

Cetafor® 1000 mg IV
POWDER AND SOLVENT FOR INJECTABLE SOLUTION
Sterile Non-pyrogen

1. QUALITATIVE AND QUANTITATIVE COMPOSITION AND PHARMACEUTICAL FORM

Each vial Cetafor® 1 g IV contains 1.193 g ceftriaxone disodium 3.5 H₂O equivalent to 1 g ceftriaxone as a sterile dry powder. Each ampoule contains 10 ml water for injection as solvent. Sterile, non-pyrogen. Other pharmaceutical forms: Cetafor® 500 mg IV, Cetafor® 1000 mg IM.

2. CLINICAL PARTICULARS

2.1 Therapeutic indications: Cetafor® (Ceftriaxone) is indicated for the treatment of the following infections caused by susceptible micro-organisms.

Lower respiratory tract infections caused by *Streptococcus pneumoniae*, *Streptococcus species*, *Staphylococcus aureus*, *Haemophilus influenzae*, *H. parainfluenzae*, *Klebsiella species* (including *Klebsiella pneumoniae*), *Escherichia coli*, *Enterobacter aerogenes*, *Proteus mirabilis* or *Serratia marcescens*. **Skin and skin structure infections** caused by *S. aureus*, *S. epidermidis*, *Streptococcus species*, *Enterobacter cloacae*, *Klebsiella species* (including *K. pneumoniae*), *P. mirabilis*, *Pseudomonas aeruginosa*. **Urinary tract infections** (complicated and uncomplicated) caused by *E. coli*, *P. mirabilis*, *P. vulgaris*, *P. marginii* or *Klebsiella species* (including *K. pneumoniae*). **Uncomplicated gonorrhoea** (cervical urethral and rectal) caused by *Neisseria gonorrhoeae*; including both penicillase- and non penicillase-producing strains. **Pelvic inflammatory disease** caused by *N. gonorrhoeae*. **Bacterial septicemia** caused by *S. aureus*, *S. pneumoniae*, *E. coli*, *H. influenzae* or *Klebsiella species* (including *K. pneumoniae*). **Bone and joint infections** caused by *S. aureus*, *S. pneumoniae*, *Streptococcus species*, *E. coli*, *P. mirabilis*, *K. pneumoniae* or *Enterobacter species*. **Intra-abdominal infections** caused by *E. coli*, *K. pneumoniae*. **Meningitis** caused by *H. influenzae*, *N. meningitidis* or *S. pneumoniae*, *S. epidermidis* and *E. coli*.

2.2 Posology and method of administration: For non- CNS infections, in adults a single dose given once daily is preferred, usually 1 g q24h. For CNS infections (e.g., meningitis, brain abscess), maximal doses are used, 2 g q12h in adults. In children with meningitis or severe infection, q12h regimen is used. **Adults:** Cetafor® 1 g IV injectable vial should be administered as an intravenous injection. Standard therapeutic dosage: 1 – 2 g once daily. The total daily dosage should not exceed 4 grams. **Children:** In meningitis, a loading dose of 75 mg/kg and then 100 mg/kg (not to exceed 4 g/day) divided q12h. In other infections, 50 – 75 mg/kg/day (not to exceed 2 g) divided q12h or once-daily doses. For the treatment of uncomplicated gonococcal infections, a single intramuscular dose of 250 mg is recommended. For pre-operative use (surgical prophylaxis), a single dose of 1 g administered intramuscularly 30 to 120 minutes before surgery is recommended. When treating infections caused by Group A beta haemolytic streptococci (*S. pyogenes*), therapy should be continued for at least 10 days.

2.3 Preparation of solutions for: Intravenous injection: 1 g IV Cetafor® should be dissolved in 10 ml of water for injections. The injection should be administered over 2-4 minutes. **Intravenous infusion:** concentrations between 10 mg/ml and 40 mg/ml are recommended. Cetafor® 1 g IV should be dissolved in one of the following solutions: 0.9% sodium chloride; 5% dextrose; 10% dextrose; 5% dextrose + 0.9% sodium chloride; 5% dextrose + 0.9% sodium chloride.

All these solutions should be administered immediately after reconstitution.

2.4 Contra-indications: Cetafor® is contra-indicated in patients with a known allergy to the cephalosporin class of antibiotics. Ceftriaxone is not advised in neonates since it binds to serum proteins and may displace bilirubin. Cefotaxime is preferred in neonates.

