CESH Injection

سیش

(Ceftriaxone)

آئی وی/آئی ایم انجکشن

250mg, 500mg and 1g IM injection
250mg, 500mg and 1g IV Injection

DESCRIPTION: CESH is a sterile, semisynthetic, broad-spectrum 3rd generation cephalosporin antibiotic for intravenous or intramuscular administration.

QUALITATIVE & QUANTITATIVE COMPOSITION:
CESH (Ceftriaxone) IM/IV Injections are available for administration as:
CESH IM/IV injection 250mg
Each vial contains:
Ceftriaxone sodium USP eq. to Ceftriaxone... 250mg
(Product Specs.: USP)
CESH IM/IV injection 500mg
Each vial contains:
Ceftriaxone sodium USP eq. to Ceftriaxone... 500mg
(Product Specs.: USP)
CESH IM/IV injection 1g
Each vial contains:
Ceftriaxone sodium USP eq. to Ceftriaxone... 1g
(Product Specs.: USP)

CLINICAL PHARMACOLOGY:
MECHANISM OF ACTION: The beta-lactam moiety of ceftriaxone binds to carboxypeptidases, endopeptidases, and transpeptidases (enzymes involved in cell-wall synthesis and cell division) in the bacterial cytoplasmic membrane. By binding to these enzymes, Ceftriaxone results in the formation of defective cell walls and cell death.
Microbiology: Ceftriaxone has been shown to be active against most strains of the following microorganisms:
Aerobic gram-negative microorganisms: Acinetobacter calcoaceticus, Enterobacter species, Escherichia coli, Haemophilus influenzae (including ampicillin-resistant & beta-lactamase producing strains), Haemophilus parainfluenzae, Klebsiella species, Moraxella catarrhalis (including beta-lactamase producing strains), Morganella morganii, Neisseria gonorrhoeae, Neisseria meningitidis, Proteus species, Serratia marcescens, Pseudomonas aeruginosa, Citrobacter Species, Providencia species, Salmonella & Shigella species.
Aerobic gram-positive microorganisms: Staphylococcus aureus (including penicillinase-producing strains), Staphylococcus epidermidis, Streptococcus pneumonia, Streptococcus pyogenes, Viridans group streptococci, Streptococcus agglactiae.
Anaerobic microorganisms: Bacteroides fragilis, Clostridium species, Peptostreptococcus species, Prevotella bivius, Porphyromonas melaninogenicus.
PHARMACOKINETICS:
Absorption: The area under the plasma concentration time curve after IM administration is equivalent to that after IV administration of an equivalent dose, indicating 100% bioavailability of intramuscularly administered Ceftriaxone.
Distribution: Ceftriaxone is reversibly bound to albumin, and the binding decreases with the increase in concentration. Owing to the lower albumin content, the proportion of free Ceftriaxone in interstitial fluid is correspondingly higher than in plasma.
Ceftriaxone has shown excellent tissue and body fluid penetration after a dose of 1-2g. On intravenous administration Ceftriaxone diffuses rapidly into the interstitial fluids, where bactericidal concentrations against susceptible organisms are maintained for 24 hours.
Metabolism: Ceftriaxone is not metabolized systemically, but is converted to inactive metabolites by the gut flora.
Elimination: Ceftriaxone is eliminated mainly as unchanged drug, approximately 60% is excreted in the urine and the remainder via the biliary and intestinal tracts. The elimination half-life in adults is about 8 hours. In infants aged less than 8 days half-life is two to three times longer than that of young adults.
Penetration into Cerebrospinal Fluid: Ceftriaxone crosses non-inflamed and inflamed meninges, attaining concentrations 4 - 17% of the simultaneous plasma concentration.
THERAPEUTIC INDICATIONS:
CESH is indicated for the treatment of the following infections due to susceptible organisms. Such infections include:
- Lower respiratory tract infections.
- Acute bacterial otitis media.
- Skin and skin structure infections.
- Urinary tract infections (complicated and uncomplicated).
- Uncomplicated gonorrhea (cervical/urethral and rectal).
- Pelvic inflammatory disease.
- Bacterial septicemia.
- Bone and joint infections.
- Intra-abdominal infections.
- Meningitis.
- Surgical prophylaxis of infections.
- Infections in neutropenic patients.

