Cefotil®

Cefuroxime

COMPOSITION
Cefotil® 125 Tablet: Each film coated tablet contains Cefuroxime 125 mg as Cefuroxime axetil BP.
Cefotil® 250 Tablet: Each film coated tablet contains Cefuroxime 250 mg as Cefuroxime axetil BP.
Cefotil® 500 Tablet: Each film coated tablet contains Cefuroxime 500 mg as Cefuroxime axetil BP.
Cefotil® 750 IM/IV Injection: Each vial contains Cefuroxime 750 mg as Cefuroxime Sodium BP.
Cefotil® 1.5 IV Injection: Each vial contains Cefuroxime 1.5 gm as Cefuroxime Sodium BP.
Cefotil® Powder for Suspension: After reconstitution each 5 ml suspension contains Cefuroxime 125 mg as Cefuroxime axetil BP.

PHARMACOLOGY
Pharmacodynamics: Cefuroxime is an oral prodrug of the bactericidal cephalosporin antibiotic cefuroxime, which is resistant to most beta-lactamases and is active against a wide range of gram-positive and gram-negative organisms.
Microbiology
Cefuroxime axetil shows its *in vivo* bactericidal activity to the parent compound, cefuroxime. Cefuroxime is a well-characterized and effective antibacterial agent which has broad-spectrum bactericidal activity against a wide range of common pathogens, including beta-lactamase-producing strains.
Cefuroxime has good stability to bacterial beta-lactamase and consequently, is active against many ampicillin-resistant and amoxicillin-resistant strains. The bactericidal action of cefuroxime results from inhibition of cell-wall synthesis by binding to essential target proteins.
Cefuroxime is usually active against the following organisms *in vitro:*
Aerobes, Gram-negative: *Haemophilus influenzae* (including ampicillin-resistant strains); *Haemophilus parainfluenzae; Moraxella catarrhalis; Escherichia coli; Klebsiella* species; *Proteus mirabilis; Proteus inconstans; Providencia* species; *Proteus rettgeri* and *Neisseria gonorrhoea* (including penicillinase and non-penicillinase-producing strains).
Some strains of *Morganella morganii, Enterobacter* species and *Citrobacter* species have been shown by *in vitro* tests to be resistant to cefuroxime and other beta-lactam antibiotics.
Aerobes, Gram-positive: *Staphylococcus aureus* (including penicillinase-producing strains but excluding methicillin-resistant strains); *Staphylococcus epidermis,* (including penicillinase-producing strains but excluding methicillin-resistant strains); *Streptococcus pyogenes* (and other beta-haemolytic *Streptococci*); *Streptococcus pneumonia, Streptococcus* Group B (*Streptococcus agalactiae*) and *Propionibacterium* species. Certain strains of *Enterococci*, eg. *Streptococcus faecalis,* are resistant.
Anaerobes, Gram-positive and Gram-negative cocci (including *Peptococcus* and *Peptostreptococcus* species); Gram-positive bacilli (including *Clostridium* species) and Gram-negative bacilli (including *Bacteroides* and *Fusobacterium* species). Most strains of *Bacteroides fragilis* are resistant.
Other organisms, *Borrelia burgdorferi.*
Pseudomonas species, *Campylobacter* species, *Acinetobacter calcoaceticus, Listeria monocytogenes, Legionella* species and most strains of *Serratia* and *Proteus vulgaris* and *Clostridium difficile* are resistant to many cephalosporins including cefuroxime.

Pharmacokinetics
Oral Administration: After oral administration, cefuroxime axetil is absorbed from the gastro-intestinal tract and rapidly hydrolysed in the intestinal mucosa and blood to release cefuroxime into the circulation. Optimum absorption occurs when it is administered after a meal. Peak serum cefuroxime levels occur approximately two to three hours after oral dosing. The serum half life is about 1.2 hours. Approximately 50% of serum cefuroxime is protein bound. Cefuroxime is not metabolised and is excreted by glomerular filtration and tubular secretion. Concurrent administration of probenecid increases the area under the mean serum concentration time curve by 50%.
Intravenous / Intramuscular Administration: Peak levels of cefuroxime are achieved within 30 to 45 minutes after intramuscular administration. The serum half-life after either intramuscular or intravenous injection is approximately 70 minutes. Concurrent administration of probenecid prolongs the excretion of the antibiotic and produces an elevated peak serum level. There is almost complete recovery of unchanged cefuroxime in the urine within 24 hours of administration, the major part being eliminated in the first six hours. Approximately 50% is excreted through the renal tubules and approximately 50% by glomerular filtration. Concentrations of cefuroxime in excess of the minimum inhibitory levels for common pathogens can be achieved in bone, synovial fluid and aqueous humor. Cefuroxime passes the blood-brain barrier when the meninges are inflamed

INDICATION
Cefotil® is indicated for the treatment of:
1. Upper respiratory tract infections, for example, ear, nose and throat infections such as otitis media, sinusitis, tonsillitis and pharyngitis.
2. Lower respiratory tract infections: for example, acute bronchitis, acute exacerbations of chronic bronchitis and pneumonia.
3. Skin and soft tissue infections: such as furunculosis, pyoderma, and impetigo.
4. Genito-urinary tract infections: such as pyelonephritis, urethritis, and cystitis.
5. Gonorrhoea: acute uncomplicated gonococcal urethritis, and cervicitis.
6. Early Lyme disease and subsequent prevention of late Lyme disease.

