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ePoster Viewing
Antibacterial drug activity and interactions in Gram-positive organisms

ANTIMICROBIAL ACTIVITY OF CEFTOBIPROLE TESTED AGAINST STAPHYLOCOCCI AND STREPTOCOCCI FROM EUROPEAN COUNTRIES AND ISRAEL (2013)

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Objectives: To evaluate the in vitro activity of the newly approved parenteral broad-spectrum antimicrobial agent ceftobiprole medocaril against contemporary staphylococci and streptococci from Europe and Israel. Ceftobiprole medocaril was approved in 12 European Union countries (October 2013) for the treatment of hospital-acquired pneumonia (excluding ventilator-associated pneumonia) and community-acquired pneumonia in adults.

Methods: The activity of ceftobiprole (active form of the prodrug ceftobiprole medocaril) and comparator agents were evaluated against 2,507 staphylococci, 1,121 streptococci, and 683 enterococci. Clinically relevant isolates were collected from patients at 39 medical centers in 17 European countries and Israel from a variety of infection sites to include bloodstream, respiratory, skin and soft tissue, urinary and others. Ceftobiprole and comparator agents were susceptibility tested according Clinical and Laboratory Standards Institute guidelines using validated dry-form broth microdilution panels. Quality control organisms were tested concurrently with clinical isolates and results were within published limits. EUCAST interpretive criteria were applied according to current guidelines.

Results: Ceftobiprole was active against *S. aureus* with a MIC50/90 at 0.5/1 mg/L (99.9% susceptible, EUCAST criteria), respectively. For MSSA the MIC50/90 were 0.25/0.5, respectively (100.0% susceptible). For MRSA the MIC50/MIC90 were 1/2 mg/L, respectively (99.6% susceptible). For coagulase-negative staphylococci the MIC50/MIC90 were 1/4 mg/L, respectively with 88.6% of isolates at <= 2 mg/L. Ceftobiprole was active against *Enterococcus faecalis* (MIC50/MIC90, 0.5/4 mg/L) but not active against *E. faecium* (MIC50/MIC90, >8/>8 mg/L). Ceftobiprole was active against β-hemolytic streptococci with the highest MIC at 0.06 mg/L (MIC50/90 0.015/0.03 mg/L, respectively). Susceptibility to ceftobiprole for *Streptococcus pneumoniae* was 100.0% (MIC50/MIC90, 0.015/0.25 mg/L , respectively). Ceftobiprole was highly active against penicillin-resistant *S. pneumoniae* (ceftobiprole MIC50/MIC90, 0.5/0.5mg/L). Susceptibility to ceftriaxone for *S. pneumoniae* was 88.3%. All ceftriaxone-non-susceptible isolates of *S. pneumoniae* were susceptible to ceftobiprole (ceftobiprole MIC50/MIC90, 0.5/0.5 mg/L, respectively). Ceftobiprole was active against viridans group streptococci with a MIC50/MIC90 of 0.06/0.25 mg/L, respectively.

Conclusions: Ceftobiprole was active against clinically relevant Gram-positive isolates collected at medical centers during 2013 from 17 European countries and Israel. A total of 99.9% of *S. aureus* including MRSA were susceptible to ceftobiprole. Ceftobiprole also exhibited 100.0% susceptibility against *S. pneumoniae* including isolates that were resistant to penicillin (3.1%) and non-susceptible to ceftriaxone (11.7%).

Table.

	Cumulative % inhibited at ceftobiprole MIC (mg/L) of:											
Organism (no.)	**<=0.008**	**0.015**	**0.03**	**0.06**	**0.12**	**0.25**	**0.5**	**1**	**2**	**4**	**>=8**	**$MIC_{50/90}$**
S. aureus (2033)	0.0	0.0	0.0	0.2	0.4	43.1	79.0	92.4	99.9	100.0	--	0.5/1
MRSA (479)	0.0	0.0	0.0	0.0	0.0	0.4	11.1	67.8	99.6	100.0	--	1/2
CoNS (474)	0.0	0.2	0.2	2.1	9.7	23.6	45.6	77.4	88.6	99.8	100.0	1/4
MRCoNS (379)	0.0	0.0	0.0	0.0	0.8	5.0	31.9	71.8	85.8	99.7	100.0	1/4
E. faecalis (403)	0.0	0.0	0.2	0.5	3.5	31.0	75.4	80.1	89.3	95.0	100.0	0.5/4
E. faecium (280)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	3.9	5.4	100.0	> 8> /8
Beta-haem strep (396)	48.7	65.9	99.7	100.0	--	--	--	--	--	--	--	0.015/0.03
S. pneumoniae (548)	46.9	78.5	82.1	84.5	85.8	93.8	100.0	--	--	--	--	0.015/0.25
Penicillin-resistant (MIC,>2 mg/L) (17)	0.0	0.0	0.0	0.0	0.0	11.8	100.0	--	--	--	--	0.5/0.5
ceftriaxone-non-susceptible (MIC, >0.5 mg/L) (64)	0.0)	0.0	0.0	0.0	0.0	46.9	100.0	--	--	--	--	0.5/0.5
Viridans gr streptococci (177)	7.9	27.7	42.9	60.5	85.3	93.2	94.9	99.4	99.4	99.4	100.0	0.06/0.25