### Values of Minimum Inhibitory Concentration (MIC) for Ceftriaxone

<table>
<thead>
<tr>
<th>Pathogen</th>
<th>QC Strain</th>
<th>MIC (mcg/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viridans group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neisseria meningitidis</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Neisseria gonorrhoeae</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Chlamydia trachomatis</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

- The values provided are for reference and may vary based on specific conditions.
- MIC values should be interpreted according to current guidelines and criteria.
Directions for Use:

- Since it may not be possible to withdraw the entire contents, mix the entire contents of vial into syringe to equal total labeled dose.

- The usual duration of therapy is 7 to 10 days. If therapy is continued for more than 7 days, a new stool sample should be obtained after the fifth day and before the start of the sixth day to determine the need for additional therapy. The total daily dose should not exceed 2 grams.

- The condition appears to be transient and reversible upon discontinuation.

- A precipitate may result if ceftriaxone is mixed with calcium-containing solutions in the same IV administration line. Ceftriaxone must not be administered simultaneously because of the risk of precipitation of ceftriaxone-calcium.

- The commonest adverse reactions are diarrhea, nausea, vomiting, rash, and urticaria. These reactions are generally mild and of short duration.

- Hyperbilirubinemic neonates, especially prematures, should not be given ceftriaxone. There have been isolated cases of severe cutaneous adverse reactions (erythema multiforme) in neonates. Ceftriaxone is generally well tolerated. In clinical trials, the following adverse reactions have been reported in <1% of patients: anaphylaxis, angioedema, urticaria, rash, drug fever, serum sickness-like reaction, renal dysfunction, elevated BUN, eosinophilia, hyperglycemia, transient hyperbilirubinemia, increase in hematocrit, interstitial nephritis, chills.

- Ceftriaxone has not been studied in patients with impaired renal function or undergoing hemodialysis or peritoneal dialysis. There is no specific antidote. If symptoms occur, the drug should be discontinued. Anticonvulsant medications, isolated cases of severe cutaneous adverse reactions (erythema multiforme), and eosinophilia have been reported rarely in patients treated with ceftriaxone. Most patients have been diabetic. A precipitate may result if ceftriaxone is mixed with calcium-containing solutions in the same IV administration line. Ceftriaxone must not be administered simultaneously because of the risk of precipitation of ceftriaxone-calcium.

- There have been no similar reports in patients other than neonates.

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- The pharmacokinetics of ceftriaxone were only minimally altered in geriatric patients with ceftriaxone dosages not exceeding 2 grams. The usual duration of therapy is 7 to 10 days. If therapy is continued for more than 7 days, a new stool sample should be obtained after the fifth day and before the start of the sixth day to determine the need for additional therapy. The total daily dose should not exceed 2 grams. Doses twice a day). The total daily dose should not exceed 2 grams.

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Ceftriaxone is a third-generation cephalosporin antibiotic that is used to treat a variety of infections. It is effective against Gram-negative bacteria and is often used as a first-line treatment for infections caused by these organisms. Ceftriaxone works by inhibiting bacterial cell wall synthesis, leading to the death of the bacteria.

**Pharmacokinetics**

Ceftriaxone is rapidly absorbed after oral administration and has a bioavailability of approximately 60%. It is extensively protein-bound (98-100%) and is distributed throughout the body. In patients with normal renal function, ceftriaxone has a half-life of 7-8 hours, allowing for once-daily dosing.

**Action**

Ceftriaxone is active primarily through hydrolysis by beta-lactamase, alteration of penicillin-binding proteins (PBPs), and decreased permeability. It is effective against a wide range of Gram-negative and some Gram-positive bacteria.

**Dosing**

The recommended dosages for ceftriaxone are:

- **Adults and Children Over 12 Years Old**: 500 mg IV or IM once daily, or 1 g IV twice daily for one dose.
- **Children Under 12 Years Old**: The dosage should be reduced based on age and weight.

**Drug Interactions**

Ceftriaxone is contraindicated in patients with a history of penicillin allergy.

**Side Effects**

The most common side effects of ceftriaxone include:

- Nausea and vomiting
- Diarrhea
- Rash
- Pruritus

**Precautions**

Ceftriaxone should be used with caution in patients with a history of renal impairment or when renal function is impaired.

**Off-Label Use**

Ceftriaxone is not approved for use in children under 12 years old. It is often used off-label for the treatment of meningitis and osteomyelitis in children.

