Ceftazidime-avibactam Activity Tested Against a Large Collection of Enterobacteriaceae Isolates Collected in United States Hospitals During 2011-2013 Period, Including Organisms Producing KPC- and CTX-M-variants

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Abstract

Background: In recent years multiple-antibiotic-resistant (MDR) Enterobacteriaceae (ENT) have emerged as a major public health concern and antimicrobial stewardship practices. We evaluated the activity of ceftazidime-avibactam against MDR ENT isolates harboring KPC and CTX-M-15 enzymes. The isolate profile included KPC and AAVI-producing isolates.

Methods: A total of 20,709 Enterobacteriaceae clinical isolates diagnosed during 2011-2013 in 316 US hospitals were tested using CLSI broth microdilution. Results were compared to those observed with ceftazidime, piperacillin-tazobactam, and ceftazidime alone. Non-ESBL-phenotype isolates were classified as CTX-M-14-like-producers (102 isolates) or CTX-M-15-like-producers (494 isolates). Isolates harboring KPC were 3,021 isolates, including 214 KPC-producers.

Results: Overall CAZ-AVI inhibited 99.9% of isolates at ≤4 µg/mL, and ≥99.4% of isolates at ≤1 µg/mL, and had zone diameters of 27.0 mm (≤0.03 µg/mL) and 25.0 mm (≤0.12 µg/mL) (Table 1).

Conclusions: Caution should be exercised in interpreting or applying these results to non-US isolates. This study of a large collection of clinical isolates demonstrates that ceftazidime-avibactam has activity against the most prevalent ENT and KPC isolates, and should be considered for empirical treatment when susceptibility testing results are pending.

References


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