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P1141 *In vitro* activities of ceftazidime-avibactam and comparator agents against *Enterobacteriaceae* from Europe stratified by infection type from the ATLAS Global Surveillance Program 2015-2017

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Background: Effective options for the treatment of infections with Gram-negative pathogens have dwindled with the increasing presence of multi-drug resistant *Enterobacteriaceae* (*Eba*). Ceftazidime-avibactam (CAZ-AVI) is a cephalosporin in combination with a diazabicyclooctane β-lactamase inhibitor for use in Gram-negative infections. CAZ-AVI has activity against *Eba* producing Class A, C and some Class D β-lactamases, but not Class B metallo-β-lactamases (MBLs). This study evaluates the *in vitro* activity of CAZ-AVI and comparators against *Eba* from various infection sites collected from 2015-2017 in Europe.

Materials/methods: 20,521 non-duplicate *Eba* isolates were collected from 72 sites in 17 countries in Europe from urinary-tract infections (UTI), lower-respiratory-tract infections (LRTI), skin/soft-tissue infections (SSTI), intra-abdominal infections (IAI) and blood for the ATLAS global surveillance program from 2015-2017. Antimicrobial susceptibility was determined by broth microdilution by CLSI guidelines and analyzed with EUCAST 2018 breakpoints. A fixed concentration of 4 mg/L avibactam was tested with CAZ. β-lactamase screening by PCR and sequencing was performed on isolates with meropenem MIC values >1 mg/L.

Results: CAZ-AVI was active against more *Eba* from UTI, LRTI, SSTI, IAI and blood than any other comparator (98.9%-99.3% susceptible; Table). Meropenem was also active against these isolates, however isolates from LRTI and blood demonstrated slightly reduced susceptibility (95.8% and 95.9% susceptible, respectively).

	Drug (% Susceptible[a])					
Infection site	CAZ-AVI	CAZ	FEP	MEM	CST	PIP-TAZ
All (n=20,521)	99.1	75.4	79.4	96.8	83.3	80.4
UTI (n=5,235)	99.3	73.6	77.2	97.5	80.8	80.4
LRTI (n=5,132)	99.0	72.5	76.9	95.8	86.1	76.6
SSTI (n=4,782)	99.1	77.9	81.5	97.1	77.3	83.4
IAI (n=3,488)	98.9	79.0	83.9	97.3	89.5	81.5
Blood (n=1,884)	99.1	75.1	78.9	95.9	86.8	80.9

Abbreviations: CAZ-AVI, ceftazidime-avibactam; CAZ, ceftazidime; FEP, cefepime; MEM, meropenem; CST, colistin; PIP-TAZ, piperacillin-tazobactam; UTI, urinary-tract infection; LRTI, lower respiratory-tract infection; SSTI, Skin and soft tissue infection; IAI, intra-abdominal infection.

[a]% Susceptible was determined using EUCAST 2018 breakpoints.

Conclusions: CAZ-AVI demonstrated excellent *in vitro* activity against *Eba* isolates from every infection site collected from 2015-2017 in Europe. AVI restored susceptibility to CAZ in 99.1% of isolates from this collection.