POSTER ABSTRACTS

251. Characteristics and Outcomes of Complicated Intra-abdominal Infections Involving *Pseudomonas aeruginosa* from a Phase 3 Ceftolozane/Tazobactam Study

Benjamin Miller, PharmD[1]; Myra Wooley, PharmD[1]; Ellie Hershberger, PharmD[1]; Judith Steenbergen, PhD[1]; Bhavin Busa, MS[1]; Guojun Yuan, PhD[1]; Robert Mensah, PhD[1]; Ian Friedland, MD[1]; John Alverdy, MD, FACS[2]; [1]Cubist Pharmaceuticals, Lexington, MA; [2]University of Chicago, Chicago, IL

Session: 40. Antimicrobial Resistance: Novel Agents and Approaches to Gram Negative Infections
Thursday, October 9, 2014: 12:30 PM

Background. Ceftolozane/tazobactam (C/T) is a novel antimicrobial with activity against pathogens causing complicated intra-abdominal infections (cIAIs), including extended-spectrum β-lactamase (ESBL)–producing Enterobacteriaceae and drug-resistant *P. aeruginosa*. The efficacy and safety of C/T + metronidazole (MTZ) compared with meropenem (MEM) were evaluated in a randomized, double-blind phase 3 trial in hospitalized patients with cIAI. This analysis provides information on cIAI involving *P. aeruginosa*, a pathogen poorly described in cIAI.

Methods. Hospitalized patients with cIAI were randomized to 4-14 days of intravenous (IV) C/T (1.5 g) + MTZ (500 mg) every 8 hours or IV MEM (1 g every 8 hours). Baseline intra-abdominal cultures were obtained. The primary efficacy endpoint was the clinical response at the test-of-cure (TOC) visit 26-30 days after the start of study therapy.

Results. In the microbiological intent-to-treat (MITT) population (N = 806), *P. aeruginosa* was isolated in 72 (8.9%) patients (38 C/T + MTZ, 34 MEM); the incidence of *P. aeruginosa* in North America was 18%. *P. aeruginosa* was more frequently associated with polymicrobial infection (94% vs 65%). The highest incidence of *P. aeruginosa* occurred in patients with infections arising from the colon (14%) or appendix (11%). *P. aeruginosa* infections were less likely to be hospital-acquired (2.8% vs 7.1%) but occurred more commonly in those receiving prior antibiotic therapy (65% vs 57%). C/T and MEM were highly active *in vitro* against *P. aeruginosa*, with a minimum inhibitory concentration against 90% of pathogens (MIC_{90}) of 2 μg/mL and 4 μg/mL, respectively. Clinical cure rates in the microbiologically evaluable patients with *P. aeruginosa* were 100% (25/25) and 96% (27/28) for C/T + MTZ and MEM, respectively.

Conclusion. In this phase 3 study in hospitalized patients with cIAI, *P. aeruginosa* was isolated in 8.9% of MITT patients. Interestingly, *P. aeruginosa* was most commonly isolated in community-acquired infections of the colon and appendix. Prior use of MTZ and 3rd generation cephalosporins may have predisposed patients to infection with *P. aeruginosa*. Overall, patients with *P. aeruginosa* responded well to therapies in this study, as demonstrated by the high clinical cure rates.

Disclosures. **B. Miller**, Cubist Pharmaceuticals: Employee and Shareholder, Salary **M. Wooley**, Cubist Pharmaceuticals: Employee, Salary **E. Hershberger**, Cubist Pharmaceuticals: Employee, Salary **J. Steenbergen**, Cubist Pharmaceuticals: Employee and Shareholder, Salary **B. Busa**, Cubist Pharmaceuticals: Employee, Salary **G. Yuan**, Cubist Pharmaceuticals: Employee, Salary **R. Mensah**, Cubist Pharmaceuticals: Employee and Shareholder, Salary **I. Friedland**, Cubist Pharmaceuticals: Employee and Shareholder, Salary **J. Alverdy**, Cubist Pharmaceuticals: Consultant, Consulting fee

Open Forum Infectious Diseases 2014;1(S1):S70–472

DOI: 10.1093/ofid/ofu051