Cefixime
A Review of its Antibacterial Activity, Pharmacokinetic Properties and Therapeutic Potential

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Cefixime: A Review

Synopsis

Cefixime, previously designated FK027, FR17027 and CL284635, is an orally active cephalosporin with a broad spectrum of antibacterial activity in vitro. It is particularly active against many Enterobacteriaceae, Haemophilus influenzae, Streptococcus pyogenes, Streptococcus pneumoniae and Branhamella catarrhalis, and is resistant to hydrolysis by many β-lactamases. Cefixime has little activity against Staphylococcus aureus and is inactive against Pseudomonas aeruginosa.

Cefixime is distinguished by its 3-hour elimination half-life which permits twice daily, or in many instances once daily, administration. Comparative trials, though few, indicate that the clinical and bacteriological efficacy of cefixime 200 to 400mg daily, administered as a single dose or in 2 divided doses, is comparable with that of multiple daily doses of co-trimoxazole (trimethoprim + sulphamethoxazole) or amoxycillin in acute uncomplicated urinary tract infection, with that of amoxycillin, amoxycillin/clavulanic acid and cefaclor in acute lower respiratory tract infections, and with that of amoxycillin and cefuroxime in adult patients with acute tonsillitis or pharyngitis. Several comparative trials in children with acute otitis media demonstrate the similar effectiveness of cefixime 8 mg/kg daily (in 2 divided doses, or as a single daily dose), cefaclor 20 to 40 mg/kg daily and amoxycillin 40 mg/kg daily in 3 divided doses.

The most frequently reported adverse effects, diarrhoea and stool changes, are usually mild to moderate in severity, transient, and mostly occur in the first few days of treatment with cefixime.

Thus, cefixime is an effective orally active cephalosporin with a relatively long elimination half-life permitting a simplified treatment regimen. It is a suitable alternative to cefaclor or amoxycillin in acute otitis media and acute upper and lower respiratory tract infections, and to amoxycillin or co-trimoxazole in acute uncomplicated urinary tract infections.

Antibacterial Activity

Most tested strains of Escherichia coli, Klebsiella pneumoniae, Klebsiella oxytoca, Proteus mirabilis, Proteus vulgaris, Citrobacter diversus and Providencia rettgeri were inhibited in vitro by cefixime 1 mg/L or less. Haemophilus influenzae, Branhamella catarrhalis and Neisseria gonorrhoeae were also inhibited by low concentrations of cefixime. A study of large numbers of Enterobacteriaceae conducted in the USA noted that the MIC₅₀ was below 1 mg/L for most clinical isolates of all species other than Citrobacter freundii, Enterobacter cloacae, Hafnia alvei and Morganella morgani. Cefixime is more potent (MIC₉₀ lower by 2 or more dilutions) in vitro than cefaclor and cephalaxin against Enterobacteriaceae, but less potent than ciprofloxacin.

Cefixime is active against Streptococcus pyogenes, S. pneumoniae, S. agalactiae and most strains of streptococci belonging to Lancefield group C, but Lancefield groups F and G are only moderately sensitive and Staphylococcus aureus, S. epidermidis and Enterococcus faecalis are generally resistant. Pseudomonas aeruginosa is resistant to cefixime, as are most strains of the Bacteroides species, and many strains of Peptostreptococcus species and Flavobacterium species.