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P1872 Plazomicin activity against *Enterobacteriaceae* isolates carrying genes encoding extended-spectrum beta-lactamases, carbapenemases, and/or aminoglycoside-modifying enzymes

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Background: Plazomicin is a next-generation aminoglycoside recently approved by the US Food and Drug Administration for complicated urinary tract infections, including acute pyelonephritis against certain Enterobacteriaceae species. We evaluated the activity of plazomicin against Enterobacteriaceae carrying genes encoding ESBLs, carbapenemases, and/or AMEs collected in European hospitals during 2017.

Materials/methods: 1,966 Enterobacteriaceae isolates were susceptibility tested. Whole genome sequencing analysis was performed to detect β-lactamases on 434 isolates displaying MIC values ≥2 µg/mL for at least 2 of the following β-lactams: ceftazidime, ceftriaxone, aztreonam, cefepime, meropenem and/or imipenem and on 339 isolates resistant to amikacin, gentamicin, and/or tobramycin (CLSI criteria) to detect AMEs and 16S rRNA methyltransferases (RNAmet).

Results: Plazomicin displayed activity against 88.3% to 98.7% of the isolates tested at ≤2 mg/L (Table). The most common ESBL was $bla_{\text{CTX-M-15}}$ ± $bla_{\text{OXA-1}}$ (68.4% of the isolates). Other ESBL genes were detected in <10% of the isolates. KPC, OXA-48, and NDM were the most common carbapenemases found and were noted among 48, 19, and 10 isolates, respectively. A total of 12 isolates carried RNAmet genes. The most common AMEs were *aac(6`)-Ib-cr* (n=217) and *aac(3)-IIa* (n=175), but other genes that modify amikacin, gentamicin, or tobramycin were also observed. The activity of other aminoglycosides varied according to the isolate group. Plazomicin was the most active agent tested against carbapenemase-producers ± AME genes.

Conclusions: Plazomicin displayed activity against troublesome contemporary European isolates, including isolates carrying genes encoding ESBLs and AMEs and was the most active agent against isolates producing carbapenemases that mainly carried KPC, OXA-48, and NDM genes.

Organism group (no. tested)	% inhibited by plazomicin at ≤2 mg/L/susceptible EUCAST criteria							
	PLZ	AMK	GEN	TOB	MEM	PIP-TAZ	COL	TIG
Carbapenemases (77)	88.3	51.9	57.1	15.6	14.3	0.0	80.3	84.4
ESBL (non-CRE) (300)	98.7	85.3	48.3	25.7	100.0	45.7	97.3	92.0
AMEs (348)	94.8	71.6	26.7	0.9	79.9	31.9	89.0	85.6
Carbapenemase + AMEs (53)	88.7	35.8	47.2	0.0	7.5	0.0	71.2	86.8
ESBL (non-CRE) + AMEs (202)	98.0	78.7	24.3	0.0	100.0	29.2	97.0	89.6

PLZ, plazomicin; AMK, amikacin; GEN, gentamicin; TOB, tobramycin; MEM, meropenem; PIP-TAZ, piperacillin-tazobactam; COL, colistin; TIG, tigecycline