strains).
- Not active against methicillin-resistant staphylococci or enterococci.

**Pharmacokinetics**

**Absorption:**
Well absorbed after IM administration; IV administration results in complete bioavailability.

**Distribution:**
Widely distributed. Crosses the placenta; enters breast milk in low concentrations. Some CSF penetration.

**Protein Binding:**
20%.

**Metabolism and Excretion:**
85% excreted unchanged in urine.

**Half-life:**
- Adults: 2 hr
- Children: 1.7–1.9 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>1–2 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 and duration recommended if CCr 60 mL/min); History of cerebrovascular disease; Patients with hepatic dysfunction or poor nutritional status (may be at risk of bleeding); Geriatric patients (dose adjustment due to age-related decrease in renal function may be necessary); Allergies to penicillins/penicillin.

**Adverse Reactions/Side Effects**

**CNS:**
- SEIZURES (risk in renal impairment), encephalopathy, headache.

**GI:**
- PSEUDOMEMBRANOUS COLITIS, diarrhea, nausea, vomiting.

**Derm:**
- Rashes, pruritis, urticaria.

**Hemat:**
- Bleeding, eosinophilia, hemolytic anemia, neutropenia, thrombocytopenia.

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

**Misc:**
- Allergic reactions including ANAPHYLAXIS, superinfection, fever.

**Interactions**

**Drug-Drug:**
- Probenecid increases excretion and blood levels. Concurrent use of loop diuretics or aminoglycosides may increase renal toxicity.

**Route/Dosage**

**IM (Adults):**
- Mild-to-moderate uncomplicated or complicated urinary tract infections due to *Escherichia coli*—0.5–1 g every 12 hr.

**IV (Adults):**
- Moderate-to-severe pneumonia—1–2 g every 12 hr.
- Severe uncomplicated or complicated urinary tract infections—0.5–1 g every 12 hr.
- Uncomplicated and complicated skin and skin structure infections, complicated intra-abdominal infections—1 g every 12 hr.
- Empiric treatment of febrile neutropenia—2 g every 8 hr.
- (Children 1 mo–16 yr): Uncomplicated and complicated urinary tract infections, uncomplicated skin and skin structure infections, pneumonia—50 mg/kg every 12 hr (not to exceed 2 g/dose). Febrile neutropenia—1 to 2 g every 8 hr (total dose not to exceed 2 g/dose).
Implemention

- **IM:** Reconstitute IM doses with sterile or bacteriostatic water for injection, 0.9% NaCl, or D5W. May be diluted with lidocaine to minimize injection discomfort.
- **IV:** Inject deep into a well-developed muscle mass, manage well.
- **IV** res should only be used for treatment of mild-to-moderate uncomplicated or complicated urinary tract infections due to bacteria in the blood.

IV Administration

- **pH:** 4.0–6.0
- **Preparation:** Monitor injection site frequently for phlebitis (pain, redness, swelling). Change sites every 48–72 hr to prevent phlebitis.
- **Intermittent Infusion:** Reconstitute with 5 ml sterile water, 0.9% NaCl, or D5W for the 500–1 g vial, or 10 ml for the 1–2 g vial. Infuse further in 50–100 ml of D5W, 0.9% NaCl, D10W, 0.9% NaCl, or D5W.
- **Concentration:** Maximum 40 mg/mL.
- **Solution in Plasma:** Solution is stable for 24 hr at room temperature and 7 days if refrigerated. Rate: Administer over 20–30 min.

Y-Site Compatibility

- **Y-Site Compatibility:** acetaminophen, amphetamine hydrochloride, amphotericin B colloidal, amphotericin B liposomal, aminocaproic acid, aminophylline, aminophylline, amikacin, amlopidine, amphotericin B colloidal, amphotericin B liposome, argatroban, arsenic trioxide, aztreonam, bleomycin, bumetanide, busulfan, butorphanol, calcium gluconate, carboplatin, carmustine, cyclophosphamide, cyclosporine, cytarabine, dactinomycin, daptomycin, docetaxel, doxorubicin liposome, eptifibatide, fenoldopam, fludarabine, fluorouracil, foscarbene, furosemide, gentamicin, granisetron, heparin, hydrocortisone sodium succinate, hydrocortisone sodium succinate, insulin, ketamine, leucovorin, levofloxacin, linezolid, lorazepam, melphalan, mesna, methotrexate, methylprednisolone sodium succinate, metronidazole, mitomycin, methotrexate, mitoxantrone, mTOR inhibitor, mTOR, mT
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