DOSAGE & ADMINISTRATION:
CESH may be administered by deep intramuscular injection, slow intravenous injection, or as a slow intravenous infusion, after reconstitution of the solution according to the given directions for reconstitution. Dosage and mode of administration should be determined by the severity of the infection, susceptibility of the causative organism and the patient's condition.
Adults: 1 to 2grams once a day (or in equally divided doses twice a day). The total daily dose should not exceed 4 grams.
Uncomplicated Gonococcal Infections: A single intramuscular dose of 250mg.
Preoperative use (surgical prophylaxis): A single dose of 1gram administered intravenously 2 hours before surgery.
Combination Therapy: In severe, life-threatening infections, the combination of Ceftriaxone sodium with aminoglycosides is indicated without awaiting the results of sensitivity tests. Because of physical incompatibility the two drugs must be administered separately, not mixed in one syringe
Duration of therapy: Generally, **CESH** therapy should be continued for at least 2 days after the signs and symptoms of infection have disappeared. The usual duration of therapy is 4 to 14 days; in complicated infections, longer therapy may be required.
Neonates (up to 14 days): 20-50mg/kg body weight once daily, not to exceed 50mg/kg.
Infants and children (15 days to 12 years): 20-80mg/kg body weight once daily. Doses of 50mg/kg or over should be given by slow intravenous infusion over at least 30 minutes.
Acute Bacterial Otitis Media: A single intramuscular dose of 50mg/kg (not to exceed 1gram) is recommended.
Meningitis: Initial therapeutic dose is 100mg/kg/day (not to exceed 4grams). As soon as, the causative organism identified and its sensitivity determined, dosage may be adjusted. The usual duration of therapy is 7 to 14 days.
Special Populations:
Renal Impairment: Patients with impaired renal function, there is no need to reduce the dosage of Ceftriaxone if liver function is intact. Only in cases if (creatinine clearance <10ml/minute) the daily dosage should be 2g or less. In severe renal impairment accompanied by hepatic insufficiency, dosage adjusted according to the plasma concentration. In patients undergoing dialysis, no additional supplementary dosing is required following the dialysis.

Hepatic Impairment: In patients with liver damage, there is no need for the dosage to be reduced provided renal function is intact.
Method of Administration: Reconstituted solutions should be used immediately after preparation. Reconstituted solutions retain their physical and chemical stability for 6 hours at room temperature (or 24 hours in the refrigerator at 2-8°C) the solutions range in color from pale yellow to amber.
Directions for Reconstitution: Diluents containing calcium, (e.g. Ringer's solution or Hartmann's solution), should not be used to reconstitute ceftriaxone vials or to further dilute a reconstituted vial for IV administration because a precipitate can form. Precipitation of ceftriaxone-calcium can also occur when ceftriaxone is mixed with calcium containing solutions in the same IV administration line. Therefore, ceftriaxone and calcium-containing solutions must not be mixed or administered simultaneously. However, in patients other than neonates, Ceftriaxone and calcium-containing solutions may be administered sequentially of one another if the infusion lines are thoroughly flushed between infusions with a compatible fluid.
Preparation of solutions for injection and infusion:
Intramuscular Injection: 250mg & 500mg is dissolved in 2mL and 1g is dissolved in 3.5mL of 1% Lidocaine Hydrochloride solution.
No other drug should be mixed within the same syringe. The solution should be administered by deep intramuscular injection. Lidocaine solution should never be administered intravenously.
Intravenous Injection: 250mg & 500mg injection is dissolved in 5mL, and 1gm is dissolved in 10mL sterile water for injection. The intravenous administration should be given over 2 to 4 minutes.
Intravenous Infusion: CESH should be administered intravenously by infusion over a period of 30 minutes. 2g Ceftriaxone is dissolved in 40mL of one of the following calcium-free infusion solutions, sodium chloride 0.9%, dextrose 2.5%, 5% & 10%, water for injection. Ceftriaxone solutions should not be mixed with or piggy-backed into solutions containing other antimicrobial drugs or into diluent solutions other than those listed above, owing to possible incompatibility.
CONTRAINDICATIONS:
- Hypersensitivity to ceftriaxone or to any of the cephalosporins, penicillin or any beta lactam drug.
- Premature newborns up to a corrected age of 41 weeks.
- In jaundice, hyperbilirubinaemia, hypoalbuminaemic or acidotic.

