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P1873 Antimicrobial activity of plazomicin tested against *Enterobacteriaceae* isolates from European medical centres stratified by infection type (2014-2017)

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Background: Plazomicin is an aminoglycoside recently approved by the United States Food and Drug Administration for the treatment of complicated urinary tract infections (cUTI), including pyelonephritis. We evaluated the activity of plazomicin against clinical isolates collected in European medical centres.

Materials/methods: A total of 8,228 Enterobacteriaceae (1/patient) isolates were collected from medical centres located in Western Europe (W-EUR; n=6,535; 32 centres in 16 nations) and Eastern Europe (E-EUR; n=1,693; 14 centres in 10 nations) in 2014-2017. Isolates were from bloodstream infections (BSIs; 33.3%), pneumonia (22.5%), UTIs (20.3%), skin and skin structure infections (SSSIs; 14.3%), and intra-abdominal infections (IAIs; 9.1%). Plazomicin and comparator agents were susceptibility tested by reference broth microdilution methods at a central laboratory. EUCAST breakpoints were applied when available.

Results: Overall, 95.9% of Enterobacteriaceae were inhibited at plazomicin MIC of ≤2 mg/L ($MIC_{50/90}$, 0.5/2 mg/L), varying from 96.7% in W-EUR to 93.0% in E-EUR (Table) and from 97.5% for IAI, 96.6% for BSI, 96.3% for UTI, 95.5% for pneumonia, and 93.6% for SSSI isolates. Plazomicin retained good *in vitro* activity against extended-spectrum β-lactamase (ESBL)-phenotype (94.4% at ≤2 mg/L), carbapenem-resistant (CRE; 83.2% at ≤2 mg/L), multidrug-resistant (MDR; 89.9% at ≤2 mg/L), and gentamicin-nonsusceptible (NS; 86.3% at ≤2 mg/L) isolates for Europe overall but variation was observed between W-EUR and E-EUR (Table). CRE rates varied by infection type: 6.4% for pneumonia, 6.3% for BSI, 4.0% for IAI, 3.2% for SSSI, and 2.8% for UTI. ESBL-phenotype and MDR rates were also higher among isolates from pneumonia and BSI compared to other infection types. The most active comparator agents tested were the carbapenems (94.9%S for meropenem overall; 96.6/88.4%S in W-EUR/E-EUR), amikacin (94.2%S; 96.0/87.1%S in W-EUR/E-EUR), and tigecycline (93.6%S; 93.7/93.1%S in W-EUR/E-EUR). Meropenem susceptibility varied from 96.9% for SSSI and UTI to 93.5% for BSI and pneumonia, and amikacin susceptibility ranged from 95.9% for SSSI to 93.0% for pneumonia.

Conclusions: Plazomicin demonstrated potent activity and was slightly more active than amikacin against European Enterobacteriaceae isolates. Susceptibility rates varied widely between W-EUR and E-EUR and were generally lowest in E-EUR. Susceptibility rates also varied by infection type and were generally lowest among pneumonia isolates.

Organism	Cumulative % inhibited at plazomicin MIC (mg/L) of:							
Geographic region (n)	≤0.12	0.25	0.5	1	2	4	8	16
Western Europe								
Enterobacteriaceae (6,535)	4.5	35.8	70.9	90.0	96.7	99.1	99.5	99.6
ESBL-phenotype (1,156)	7.7	46.3	77.0	94.4	97.2	97.8	97.8	97.9
CRE (222)	9.9	58.1	77.9	87.4	90.5	91.0	91.0	91.0
MDR (1,046)	8.3	44.1	67.3	83.0	91.1	95.7	97.0	97.2
Gentamicin-NS (725)	6.1	40.0	64.0	81.5	89.4	93.9	95.6	96.0
Eastern Europe								
Enterobacteriaceae (1,693)	7.2	48.4	74.6	89.0	93.0	94.8	95.1	95.2
ESBL-phenotype (832)	9.1	58.1	77.9	87.9	90.5	90.6	90.7	91.0
CRE (183)	4.9	55.2	69.9	74.3	74.3	74.3	74.9	76.0
MDR (751)	8.7	56.7	74.2	82.8	86.4	88.5	89.1	89.3
Gentamicin-NS (552)	8.2	52.4	71.2	79.2	82.2	84.2	85.0	85.3