Ceftolozane/Tazobactam for the Treatment of Osteomyelitis Due to Multi-Drug Resistant *Pseudomonas aeruginosa*

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**Background**

- Ceftolozane/Tazobactam (C/T) is a novel cephalosporin combined with a β-lactamase inhibitor
- C/T is labeled for complicated intra-abdominal infections and urinary tract infections by the FDA
- C/T processes potent activity against *Pseudomonas aeruginosa* (PA) including isolates resistant to carbapenems, ceftazidime and piperacillin/tazobactam
- Clinical data describing the use of C/T for the treatment of osteomyelitis are limited

**Objective**

- Describe the clinical outcomes of adult patients with osteomyelitis treated with C/T for multi-drug resistant, *P. aeruginosa* (MDR-PA)

**Methods**

- Retrospective study of hospitalized patients who received C/T > 48 hours between June 2015 and July 2017 for MDR-PA osteomyelitis
- MDR-PA defined as resistance to ≥3 antibiotics from ≥3 antibiotics classes
- Osteomyelitis was diagnosed by imaging, presence of systemic inflammatory signs and symptoms, elevated C-reactive protein, and positive cultures for MDR-PA
- All C/T was given as initial dose over 1 hour followed by 4 hour infusions for subsequent dosages
- Combination therapy was defined as systemic antibiotics susceptible to MDR-PA for at least 48 hours concurrent C/T
- Clinical cure was defined as complete or partial resolution of signs and symptoms of infection without the need for excision of antimicrobials
- Microbiological success was defined as eradication of MDR-PA in follow-up bone cultures after treatment
- Descriptive statistical analysis was performed using SPSS and presented as percent or median (interquartile range)

**Results**

- 18 patients with MDR-PA osteomyelitis were included in analysis:
  - 81.2% male, median age 58.5 [53.5-68.5] years; 61.1% required ICU admission; median Charlson Comorbidity Index 5.4 [4-8]; median APACHE II score 13.5 [11-21]  
  - 83.3% had history of osteomyelitis, including 61.1% with PA osteomyelitis & 33.3% MDR-PA osteomyelitis; 77.8% had polymicrobial osteomyelitis; 22.2% underwent surgical debridement; Median baseline C-reactive protein 98 [71-136.6] mg/L
- 50% had clinical cure; 3 of 4 with repeat cultures had microbiological eradication; These preliminary data suggest C/T might be an option for patients with MDR-PA osteomyelitis but further studies are warranted

**Discussion/Conclusions**

- Osteomyelitis due to MDR-PA remains a challenge due to limited data
- We observed a high rate of polymicrobial osteomyelitis
- These preliminary data suggest C/T might be an option for patients with MDR-PA osteomyelitis but further studies are warranted