

# Triphin

Ceftriaxone USP



## COMPOSITION

**Triphin 2 g IV Injection:** Each vial contains sterile Ceftriaxone Sodium USP equivalent to Ceftriaxone 2 g.  
**Triphin 1 g IV/IM Injection:** Each vial contains sterile Ceftriaxone Sodium USP equivalent to Ceftriaxone 1 g.  
**Triphin 500 mg IV/IM Injection:** Each vial contains sterile Ceftriaxone Sodium USP equivalent to Ceftriaxone 500 mg.  
**Triphin 250 mg IV/IM Injection:** Each vial contains sterile Ceftriaxone Sodium USP equivalent to Ceftriaxone 250 mg.  
**Lidocaine solution for IM use:** Each ampoule contains 2 ml or 3.5 ml of 1% Lidocaine Hydrochloride Injection BP for reconstitution.  
**Water for Injection for IV use:** Each ampoule contains 5 ml or 10 ml sterile Water for Injection BP for reconstitution.

## PHARMACOLOGY

Ceftriaxone (Triphin) is a semisynthetic third generation broad spectrum parenteral cephalosporin antibiotic. It has potent bactericidal activity against a wide range of Gram-positive and, especially, Gram-negative organisms. The spectrum of activity includes both aerobic and some anaerobic species. Ceftriaxone like other cephalosporins and penicillins, kills bacteria by interfering with the synthesis of the bacterial cell wall. Ceftriaxone has a high degree of stability in the presence of beta lactamases, both penicillinases and cephalosporinases, of gram-positive and gram-negative bacteria.

## PHARMACOKINETICS

Ceftriaxone (Triphin) is not absorbed after oral administration and must be given parenterally. Following IM or IV administration, ceftriaxone is widely distributed into body tissues and fluids including gallbladder, lungs, bone, bile, prostate adenoma tissue, uterine tissue, atrial appendage, sputum, tears, and pleural, peritoneal, synovial, ascitic, and blister fluids. It is eliminated mainly as drug unchanged, approximately 60% of the dose being excreted in the urine (almost exclusively by glomerular filtration) and the remainder via the biliary and intestinal tracts.

## INDICATIONS

Renal and urinary tract infections; Lower respiratory tract infections, particularly pneumonia; Gonococcal infections; Skin and soft tissue, bone and joint infections; Bacterial meningitis; Serious bacterial infections e.g. septicemia; ENT infections; Typhoid fever; Infections in cancer patients; Prevention of post-operative infection; Pre-operative prophylaxis of infections associated with surgery.

## DOSAGE AND ADMINISTRATION

**Triphin** can be administered either intravenously or intramuscularly.

**Adults:** The usual adult daily dose is 1-2 g once daily, (or twice daily in equally divided doses) depending on the type and severity of infection. The daily dose may be increased, but should not exceed 4 g. For preoperative use (surgical prophylaxis), a single dose of 1 g administered intravenously 0.5-2 hours before surgery is recommended. In elderly patients, the dosages do not require modification provided that renal and hepatic functions are satisfactory. Uncomplicated Gonorrhea: For the treatment of gonorrhea (penicillinase producing and non-penicillinase producing strains), a single intramuscular dose of 250 mg is recommended. Children (Over 6 weeks to under 12 years): 20-50 mg/kg daily as a single dose, maximum upto 80mg/kg should be given through intravenous infusion only. For the treatment of skin and skin structure infections the recommended total daily dose is 50 to 75 mg/kg given once a day (or in the equally divided doses twice a day). For the treatment of serious miscellaneous infections other than meningitis, the recommended total daily dose is 50 to 75 mg/kg, given in divided dose every 12 hours, the total daily dose should not exceed 2 g. For the treatment of meningitis, it is recommended that, the initial therapeutic dose is 100 mg/kg/day (not to exceed 4 g daily) is recommended. The daily dose may be administered once a day (or in the equally divided doses every 12 hours). The usual duration of therapy is 7 to 14 days. Use in elderly: The recommended dosages for adults do not require modification in the cases of elderly patients provided that renal and hepatic functions are satisfactory. Renal and hepatic impairment: In patients with impaired renal function, there is no need to reduce the dosage of Ceftriaxone provided liver function is intact. Only in cases of pre-terminal renal failure (Ceftriaxone clearance <10 ml per minute) the daily dosage should be limited to 2 g or less. In patients with liver damage there is no need for dosage adjustment provided renal function is intact. Duration of therapy: The duration of therapy varies according to the course of the disease; usually duration of therapy is 4-14 days.

## RECONSTITUTION & PREPARATION

**Triphin** can be administered either intravenously or intramuscularly. Solutions containing lidocaine should not be administered intravenously.

For IM use, the minimum recommended volume of diluent is 0.9 ml, 1.8 ml and 3.5 ml for 250 mg, 500 mg and 1 g vials respectively. Diluents include sterile Water for Injection, 0.9% Sodium Chloride, 5% Dextrose and 1% Lidocaine.

For IV use, the minimum recommended volume of diluent is 2.4 ml, 4.8 ml, 9.6 ml and 19.2 ml for 250 mg, 500 mg, 1 g and 2 g vials respectively. Recommended diluents include sterile Water for Injection, 0.9% Sodium Chloride, 5% or 10% Dextrose.

## DIRECTION FOR USE

**IM Injection:** 250 mg or 500 mg **Triphin** should be dissolved with 2 ml of 1% Lidocaine injection or 1 g with 3.5 ml of 1% Lidocaine injection. The solution should be administered by deep intramuscular injection. Dosage greater than 1 g should be divided and injected at more than one site. Solution on Lidocaine should not be administered intravenously.