2.5 Special warnings and precautions for use: Before therapy with Cetafor® is begun, careful inquiry should be made to determine whether the patient has had previous hypersensitivity reactions to cephalosporins, penicillins or other drugs. Unless special skin tests can be performed, cephalosporins should be avoided in patients with a history of an immediate severe reaction, such as anaphylaxis or angioedema, to a penicillin (or cephalosporin). Serious acute hypersensitivity reactions may require the use of subcutaneous adrenaline (epinephrine) and other emergency measures. Pseudomembranous colitis has been reported with nearly all wide-spectrum antibacterial agents, including cephalosporins. It is therefore important to consider the diagnosis in patients who present with diarrhoea subsequent to administration of antibacterial agents. Mild cases of pseudomembranous colitis usually respond to drug discontinuation alone. In moderate to severe cases, the ceftriaxone therapy should be stopped and appropriate treatment with an antibacterial drug such as oral vancomycin started. Cetafor® should be prescribed with caution in individuals with a history of gastro-intestinal disease, especially colitis. Regular blood counts should be carried out during long-term treatment. Ceftriaxone has dual hepatic (40%) and renal (60%) excretion. In renal failure, the rate of hepatic excretion increases, so dose adjustments are usually not necessary. If hepatic and renal failure are both present, the half-life of ceftriaxone is prolonged and serum levels should be monitored. When this happens, Cetafor® dosage should not exceed 2 g daily without close monitoring of serum concentrations. Ceftriaxone showed no potential for mutagenic activity.

2.6 Interactions with other medicinal products:

Solutions containing Cetafor® should not be mixed with or added to solutions containing other antibiotic agents, and should be administered separately.

2.7 Pregnancy and lactation: There are no adequate and well-controlled studies in pregnant women. Therefore, Ceftriaxone should be used during pregnancy only if clearly needed. Ceftriaxone is excreted into breast milk in low concentrations. Caution should be exercised when Cetafor® is administered to nursing women.

2.8 Undesirable effects: Cetafor® is generally well tolerated. The most common side effects are inflammation, pain or hardness, experienced at the site of intramuscular and intravenous injection immediately after administration; systemic adverse reactions include diarrhoea, nausea, vomiting, pruritus, rash, eosinophilia, leucopenia, and thrombocytopenia. Other rarely observed adverse reactions include headache, dizziness, transient elevations in liver function tests, increase in serum creatinine and mycosis of the genital tract. These side effects usually disappear after discontinuing drug therapy. IN CASE OF AN UNEXPECTED SIDE EFFECT, CONSULT YOUR PHYSICIAN.

3. PHARMACOLOGICAL PROPERTIES

3.1 Pharmacodynamic properties: Ceftriaxone is a semi-synthetic, third generation cephalosporin with broad spectrum activity and a long half-life, allowing for q24h dosing in non-central nervous system (CNS) infections. The bactericidal activity of ceftriaxone results from inhibition of cell wall synthesis. Ceftriaxone has a high degree of stability in the presence of the beta-lactamases, cephalosporinases and both penicillines of gram negative and gram-positive bacteria. Ceftriaxone is usually active against the micro-organisms in vitro and against the micro-organisms in the therapeutic indications. It is also active against *Serratia marcescens*, *Chlamydia species*, *Acinetobacter species*, *Citrobacter species*, *Salmonella species*, *Shigella species* (many strains of these species are multiple resistant to other antibiotics such as penicillins, cephalosporins and aminoglycosides, are susceptible to ceftriaxone, many strains of *Pseudomonas aeruginosa* are susceptible to ceftriaxone), against Group A beta haemolytic streptococci (*S. pyogenes*), Group B streptococci (*S. agalactiae*), and against *Bacteroides species*, *Clostridium difficile* are resistant.

3.2 Pharmacokinetics properties: Ceftriaxone is completely absorbed following IM administration with mean maximum plasma concentrations occurring between 2 and 3 hours post dosing. Multiple IV or IM doses ranging from 0.5 to 2 g at 12 to 24 hour intervals resulted in 15% to 36% accumulation of ceftriaxone above single dose values. Ceftriaxone is detected in the urine at high concentrations: 33% to 67% of a ceftriaxone dose is excreted in the urine as unchanged ceftriaxone and the remainder in the bile. It is ultimately found in the faeces as microbiologically inactive compounds. After a 1 g IV dose, average concentrations of ceftriaxone, determined from 1 to 3 hours after dosing, are 581 mcg/ml in the gall bladder, 788 mcg/ml in the common duct bile, and 62.1 mcg/ml in the plasma. When ceftriaxone was administered to healthy adult subjects in a dosage of 0.15-3.0 g, the elimination half-life ranged from 5.8 to 8.7 hours, and the apparent volume of distribution was found to be between 5.78 and 13.5 l. Plasma clearance is 0.58 to 1.45 l/hour and renal clearance is 0.32 to 0.73 l/hour. Ceftriaxone binds reversibly to human plasma proteins. Its binding falls from 95% at plasma concentrations of <25 mcg/ml to 85% at 300