PRECAUTIONS:
- Clostridium difficile associated diarrhea (CDAD) has been reported with use of ceftriaxone. If CDAD is suspected or confirmed, discontinued Ceftriaxone. Appropriate measure should be taken.
- Ceftriaxone in the absence of strong indication increases the risk of the development of drug-resistant bacteria.
- Ceftriaxone rarely altered prothrombin time, monitor prothrombin time during treatment.
- Prolonged use of Ceftriaxon may result in overgrowth of nonsusceptible organisms. Careful observation and measures should be taken.
- Ceftriaxone used with caution in individuals with a history of gastrointestinal disease, especially colitis.
- Ceftriaxone (used in higher than standard recommended dose) may precipitate in the gallbladder and then be detectable as shadows on ultrasound. This can happen in patients of any age, but is more likely in infants and small children. This condition is transient and reversible.
- Transient elevation of BUN and serum creatinine have been reported.

Pregnancy: CESH should not be used unless absolutely indicated.
Nursing Mothers: Used with caution.
DRUG INTERACTIONS:
- In vitro, ***chloramphenicol*** has been shown to be antagonistic with respect to Ceftriaxone. Caution is advised if used concomitantly.
- Ceftriaxone may adversely affect the efficacy of ***oral hormonal contraceptives***.

ADVERSE REACTIONS:
Very Common: Diarrhea, nausea & vomiting.
Common: Hypersensitivity reactions (allergic skin reactions & anaphylactic reactions) secondary infections with yeast, fungi or resistant organisms & changes in blood cell counts.
Rare: Mycosis of the genital tract, anaphylactic (e.g. bronchospasm) and anaphylactoid reactions, headache, dizziness, increases liver enzymes, rigors and pyrexia.
Precipitation of ceftriaxone-calcium salt in the gallbladder has been observed rarely, with symptoms such as pain, nausea & vomiting. Symptomatic treatment is recommended.
Increase in serum creatinine, oliguria, glycosuria, haematuria & injection site pain following intravenous administration. This can be minimized by slow injection over at least 2-4 minutes.
OVERDOSAGE: There is no specific antidote. Treatment should be symptomatic.
INSTRUCTIONS:
- Store below 25°C.
- Protect from light and moisture.
- The reconstituted solution should be administered within 6 hours, if stored at room temperature or 24 hours if stored in refrigerator (2°C-8°C).
- Keep out of reach of children.

To be sold on prescription of a registered medical practitioner.

HOW SUPPLIED:
CESH IM/IV Injection are available as:
CESH IM Injection 250mg, 1 vial + 2mL ampoule of 1% Lidocaine solution.
CESH IV Injection 250mg, 1 vial + 5mL ampoule of sterile water for Injection.
CESH IM Injection 500mg, 1 vial + 2mL ampoule of 1% Lidocaine solution.
CESH IV Injection 500mg, 1 vial + 5mL ampoule of sterile water for Injection.
CESH IM Injection 1g, 1 vial + 3.5mL ampoule of 1% Lidocaine solution.
CESH IV Injection 1g, 1 vial + 10mL ampoule of sterile water for Injection.

خوراک: ڈاکٹر کی ہدایت کے مطابق استعمال کریں۔
ہدایت: دوا کو 15 ڈگری سینٹی گریڈ سے کم درجہ حرارت پر رکھیں۔
روشنی اور نمی سے بچائیں۔ بچوں کی پہنچ سے دور رکھیں۔
تیار شدہ محلول کو کمرے کے درجہ حرارت پر 6 گھنٹے تک رکھا جا سکتا ہے۔
صرف رجسٹرڈ ڈاکٹر کے نسخے کے مطابق فروخت کریں۔

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