**IV Injection:** 250 mg or 500 mg **Triphin** should be dissolved with 5 ml of Water for Injection, 1 g with 10 ml of Water for Injection & 2 g with 20 ml Water for Injection. The solution should be administered over 2-4 minutes, directly into the vein or via the tubing of an intravenous infusion.

## SIDE EFFECTS

Ceftriaxone has been generally well tolerated, side-effects being relatively infrequent, usually mild and transient. The most common side-effects are gastro-intestinal, consisting mainly of loose stools, diarrhoea, nausea, vomiting, stomatitis, convulsion and glossitis. Cutaneous reactions include maculopapular rash, pruritus, urticaria, oedema and erythema multiforme. Haematological reactions include anaemia, leucopenia, neutropenia, thrombocytopenia, eosinophilia, agranulocytosis. Headache and dizziness, drug fever and transient elevations in liver function tests have been reported in few cases.

## CONTRAINDICATIONS

Ceftriaxone should not be given to patients with a history of hypersensitivity to cephalosporin antibiotics. It is contraindicated in premature infants during the first 6 weeks of life.

## PRECAUTIONS

Its safety in human pregnancy has not been established. Therefore it should not be used in pregnancy unless absolutely indicated. Only minimal amount of ceftriaxone is excreted in breast milk, so mothers receiving ceftriaxone should not breast-feed. The stated dosage should not be exceeded. In severe renal impairment accompanied by hepatic insufficiency, dosage reduction is required. Prior to administration, a test dose should be given to check the patient's tolerance.

## USE IN PREGNANCY & LACTATION

Ceftriaxone has not been associated with adverse effects on fetal development in laboratory animals, but its safety in human pregnancy has not been established. Ceftriaxone is pregnancy Category 'B' drug on the basis of the US FDA. Therefore, it should not be used in pregnancy unless absolutely indicated. Because ceftriaxone is distributed into milk, the drug should be used with caution in nursing women.

## DRUG INTERACTIONS

No impairment of renal function or increased nephrotoxicity has been observed in man after simultaneous administration of ceftriaxone with diuretics, or with aminoglycosides. A possible disulfiram-like reaction may occur with alcohol. Other significant interactions: Ceftriaxone doesn't interfere with the protein binding of bilirubin. Simultaneous administration of probenecid doesn't alter the elimination of ceftriaxone.

## STORAGE AFTER RECONSTITUTION

**Triphin** sterile powder should be stored at Room Temperature of 77<sup>0</sup>F (25<sup>0</sup>C) or below and protected from light. After reconstitution, protection from normal light is not necessary. The color of solution ranges from light yellow to amber.

**Triphin IM solution:** It remains stable (loss of potency less than 10%) for 3 days and 10 days at Room Temperature (25<sup>0</sup>C) & Refrigerated condition (4<sup>0</sup>C) respectively in case of concentration 100 mg/ml; for 24 hours & 3 days at Room Temperature (25<sup>0</sup>C) & Refrigerated condition (4<sup>0</sup>C) respectively in case of concentration 250 or 350 mg/ml.

**Triphin IV solution:** At concentrations of 10, 20 & 40 mg/ml, it remains stable (loss of potency less than 10%) for 3 days at Room Temperature (25<sup>0</sup>C) & 10 days at Refrigerated condition (4<sup>0</sup>C).

After the indicated stability time periods, unused portions of solutions should be discarded.

As with other cephalosporins, the color of ceftriaxone powder, as well as its solutions, tend to darken depending on storage conditions; however, when stored as recommended, the product potency is not adversely affected.

## PACKAGING

**Triphin IM Injection:**

**Triphin 1 g IM Injection:** Each carton contains 1 vial of Ceftriaxone 1 g, 1 ampoule of 3.5 ml Lidocaine in a blister pack & a 5 ml sterile disposable syringe.

**Triphin 500 mg IM Injection:** Each carton contains 1 vial of Ceftriaxone 500 mg, 1 ampoule of 2 ml Lidocaine in a blister pack, a 5 ml sterile disposable syringe & a baby needle.

**Triphin 250 mg IM Injection:** Each carton contains 1 vial of Ceftriaxone 250 mg, 1 ampoule of 2 ml Lidocaine in a blister pack, a 5 ml sterile disposable syringe & a baby needle.

**Triphin IV Injection:**

**Triphin 2 g IV Injection:** Each carton contains 1 vial of Ceftriaxone 2 g, 2 ampoules of 10 ml Water for Injection each, a 20 ml sterile disposable syringe & a butterfly needle.

**Triphin 1 g IV Injection:** Each carton contains 1 vial of Ceftriaxone 1 g, 1 ampoule of 10 ml Water for Injection in a blister pack, a 10 ml sterile disposable syringe & a butterfly needle.

**Triphin 500 mg IV Injection:** Each carton contains 1 vial of Ceftriaxone 500 mg, 1 ampoule of 5 ml Water for Injection in a blister pack & a 5 ml sterile disposable syringe.

**Triphin 250 mg IV Injection:** Each carton contains 1 vial of Ceftriaxone 250 mg, 1 ampoule of 5 ml Water for Injection in a blister pack & a 5 ml sterile disposable syringe.

Manufactured by

**ZISKA**  
**PHARMACEUTICALS**

**Ziska Pharmaceuticals Ltd.**  
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