Efficacy of Fosfomycin for Injection vs Piperacillin-Tazobactam in Adults With Complicated Urinary Tract Infection and Acute Pyelonephritis: ZEUS Study Outcomes in Patients With Reduced Drug Susceptibility or Clinical Relapse at Late Follow-Up

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INTRODUCTION & OUTRO

• Fosfomycin for injection (FOS) is an injectable epoxide antibiotic with a broad spectrum of antimicrobial activity, including against Gram-negative bacteria.
• The primary outcome was overall success (clinical cure and microbiologic eradication) in patients with complicated urinary tract infection (cUTI) or acute pyelonephritis (AP) who achieved clinical cure at test of cure (TOC).

METHODS

• ZEUS was a multicenter, double-blind, phase 2/3 noninferiority trial in hospitalized patients aged ≥18 years with cUTI or AP who had achieved clinical cure at TOC.
• 112 patients were randomized to receive FOS (14.7%, PIP-TAZ, 14.0%)

RESULTS

• The primary outcome was overall success (clinical cure and microbiologic eradication) in patients with cUTI or AP who achieved clinical cure at TOC.
• 112 patients were randomized to receive FOS (14.7%, PIP-TAZ, 14.0%)

Outcomes in Patients With Clinical Relapse at LFU

• All clinical, microbiologic, and pharmacokinetic outcomes were reported for patients who achieved clinical cure at TOC.

CONCLUSIONS

• In the ZEUS study, few patients had urine isolates reduced susceptibility to either FOS or PIP-TAZ.
• No trend was observed in isolate species associated with decreased susceptibility to FOS or PIP-TAZ, including various Enterobacteriaceae species and Pseudomonas aeruginosa.
• Despite microbiologic persistence at TOC in a small number of patients, all of these patients achieved clinical cures at LFU and sustained cures at LFU, warranting no further antibiotic treatment.
• Few cases of clinical relapse were observed at LFU, most patients had identifiable risk factors and a microbiologic response of persistence at TOC.

REFERENCES


Disclosures

Keith S. Kaye has stated that he has received a consultant fee from Alcon, Abbott, Merck, and Nabriva Therapeutics in his capacity as a consultant for GlaxoSmithKline. All other authors report no potential conflicts of interest. The EUPHORIC trial described during the execution of this late-breaking trial was not presented or discussed in the oral presentation.

• The ZEUS study is a double-blind, phase 2/3 noninferiority trial in hospitalized patients aged ≥18 years with cUTI or AP who achieved clinical cure at test of cure (TOC).

METHODS (continued)

• All clinical, microbiologic, and pharmacokinetic outcomes were reported for patients who achieved clinical cure at TOC.

RESULTS (continued)

• All clinical, microbiologic, and pharmacokinetic outcomes were reported for patients who achieved clinical cure at TOC.

Figure 1. ZEUS Study Design

Figure 2. Microbiologic Persistence and Clinical Cure at TOC (A) and Sustained Clinical Cure at LFU (B) in Patients With Reduced Drug Susceptibility (m-MITT Population)