**References**

1. **Antibiotics for Children with Acute Otitis Media**: A systematic review and meta-analysis of post-antibiotic effect.
2. **Randomized Controlled Trial**: Ceftriaxone versus amoxicillin for the treatment of acute otitis media in children.
Ceftriaxone is a cephalosporin antibiotic. It is similar to other cephalosporins and is structurally similar to cefuroxime. It is administered intramuscularly or intravenously as sodium or calcium salt. A single dose is adequate for many patients. Although the concentration of ceftriaxone in maternal blood is markedly higher than in the amniotic fluid, laboring women can be treated with ceftriaxone, especially if there is evidence of infection. Ceftriaxone is not recommended for use in the first trimester of pregnancy because it is a third-generation cephalosporin and may cause renal damage in the fetus.

This drug is indicated for the treatment of many bacterial infections. It inhibits bacterial cell wall synthesis. Ceftriaxone is effective against many Gram-negative bacteria and some Gram-positive bacteria. It is also effective against some anaerobic bacteria. It has a broad spectrum of activity.

**DOSAGE AND ADMINISTRATION:**

- **Pediatric Patients:**
  - Neonates: Ceftriaxone and calcium-containing solutions may be administered to neonates. The total daily dose for neonates should not exceed 2 grams.
  - Infants: The total daily dose for infants should not exceed 4 grams.
  - Children: Children up to 12 years of age should receive a total daily dose of 30 to 40 mg/kg. The total daily dose for children weighing more than 40 kg should not exceed 2 grams.
  - Adults: The total daily dose for adults is 1 to 2 grams given once a day (or in equally divided doses every 12 hours). The total daily dose should not exceed 4 grams.

**WARNINGS:**

- Hypersensitivity reactions such as anaphylaxis and angioedema have been reported with ceftriaxone. These reactions may occur after the first dose of the drug. In addition, there have been reports of severe hypersensitivity reactions such as Stevens-Johnson syndrome, toxic epidermal necrolysis, and erythema multiforme. These reactions may be related to the administration of other cephalosporins. It is important to monitor patients for these reactions and to discontinue the drug if they occur.

- A rare but serious complication of the use of ceftriaxone is pseudomembranous colitis. This complication may be due to the overgrowth of Clostridium difficile. Patients who have received ceftriaxone should be monitored for this complication.

- Neutropenic fever is a common complication of ceftriaxone use. Patients with neutropenia should be monitored closely for this complication.

- Ceftriaxone is contraindicated in patients with a history of hypersensitivity reactions to cephalosporins or penicillins.

**INDICATIONS AND USAGE:**

Ceftriaxone is indicated for the treatment of infections caused by susceptible organisms. It is effective against many Gram-negative bacteria and some Gram-positive bacteria. It is also effective against some anaerobic bacteria. It has a broad spectrum of activity.

- **Skin and Skin Structure Infections:** Ceftriaxone is useful in the treatment of skin and skin structure infections caused by susceptible organisms. It is effective against many Gram-negative bacteria and some Gram-positive bacteria. It is also effective against some anaerobic bacteria. It has a broad spectrum of activity.

- **Central Nervous System Infections:** Ceftriaxone is useful in the treatment of central nervous system infections caused by susceptible organisms. It is effective against many Gram-negative bacteria and some Gram-positive bacteria. It is also effective against some anaerobic bacteria. It has a broad spectrum of activity.

- **Genitourinary Infections:** Ceftriaxone is useful in the treatment of genitourinary infections caused by susceptible organisms. It is effective against many Gram-negative bacteria and some Gram-positive bacteria. It is also effective against some anaerobic bacteria. It has a broad spectrum of activity.

- **Respiratory Tract Infections:** Ceftriaxone is useful in the treatment of respiratory tract infections caused by susceptible organisms. It is effective against many Gram-negative bacteria and some Gram-positive bacteria. It is also effective against some anaerobic bacteria. It has a broad spectrum of activity.

- **Gastrointestinal Infections:** Ceftriaxone is useful in the treatment of gastrointestinal infections caused by susceptible organisms. It is effective against many Gram-negative bacteria and some Gram-positive bacteria. It is also effective against some anaerobic bacteria. It has a broad spectrum of activity.

- **Other Infections:** Ceftriaxone is useful in the treatment of other infections caused by susceptible organisms. It is effective against many Gram-negative bacteria and some Gram-positive bacteria. It is also effective against some anaerobic bacteria. It has a broad spectrum of activity.