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P1145 *In vitro* activities of ceftazidime-avibactam and comparator agents against *Enterobacteriaceae* and *Pseudomonas aeruginosa* from Turkey collected through the ATLAS Global Surveillance Program 2012-2017

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Background: Avibactam (AVI) is a non-β-lactam, β-lactamase inhibitor that can restore the activity of ceftazidime (CAZ) against organisms that possess Class A, C, and some Class D enzymes. This study examined the *in vitro* activity of CAZ-AVI and comparators against Enterobacteriaceae and *Pseudomonas aeruginosa* collected in Turkey through the ATLAS global surveillance program from 2012 to 2017.

Materials/methods: A total of 2,177 non-duplicate, clinically isolated Enterobacteriaceae and 563 *P. aeruginosa* were collected from five sites in Turkey during 2012-2017. Susceptibility testing was done using broth microdilution according to CLSI guidelines and interpreted using EUCAST 2018 breakpoints. CAZ-AVI was tested with a fixed concentration of 4 mg/L AVI. The presence of genes encoding resistance mechanisms was previously assessed via multiplex PCR, followed by amplification of the full-length genes and sequencing.

Results: Susceptibility data are provided in the table. CAZ-AVI exhibited potent activity against all Enterobacteriaceae (MIC_{90}, 0.5mg/L; 98.8% susceptible). When MBL-positive isolates were removed from analysis, susceptibility to CAZ-AVI was 100%. CAZ-AVI showed consistently higher % susceptibilities than all comparators against MBL-negative meropenem-nonsusceptible isolates (CRE) and isolates positive for OXA-48. CAZ-AVI also showed good activity against the majority of *P. aeruginosa* isolates (MIC_{90}, 8 mg/L; 95.0% susceptible).

Organism (n)	Drug (MIC_{90} [mg/L]/% susceptible)				
	CAZ-AVI	CAZ	MEM	AMK	CST*
Enterobacteriaceae (2,177)	0.5/98.8	128/65.0	0.5/92.8	8/92.4	> 4/79.9
Enterobacteriaceae, MBL-negative (2,066)	0.5/100	64/66.1	0.25/94.0	8/93.5	> 4/80.9
Enterobacteriaceae, MBL-positive (32)	>128/15.6	>128/0	>8/3.1	>32/31.3	>4/45.2
CRE, MBL-negative (125)	2/100	>128/12.0	>8/0	>32/73.6	>4/40.2
Enterobacteriaceae, OXA-48 (160)	2/98.8	>128/24.4	>8/16.9	>32/84.4	>4/70.0
E. coli (746)	0.25/99.9	64/59.9	0.06/99.1	8/90.4	1/99.8
K. pneumoniae (618)	1/97.9	>128/52.6	>8/80.9	8/91.6	>4/82.0
Enterobacter spp. (177)	0.5/99.4	128/72.9	0.12/97.2	2/97.7	1/97.7
P. aeruginosa (563)	8/95.0	64/81.0	> 8/71.4	16/89.2	2/95.9
P. aeruginosa, MBL-negative (560)	8/95.4	64/81.4	> 8/71.6	16/89.5	2/95.9

*colistin not tested in 2012-2013; colistin tested vs. 1653 Enterobacteriaceae in 2014-2017
CAZ-AVI, ceftazidime-avibactam; CAZ, ceftazidime; MEM, meropenem; AMK, amikacin; CST, colistin; MBL, metallo-β-lactamase. % susceptible defined using EUCAST 2018 breakpoints

Conclusions: CAZ-AVI showed potent *in vitro* activity against Enterobacteriaceae and *P. aeruginosa* collected in Turkey, including isolates resistant to last-in-line agents.