

Susceptibility of urinary coliforms to fosfomycin trometerol in Wales

L. Davies*, M. Wootton, R.A. Howe (Cardiff, UK)

Objectives: Urinary tract infections (UTIs) are among the commonest types of bacterial infections, with antibiotic treatment for UTIs associated with important medical and economic implications. Antibiotic agents such as beta-lactams, trimethoprim, and cotrimoxazole have been used for the treatment of UTIs. However the emergence of uropathogens, mainly *Escherichia coli*, exhibiting high rates of resistance associated with the production of extended-spectrum beta-lactamases (ESBLs) is worrisome. Fosfomycin trometerol is a broad-spectrum bactericidal antibiotic agent that inhibits the synthesis of the bacterial cell wall and has a pharmacokinetic profile which encourages use for UTIs; mean peak urinary concentration of an oral single dose of 3 g fosfomycin trometerol (FOS) occurs within 4 h, while concentrations sufficient to inhibit the majority of the urinary pathogens are maintained for 1 to 2 days. This study aims to evaluate the susceptibility of 500 recent urinary coliform isolates to fosfomycin trometerol for use as an alternative therapy in uncomplicated UTIs.

Methods: Susceptibilities of 500 urinary Coliforms, including *E. coli* (n=413), *Enterobacter*, *Citrobacter* and *Klebsiella* species (KES) (n=63) and *Proteus* species (n=24) to fosfomycin were determined. Minimum inhibitory concentrations (MICs) were determined using agar dilution incorporating 25mg/L glucose-6-phosphate to potentiate fosfomycin trometerol activity and categorised using BSAC breakpoints. Any isolate with raised MICs were tested against other agents. Results: 490 (98%) of isolates showed susceptible MICs to fosfomycin trometerol with the mean GeoMIC 0.43mg/L. 2% (10 isolates) exhibited "resistant" FOS MICs of >32mg/L. The frequency of isolates with FOS MICs can be seen in Fig 1. Of the resistant isolates 3 were *E. coli* and 7 KES; all exhibited susceptible MICs to gentamicin, 3rd generation cephalosporins and mecillinam.

Conclusions: Fosfomycin trometerol is active against Gram negative uropathogens. 98% of isolates were susceptible with resistant isolates all proving susceptible to alternative therapies.

