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Efficacy and Safety of Oral Fosfomycin for Urinary Tract Infections in Hospitalized Patients

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We read with interest the paper by Sastry and colleagues (1) showing high clinical success using fosfomycin to treat urinary tract infections (UTIs) in inpatients.

We recently evaluated the use of oral fosfomycin for inpatients after observing increased usage following implementation of a fluoroquinolone restriction program (S. Jacobson, L. Junco Noa, S. Ahmed, and M. R. Wallace, presented at the 16th International Congress on Infectious Diseases, Cape Town, South Africa, 2 to 5 April 2014). Retrospective review of all inpatients who had received fosfomycin therapy for UTIs over a 1-year period were included, excluding those discharged within 48 h of receiving fosfomycin. UTI "cure" was defined as resolution of symptoms (dysuria, frequency, urgency) and signs (fever, elevated white blood cells), with no need for retreatment or reisolation of the same organism within 30 days.

Seventy-one patients were included. The median age was 75 years (range, 24 to 98 years), and 69% were female. Many patients had significant comorbid disease states, including diabetes (39%) and baseline renal insufficiency (21%); a large number had complicated urologic histories, including 10% with a recent urologic procedure and 38% with invasive urinary devices. The majority of patients were immunosuppressed (51%) or receiving chronic systemic corticosteroids (21%). Most (72%) had received systemic antibiotics in the preceding 2 weeks, and 51% had received additional antibiotics during fosfomycin therapy, often for concurrent nonurinary tract infections. Almost half of the patients received one dose of fosfomycin; 14% received it every 48 h for 3 doses, and 35% received it every 72 h for 3 doses.

Urinary isolates included 40 enteric Gram-negative rods, of which 8 were extended-spectrum beta-lactamase-producing organisms (ESBLs), 14 enterococci, and 9 *Pseudomonas aeruginosa* strains; some cultures were mixed. Fosfomycin susceptibilities were performed using Etests on 24 isolates; for 6 isolates, the MICs were >64 μg/ml.

As in the study by Sastry and colleagues, we found a cure rate of 83%, a recurrence rate with the same organism of 3%, and an adverse-event rate of 4% (nausea and vomiting). Correlating with their ESBL susceptibility data, all 8 patients infected with ESBLs in our study achieved clinical cure. Although *P. aeruginosa* is now considered intrinsically resistant to fosfomycin (2), 7 of 9 patients with this organism achieved clinical cure, and the cure rate for *Enterococcus* was also high (12 of 14 patients). Of the patients who did not achieve clinical cure, 3% overtly failed, 6% were changed to another antimicrobial for UTI treatment after *in vitro* fosfomycin resistance was reported, and 8% could not be fairly evaluated because of continuing therapy for other infectious conditions or inadequate follow-up data. One patient required a higher level of care after fosfomycin treatment; however, this was not due to failure of fosfomycin therapy for the patient's UTI. The *Clostridium difficile* infection rate within 30 days of fosfomycin therapy was 7%, but all of these patients were exposed to other systemic antimicrobials.

We believe that our data, in conjunction with those published by Sastry and colleagues, add to the growing evidence that fosfomycin may be a valid option for treating complicated inpatient UTIs, of great importance in the era of growing antimicrobial resistance.

REFERENCES

1. **Sastry S, Clarke LG, Alrwais H, Querry AM, Shutt KA, Doi Y.** 2015. Clinical appraisal of fosfomycin in the era of antimicrobial resistance. Antimicrob Agents Chemother **59:**7355–7361. http://dx.doi.org/10.1128/AAC.01071-15.
2. **Clinical and Laboratory Standards Institute.** 2015 Performance standards for antimicrobial susceptibility testing: twenty-fifth informational supplement M100-S25. CLSI, Wayne, PA.

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Ed. Note: The authors of the original article (Sastry et al.) declined to respond.