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Abstract (poster session)

Activity of ceftobiprole tested against Gram-negative clinical isolates from European medical centres

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Objective: To monitor the potency of ceftobiprole (BPR), against Enterobacteriaceae (ENT) and Pseudomonas aeruginosa (PA) isolated from European medical centers. Ceftobiprole medocaril is a broad-spectrum, anti-MRSA cephalosporin with activity against Gram-negative pathogens including PA. It has been studied in hospitalized community-acquired bacterial pneumonia, hospital-acquired bacterial pneumonia, and acute bacterial skin and skin structure infections Methods: ENT and PA from 16 European countries were collected as non-duplicate, clinically relevant isolates during 2008-2010. BPR, the microbiologically active component of ceftobiprole medocaril, and commonly used comparator agents were tested by broth microdilution following CLSI methods. Interpretations were as published in CLSI and EUCAST documents. Results: A total of 9,831 ENT and 1,884 PA were prospectively collected from bloodstream (72.7%), respiratory tract (14.9%), skin and soft tissue (11.4%), and other (1.1%) infection sites. The ESBL-phenotype represented 13.1% of Escherichia coli (EC) and 25.0% of Klebsiella spp. (KSP). The MIC50/90 for BPR against ENT was <=0.06/>8 mg/L. BPR was highly active against non-ESBL phenotype EC (MIC50/90,<=0.06/<=0.06 mg/L) and KSP (MIC50/90,<=0.06/0.25 mg/L). The MIC50/90 for ESBL-phenotype positive strains for both was >8/>8 mg/L, respectively. Potent activity was also noted for Serratia marcescens (MIC50/90, <=0.06/1 mg/L) and Proteus mirabilis (MIC50/90, <=0.06/0.12 mg/L). For PA, the MIC50 for BPR was 4 mg/L, similar to cefepime (MIC50, 4 mg/L) and ceftazidime (MIC50, 2 mg/L). A total of 63.2% and 77.8% of the BPR MIC values were at <=4 and <=8 mg/L, respectively. Conclusions: BPR demonstrated potent activity similar to ceftazidime and cefepime when tested against a large collection of clinically relevant clinical isolates of non-ESBL ENT collected from Europe during 2008-2010. BPR, like ceftazidime and cefepime, had lower activity against ESBL-phenotype-positive ENT. The activity of BPR against PA was similar to cefepime and ceftazidime. The Gram-negative spectrum of activity of BPR indicates that it is comparable to ceftazidime and cefepime and may have clinical utility in indications where ENT and PA may occur.

	cumulative %inhibited at ceftobiprole MIC (mg/L) of:										
Organism	<= 0.06	0.12	0.25	0.5	1	2	4	8	> 8	MIC_{50}	MIC_{90}
Enterobacteriaceae (9831)	74.0	79.5	81.8	83.2	84.1	84.8	85.7	86.3	100.0	<= 0.06	> 8
E. coli (5376)	82.0	85.5	86.7	87.3	87.6	87.9	88.2	88.5	100.0	<= 0.06	> 8
E. coli non-ESBL (4607)	94.6	98.4	99.3	99.7	99.8	99.9	99.9	99.9	100.0	<= 0.06	<= 0.06
Klebsiella spp. (2021)	58.5	65.7	70.6	72.9	74.2	74.5	74.9	75.5	100.0	<= 0.06	> 8
K. spp. non-ESBL (1475)	79.3	88.)	94.6	97.4	98.4	98.4	98.5	98.6	100.0	<= 0.06	0.25
P. aeruginosa (1884)	0.0	0.0	0.3	2.8	22.9	48.8	63.2	77.8	100.0	4	> 8