In Vitro Activity of Fosfomycin Against Bacterial Pathogens Isolated from Outpatient Specimens in Canada from 2007 to 2013

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BACKGROUND

The currently recommended empirical antimicrobial regimen for treating acute uncomplicated cystitis is a 5-day course of nitrofurantoin or 3-day course of trimethoprim-sulfamethoxazole (SXT). For uncomplicated urinary tract infections (UTIs) caused by Enterobacteriaceae, fosfomycin tromethamine: fluoroquinolones and 3-lactam antibiotics are recommended. Ciprofloxacin, as a fluoroquinolone, is a component of SXT and fosfomycin's potential for resistance is of concern. Therefore, in this study, fosfomycin and its potential impact on patient care was compared with other antibiotics that are used for treating UTIs caused by Enterobacteriaceae. The study was conducted with the following objectives:

- to assess the susceptibility of E. coli and Enterobacteriaceae isolated from urinary tract infections in Canada from 2007 to 2013;
- to compare fosfomycin activity with conventional antimicrobial agents (e.g., nitrofurantoin, SXT, and cephalosporins) for E. coli and Enterobacteriaceae isolates;
- to determine the potential impact of fosfomycin use on resistance development and future antibiotic selection.

RESULTS

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Table 1. In vitro activities of fosfomycin and comparative antimicrobial agents against outpatient isolates collected in 15 laboratories in Canada from 2007 to 2013.

Table 2. MIC distributions for fosfomycin against outpatient urine isolates collected in 15 laboratories in Canada from 2007 to 2013.

CONCLUSIONS

- Fosfomycin demonstrated greater in vitro activity against E. coli with 93.9% of isolates susceptible (no resistant isolates were identified).
- Fosfomycin was more potent against isolates from Enterobacteriaceae compared to those tested against Enterococcus and Staphylococcus species.
- While fosfomycin MICs were generally lower than those of other antimicrobials, the activity of fosfomycin against Enterobacteriaceae was variable.
- The potential impact of fosfomycin on resistance development and future antibiotic selection was evaluated.

REFERENCES