DOSAGE AND ADMINISTRATION
Oral
Adults: Most infections will respond to 250 mg b. d. In mild to moderate lower respiratory tract infections e.g. bronchitis 250 mg b. d. should be given. For more severe lower respiratory tract infections, or if pneumonia is suspected then 500 mg b.d. should be given. For urinary tract infections a dose of 125 mg b. d. is usually adequate; in pyelonephritis the recommended dose is 250 mg b. d. A single dose of one gram is recommended for the treatment of uncomplicated gonorrhoea. Lyme disease in adults and children over the age of 12 years: the recommended dose is 500 mg b .d. for 20 days.
Children: The usual dose is 125 mg b. d., or 10 mg/kg b. d. to a maximum of 250 mg daily. For otitis media, in children less than 2 years of age the usual dosage is 125 mg b. d., or 10 mg/kg b. d. to a maximum of 250 mg daily and in children over 2 years of age, 250 mg b. d., or 15 mg/kg b. d. to a maximum of 500 mg daily. There is no experience in children under three months of age.

Parenteral dosage
Adults: Many infections will respond to 750 mg three times daily by intramuscular or intravenous injection. For more severe infections this dose should be increased to 1.5g three times daily intravenously. The frequency of dosage may be increased to six-hourly injections, intramuscular or intravenous, giving total daily doses of 3 g to 6 g.
Infants and children: Doses of 30 to 100 mg/kg/day given in three or four divided doses. A dose of 60 mg/kg/day will be appropriate for most infections.
Neonates: Doses of 30 to 100 mg/kg/day given in two or three divided doses. In the first week of life serum half life of Cefuroxime can be three to five times than in adults.
Gonorrhoea: 1.5 g should be given as a single dose or as two 750 mg injections into different sites, eg. Each buttock.

The usual course of therapy is seven days.
Cefuroxime should be taken after food for optimum absorption.

CONTRAINDICATION
Cefuroxime is contraindicated in patients with known allergy to cephalosporins.

PRECAUTION
As with other antibiotics, prolonged use of Cefuroxime may result in the over growth of non-susceptible organisms (e.g. *Candida, Enterococci, Clostridium difficile*), which may require interruption of treatment.
Pseudomonous colitis has been reported with the use of broad-spectrum antibiotics, therefore, it is important to consider its diagnosis in patients who develop serious diarrhoea during or after antibiotic use.

SIDE EFFECT
Cefuroxime axetil has been associated with nausea and vomiting in a small number of patients.
Acute overdosage: Excessively large doses of all cephalosporins can cause cerebral irritation and may cause convulsions. This complication is unlikely to occur in routine practice unless the patient is in renal failure.

Hemodialysis or peritoneal dialysis can remove Cefuroxime.

DRUG INTERACTION
No potentially hazardous interactions have been reported.

USE IN PREGNANCY AND LACTATION
While all antibiotics should be avoided in the first trimester if possible, Cefuroxime has been safely used in later pregnancy to treat urinary and other infections. The placental transfer of Cefuroxime into the fetus was studied in 20 women and therapeutically active concentrations were found in the serum of infants for up to 6 hours after delivery. Cefuroxime is excreted in human milk, and consequently caution should be exercised when Cefuroxime axetil is administered to a nursing mother.

STORAGE
Cefotil® Tablet: Store below 30°C. Protect from light & moisture.
Cefotil® Powder for Suspension: Store below 25°C. Protect from light & moisture. After reconstitution the suspension can be used within 7 days if kept at room temperature and within 14 days if kept in refrigerator at 2°-8°C.
Cefotil® Injection: Do not store above 30°C. Protect from light and moisture.

Keep out of children's reach.

HOW SUPPLIED
Cefotil® 125 Tablet: Box containing 1 x 3 / 1 x 6 / 2 x 6 / 1 x 10 / 2 x 10 tablets in Alu-Alu blister pack.
Cefotil® 250 Tablet: Box containing 1 x 3 / 1 x 6 / 2 x 6 / 1 x 10 / 2 x 10 tablets in Alu-Alu blister pack.
Cefotil® 500 Tablet: Box containing 1 x 5 / 2 x 5 / 1 x 6 / 2 x 6 / 1 x 7 / 2 x 7 / 1 x 10 / 2 x 10 / 3 x 10 tablets in Alu-Alu blister pack.
Cefotil® 750 IM/IV Injection : Pack of 1 vial with one ampoule of 10 ml water for injection BP in blister pack.
Cefotil® 1.5 IV Injection: Pack of 1 vial with two ampoule of 10 ml water for injection BP in blister pack.
Cefotil® Powder for Suspension : Bottle containing dry powder to reconstitute 50 ml / 60 ml / 70 ml / 100 ml suspension.

SQUARE