mcg/ml. Ceftriaxone penetrates the inflamed meninges of infants and children. Following IV administration of a 50 mg/kg or 75 mg/kg dose of ceftriaxone to paediatric patients, the maximum peak serum concentrations were 216 and 275 mcg/ml respectively, and CSF concentrations (when meninges are inflamed) were 5.6 and 6.4 mcg/ml respectively. When used in dosages of up to 2 g per day, the pharmacokinetics of ceftriaxone in elderly subjects and patients with hepatic dysfunction and renal failure are not very different than they are in healthy subjects. Ceftriaxone is not removed to any significant extent from the plasma by haemodialysis. In 6 out of 26 patients, the elimination rate of ceftriaxone is markedly lower. Dose adjustments are necessary in dialysis patients and patients with hepatic dysfunction and renal failure. Therefore, the plasma concentrations of ceftriaxone should be monitored in these patients.

4. PHARMACEUTICAL PARTICULARS

4.1 Shelf life: 3 years. **4.2 Special precautions for storage:** Cetafor® sterile powder should be stored below 30°C, in the original package, protected from light. After reconstitution, protection from light is not necessary. The colour of the solution ranges from light yellow to amber, depending on the length of storage, concentration and the diluent used. As a rule, solutions should be used immediately after reconstitution. A solution of Cetafor® maintains satisfactory potency for 24 hours at room temperature (at or below 30°C), and for 72 hours when refrigerated (4°C). Keep out of reach and sight of children and in its original package. Do not use if the expiry date printed on the pack (Exp.) has passed. **4.3 Legal categories:** By prescription only.

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Stérile Apyrogène

1. COMPOSITION QUALITATIVE ET QUANTITATIVE ET PRÉSENTATION PHARMACEUTIQUE

Chaque flacon Cetafor® 1 g IV contient 1.193 g de ceftriaxone disodique 3.5 H₂O équivalent à 1 g de ceftriaxone sous forme de poudre sèche stérile. Chaque ampoule contient 10 ml pour injection comme solvant. Stérile, apyrogène. **Autres formes pharmaceutiques:** Cetafor® 500 mg IM, Cetafor® 1000 mg IM.

2. DONNÉES CLINIQUES

2.1 Indications thérapeutiques: Cetafor® (Ceftriaxone) est indiqué pour le traitement des infections suivantes, causées par des microorganismes sensibles.

Infections du tractus respiratoire inférieur causées par *Streptococcus pneumoniae*, *Streptococcus species*, *Staphylococcus aureus*, *Haemophilus influenzae*, *H. parainfluenzae*, *Klebsiella species* (y compris *K. pneumoniae*), *Escherichia coli*, *Enterobacter aerogenes*, *Proteus mirabilis* ou *Serratia marcescens*. **Infections cutanées et des structures cutanées** causées par *S. aureus*, *S. epidermidis*, *Streptococcus species*, *Enterobacter cloacae*, *Klebsiella species* (y compris *K. pneumoniae*), *P. mirabilis*, *P. aeruginosa*. **Infections du tractus urinaire** (complicquées et non complicquées) causées par *E. coli*, *P. mirabilis*, *P. vulgaris*, *P. marginii* ou *Klebsiella species* (y compris *K. pneumoniae*). **Gonorrhée non compliquée** (cervicale urétrale et rectale) causée par *Neisseria gonorrhoeae*, y compris les souches produisant ou non de la pénicilline. **Maladie inflammatoire pelvienne** causée par *N. gonorrhoeae*. **Sépticémie bactérienne** causée par *S. aureus*, *S. pneumoniae*, *E. coli*, *H. influenzae* ou *Klebsiella species* (y compris *K. pneumoniae*). **Infections osseuses et articulaires** causées par *S. aureus*, *S. pneumoniae*, *Streptococcus species* et *articularis* causées par *S. aureus*, *S. pneumoniae*, *Streptococcus species*, *Enterobacter species*, *Proteus mirabilis*, *K. pneumoniae* ou *Enterobacter species*. **Infections intra-abdominales** causée par *E. coli*, *K. pneumoniae*. **La méningite** causée par *H. influenzae*, *N. meningitidis* ou *S. pneumoniae*, *S. epidermidis* et *E. coli*.

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