

P1043 **Activity of meropenem-vaborbactam against Enterobacteriaceae isolates collected during 2016**

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Background: Meropenem-vaborbactam is a beta-lactam/beta-lactamase inhibitor combination recently approved by the US FDA for the treatment of complicated urinary tract infections. We evaluated the activity of meropenem-vaborbactam against *Enterobacteriaceae*, including carbapenem-resistant *Enterobacteriaceae* (CRE) and isolates carrying *bla*_{KPC} collected in 62 hospitals from Europe, Asia-Pacific, and Latin America during 2016.

Materials/methods: Isolates (n=7,142) were susceptibility tested against meropenem ± vaborbactam at fixed 8 mg/L and against comparators using reference broth microdilution method. CRE isolates were screened for carbapenemase genes by whole genome sequencing analysis.

Results: Meropenem-vaborbactam (MIC_{50/90}, 0.03/0.06 mg/L) inhibited 98.7% of the *Enterobacteriaceae* at ≤4 mg/L (US FDA breakpoint). Meropenem inhibited 96.3% of these isolates at EUCAST breakpoints. Meropenem-vaborbactam (MIC_{50/90}, 2/>32 mg/L) inhibited 66.2% of the 281 CRE at the US FDA breakpoint and was considerably more active than meropenem (MIC_{50/90}, 32/>32 mg/L; 6.0% susceptible). Carbapenemases were detected among 235 (82.2%) CRE and included: 73 *bla*_{KPC-3} (mostly from Italy), 45 *bla*_{KPC-2} (9 countries, 3 regions), 69 *bla*_{OXA-48}-like (12 countries; 9 from Europe), and 55 metallo-beta-lactamases (39 *bla*_{NDM-1}; 12 countries, 3 regions). Additionally, 1 *Proteus mirabilis* and 1 *Klebsiella pneumoniae* carried *bla*_{SME-4}. Meropenem-vaborbactam (MIC_{50/90}, 0.25/2 mg/L) inhibited 98.3% of isolates carrying *bla*_{KPC} at ≤4 mg/L. Regional differences were noted in meropenem-vaborbactam and comparators activity (Table).

Conclusions: Meropenem-vaborbactam displayed greater activity against isolates carrying *bla*_{KPC} when compared to all comparator agents. Carbapenemase gene prevalence varied regionally, but KPC-producing organisms have been documented in several countries, and meropenem-vaborbactam seems to be a valuable therapeutic option against these isolates.

Isolates	Region (no. tested)	% S ^a							
		Meropenem-vaborbactam	Meropenem	Piperacillin-tazobactam	Cefepime	Amikacin	Gentamicin	Colistin	Tigecycline
<i>Enterobacteriaceae</i>	Europe (5,742)	98.9	96.4	80.6	77.3	95.5	85.6	83.7	92.8
	APAC (828)	97.5	96.7	83.0	77.4	96.5	81.8	84.7	94.9
	LATAM (572)	98.6	93.2	76.2	68.5	92.8	74.0	80.8	93.0
CRE	Europe (220)	70.0	7.3	0.0	3.2	46.8	51.4	78.9	86.8
	APAC (28)	25.0	3.6	0.0	0.0	64.3	46.4	89.3	82.1
	LATAM (33)	75.8	0.0	0.0	0.0	63.6	30.3	60.6	84.8
Carrying <i>bla_{KPC}</i>	All (119)	98.3	0.8	0.0	0.8	42.9	62.2	71.4	90.8

^aUsing meropenem-vaborbactam breakpoints recently approved by the US FDA; EUCAST breakpoints used for other agents.