Clinical Evaluation of Cefiderocol use in a Community Teaching Hospital
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Introduction
• At AtlantiCare Regional Medical Center (ARMC), the antimicrobial stewardship program (ASP) ensures the appropriate use of antimicrobials to achieve optimal patient outcomes.
• Cefiderocol is an FDA approved antibiotic for the treatment of complicated urinary tract infections and hospital-acquired or ventilator-associated bacterial pneumonia.
• Upon addition to the ARMC formulary, cefiderocol has been reserved for MDR infections including those caused by Acinetobacter.

Objective
The purpose of this study is to evaluate the utilization of cefiderocol in hospitalized patients by assessing cases for appropriate antimicrobial utilization and outcomes at our community teaching hospital.

Methods
• Patients included in this analysis received one or more doses of cefiderocol between January 1, 2020 and June 30, 2021.
• Data collection included patient demographics, antibiotic indication, cultures and susceptibilities, duration of therapy, and use of concomitant antibiotics.
• Appropriateness of cefiderocol use was determined by investigators utilizing all clinical parameters including culture and susceptibility results, antibiotic dose, and treatment duration. Patients were assessed for clinical cure based on our evaluation.
• Patients readmitted to ARMC within 30 days of cefiderocol treatment were reviewed. This study was submitted and approved by ARMC’s Institutional Review Board.

Results
Table 1: Case Findings (n=19)

| Mean Age – years (SD) | 59.9 (±12.1) |
| Male Sex – no. (%) | 10 (53%) |
| Average Duration of Therapy – days (range) | 14 (1-42) |
| MDR Acinetobacter – no. (%) | 15 (79%) |
| MDR Pseudomonas – no. (%) | 8 (42%) |
| Polymicrobial – no. (%) | 14 (74%) |

Figure 1: Antibiotic Indication

• Wound Infection
• Complicated UTI
• Pneumonia

Figure 2: Patient Disposition

Table 1: Case Outcomes

| Clinical Cure | 16% |
| 30 Day Readmission | 26% |
| Death | 47% |

Discussion
• Based on the 19 cases analyzed at ARMC, 79% (n=15) of patients presented with multi-drug resistant (MDR) Acinetobacter while 42% (n=8) of cases presented with MDR Pseudomonas; 5 patients had both pathogens (Table 1).
• Of 10 patients who presented with wound infections (Figure 1), 7 had sacral wound infections, 2 presented with foot infections, and 1 had necrotizing fasciitis on the leg. All 7 sacral wound infections had cultures which were positive for MDR Acinetobacter (CRAB).
• Polymicrobial infections comprised 74% (n=14) of our cases evaluated. Of the remaining cases that were not polymicrobial (n=5), all patients had cultures positive for only MDR Acinetobacter (carbapenem resistant). One patient had positive cultures for burkholderia and another for stenotrophomonas. Ten patients (53%) were admissions from a healthcare facility (Figure 2).
• Nine patients of 19 (47%) were able to achieve a clinical cure and 5 died (26%) while on antibiotics (Figure 3). Two patients experienced adverse events attributed to cefiderocol use and subsequently the antibiotic was discontinued.
• Three patients (16%) had recurrent infections and were readmitted within 30 days; two were treated with cefiderocol again, 1 treated with cefepime.
• Of the patient population studied, 84% of patients had previous hospitalizations with IV antibiotic use and multiple comorbidities, putting them at high risk for acquiring infections containing multi-drug resistant organisms.

Conclusion
This study demonstrated that ARMC has proper utilization of cefiderocol, restricting its use for multi-drug resistant organisms. The ASP will continue to identify and monitor cases to ensure the appropriate use of cefiderocol in an effort to reduce antimicrobial resistance and maintain ARMC’s ongoing stewardship program.

References