Results. The MIC distributions of C/T and CAZ/AVI against 1,138 P. aeruginosa are shown below. The modal MIC value for C/T was 22 doubling dilutions lower than that for CAZ/AVI, and it was as 23 dilutions lower than the C/T CLSI susceptible breakpoint, whereas the modal MIC value for CAZ/AVI was 2 dilutions lower than its susceptible breakpoint. Among all P. aeruginosa isolates, percentages of susceptibility were 97.0% (2% CAZ/AVI, 70.5% CAZ, 53.0% ceftazidime (CAZ), and 61.0% cefepime (CEF)); 74.0% (10.2% CAZ/AVI, 58.0% CAZ, 47.0% cefepime (CEF)), and 64.9% (antibiotic).

Conclusion. The activity of C/T exceeded that of CAZ/AVI and other tested comparators against a recent collection of clinical isolates of P. aeruginosa, including subsets of isolates nonsusceptible to other β-lactams. Susceptibilities to C/T were 6–14 percentage points higher than observed for CAZ/AVI among β-lactam-NS subsets. C/T promises to be an important treatment option for patients with antimicrobial-resistant P. aeruginosa infections.

Disclosures. No reported disclosures.

719. Cefiderocol Retains Anti-Biofilm Activity in MDR Gram-Negative Pathogens

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Session: 68. Novel Antimicrobials and Approaches Against Resistant Bacteria Thursday, October 3, 2019: 12:15 PM

Background. Cefiderocol is a siderophore cephalosporin with potent antibacterial activity against a broad range of Gram-negative pathogens. Microorganisms forming biofilm, e.g., cUTI, utilize bacterial siderophores to access free iron. A siderophore antibiotic may have unique antimicrobial properties in the setting of biofilm. In this study, we compared antimicrobial activity of cefiderocol to comparator antibiotics in well-characterized multi-drug-resistant pathogens. We determined the activity of cefiderocol and comparator antibiotics in the biofilm setting.

Methods. Minimum inhibitory concentration (MIC) breakpoints for cefiderocol and comparator antibiotics were determined for cefiderocol and seven comparator antibiotics in multidrug-resistant P. aeruginosa and K. pneumoniae. MICs were determined for cefiderocol and comparator antibiotics in the biofilm setting. Cefiderocol treatment displayed a superior reduction in biofilm compared with other agents (ceftolozane-tazobactam, ceftazidime–avibactam, aztreonam). Among subsets of nonsusceptible isolates, susceptibilities to C/T and CAZ/AVI were 83.5% and 74.4%, respectively (CAZ-NS subset, n = 266), 91.0% and 85.1% (IMI-NS, n = 296), 87.5% and 80.1% (MEM-NS, n = 296), 87.0% and 79.6% (TZP-NS, n = 326), and 72.4% and 57.8% among isolates nonsusceptible to all tested β-lactams (n = 116).

Results. The MIC90 of cefiderocol ranged from 0.125 to 2.0 μg/mL (Bcc) to 8 μg/mL (Complex). MBEC (minimum biocidal effective concentration) of C/T and CAZ/AVI were 83.5% and 74.4%, respectively (CAZ-NS subset, n = 266), 91.0% and 85.1% (IMI-NS, n = 296), 87.5% and 80.1% (MEM-NS, n = 296), 87.0% and 79.6% (TZP-NS, n = 326), and 72.4% and 57.8% among isolates nonsusceptible to all tested β-lactams (n = 116).

Conclusion. We determined the activity of cefiderocol and comparator antibiotics in the biofilm setting. Cefiderocol effectively reduces biofilm in multidrug-resistant Gram-negative pathogens. Microorganisms forming biofilm, e.g., cUTI, utilize bacterial siderophores to access free iron. A siderophore antibiotic may have unique antimicrobial properties in the setting of biofilm.