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P1871 Comparative activity of plazomicin and conventional aminoglycosides using current CLSI/EUCAST and proposed USCAST breakpoints against carbapenem-resistant *Enterobacteriaceae* in Detroit, Michigan

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Background: Infections due to CRE are associated with high mortality. Novel beta-lactamase inhibitor combinations have revolutionized the management of CRE infections, however resistance to these agents has been described and assessment of alternative therapies is warranted. Aminoglycosides are important therapeutic options; however the utility of conventional aminoglycosides may be limited by resistance and/or inappropriate breakpoints. Plazomicin demonstrates enhanced activity against CRE. The objective of this analysis was to assess the *in vitro* activity of plazomicin and conventional aminoglycosides against a collection of CRE from Michigan using EUCAST, CLSI/FDA, and proposed USCAST breakpoints.

Materials/methods: CRE collected at the Detroit Medical Center from 2015 – 2017 underwent MIC testing via eTest to plazomicin, gentamicin, tobramycin, and amikacin. Each isolate was also tested on Verigene BC-GN to assess the presence/absence of key beta-lactamase genes. Susceptibility was assessed via EUCAST (gentamicin/tobramycin ≤ 2 mg/L, amikacin ≤ 8 mg/L,) CLSI (gentamicin/tobramycin ≤ 4 mg/L, amikacin ≤ 16 mg/L), and proposed USCAST (gentamicin/tobramycin ≤ 2 mg/L, amikacin ≤ 4 mg/L) breakpoints. Plazomicin was assessed via the FDA breakpoints (susceptible at ≤ 2 mg/L.)

Results: 58 enterobacteriaceae (45 *K. pneumoniae*, 7 *E. cloacae*, 2 *E. coli*, 2 *K.oxytoca*, 1 *K. ozaenae*, and 1 *S. marcescens*) were included. Of the 55 isolates with Verigene results 41 were KPC positive, 7 were positive for KPC and CTX-M, 3 were CTX-M positive, one was positive for OXA and CTX-M, and 3 isolates produced no detectable beta-lactamase. Susceptibilities are displayed in the table. Plazomicin was the most active agent followed by gentamicin and amikacin. While the percentages susceptible were similar between USCAST and EUCAST breakpoints, gentamicin and amikacin susceptibility decreased ~15% from CLSI to USCAST breakpoints.

Conclusions: Plazomicin demonstrated enhanced activity over conventional aminoglycosides. Susceptibility of gentamicin and amikacin ranged ~15% depending on breakpoints utilized.

	MIC_{50} (mg/L)	**MIC_{90} (mg/L)**	**MIC Range (mg/L)**	**% Susceptible (EUCAST)**	**% Susceptible (CLSI/FDA)**	**% Susceptible (USCAST)**
Plazomicin	0.5	1	0.25 - 2	N/A	100%	N/A
Gentamicin	2	32	0.125 - ≥ 64	59%	76%	59%
Tobramycin	16	32	0.125 - ≥ 64	31%	36%	31%
Amikacin	4	32	1 - ≥ 64	69%	79%	64%