

CEFTOBIPROLE (ZEFTERA®)

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Ceftobiprole is a cephalosporin which was recently released in Canada. Ceftobiprole is a very broad-spectrum (covers a variety of different bacteria) cephalosporin with activity in the test tube against gram-positive cocci, including methicillin-resistant *Staphylococcus aureus* (MRSA) and methicillin-resistant *Staphylococcus epidermidis* (MRSE), penicillin-resistant *Streptococcus pneumoniae*, *Enterococcus faecalis* as well as many gram-negative bacilli including AmpC producing *E. coli* and *Pseudomonas aeruginosa*. Ceftobiprole thus displays coverage against bacteria unlike any other antimicrobial (its much wider) on the market today. In fact, one would have to use 2 or more antimicrobials to achieve the same activity as ceftobiprole alone. Like other cephalosporins (eg. cefotaxime, ceftriaxone, ceftazidime and cefepime) ceftobiprole demonstrates limited activity against anaerobes such as *Bacteroides fragilis*. Limited studies have shown that it is difficult to develop resistance to ceftobiprole.

Ceftobiprole is indicated for the treatment of adults with skin and skin structure infections including non-limb threatening diabetic foot infections without bone involvement. Ceftobiprole is administered intravenously and after a single 30 minute infusion of a 500mg dose, reaches blood concentrations of 35.5 µg/ml. It reaches tissues in a similar concentration as other cephalosporins. The half-life (time that the drug remains in the blood) is quite long (3.5

hours) compared to other cephalosporins (eg. ceftriaxone, ceftazidime and cefepime) meaning that for some infections it is only required to be administered twice a day (but for serious infections, three times per day). Ceftobiprole is excreted by the kidneys and thus the dose dosage adjustment is required in patients with poor kidney function.

Published clinical trials have shown that the drug works just as well as vancomycin to treat skin infections and works just as well as a two drug combination (vancomycin and ceftazidime) to treat more serious skin and skin structure infections including diabetic foot infections. Ceftobiprole is a safe drug with a safety profile similar to other cephalosporins (cephalosporins are regarded as very safe antimicrobial). Ceftobiprole is being studied to treat a wide variety of infections other than skin infections including pneumonia which developed in outpatients as well as pneumonia which developed in patients while in hospital.

The broad spectrum activity that ceftobiprole displays, may allow it to be used as monotherapy (one drug alone) in situations where a combination (two or more) of antibiotics might be required. Ceftobiprole is a promising new antimicrobial.



References:

1. Zhanel GG, Lam A, Schweizer F, Thompson K, Walkty A, Rubinstein E, Gin AS, Hoban DJ, Noreddin AM and Karlowsky JA. Ceftobiprole: A review of a broad spectrum and anti-MRSA cephalosporin. *American Journal Clinical Dermatology* 2008;9(4):245-254.

