29th ECCMID Amsterdam, Netherlands 13 – 16 April 2019

The congress of ESCMID

P1199 Antimicrobial activity of cefoperazone-sulbactam against Gram-negative organisms from Europe, Asia-Pacific, and Latin America in 2015-2016

Helio S. Sader*[1], Cecilia Carvalhaes[1], Jennifer Streit[1], Mariana Castanheira[1], Robert Flamm[1]

[1] JMI Laboratories, North Liberty, United States

Background: Cefoperazone-Sulbactam is a β-lactam/β-lactamase inhibitor combination currently available for clinical use in a number of countries including China, India and Japan**.** We evaluated the antimicrobial activities of cefoperazone-sulbactam tested against a large collection of clinical isolates of gram-negative organisms.

Materials/methods: A total of 19,545 organisms, including 14,417 Enterobacteriaceae, 3,818 *Pseudomonas aeruginosa* (PSA), and 1,310 *Acinetobacter* spp. were collected from medical centers located in Western Europe (W-EUR; n=10,626), Eastern Europe (E-EUR; n=4,029), the Asia-Pacific region (APAC; n=2,491), and Latin America (LATAM; n=2,399) in 2015-2016 as part of the SENTRY Antimicrobial Surveillance Program, and susceptibility tested against cefoperazone-sulbactam and many comparator agents by reference broth microdilution methods.

Results: Overall, 91.5% of Enterobacteriaceae were susceptible (≤16 mg/L; Sulperazone Package Insert) to cefoperazone-sulbactam ($MIC_{50/90}$, 0.5/16 mg/L), with susceptibility rates ranging from 82.0% (E-EUR) to 94.4% (W-EUR; see Table). Among Enterobacteriaceae, overall susceptibility to cefoperazone-sulbactam, piperacillin-tazobactam, imipenem, and ceftriaxone was 91.5%, 85.4%, 90.5% and 72.1%, respectively. ESBL-phenotype rates (CLSI criteria) among *E. coli* (EC)/*K. pneumoniae* (KPN) were 18.4/34.2% in W-EUR, 38.2/72.4% in E-EUR, 26.3/25.1% in APAC, and 34.7/51.8% in LATAM. Overall, 97.2/77.0% of EC/KPN were cefoperazone-sulbactam-susceptible, including 99.5/99.4% of non-ESBL-phenotype and 90.1/50.0% of ESBL-phenotype isolates. Among PSA, cefoperazone-sulbactam susceptibility rates were higher in W-EUR, APAC and LATAM (83.0-84.6%) compared to E-EUR (59.5%). Susceptibility to piperacillin-tazobactam, imipenem, and ceftazidime was 78.3%, 76.2%, and 82.0% in W-EUR; 52.3%, 43.5%, and 57.4% in E-EUR; 83.5%, 80.1%, and 84.5% in APAC; and 81.5%, 72.8%, and 83.0% in LATAM, respectively. *Acinetobacter* spp. susceptibility rates varied from 43.0% in E-EUR to 75.8% in LATAM (53.2% overall) for cefoperazone-sulbactam and from 19.8% in E-EUR to 40.2% in W-EUR (26.4% overall) for imipenem.

Conclusions: Antimicrobial susceptibility rates varied widely among geographic regions and were generally lowest in E-EUR. Cefoperazone-sulbactam continues to demonstrate *in vitro* activity against clinically important gram-negative organisms isolated from W-EUR, E-EUR, APAC, and LATAM medical centers. Based on the potency and activity spectrum, cefoperazone-sulbactam continues to have a role for treating of infections caused by gram-negative organisms and remains among the most active compounds *in vitro* against Enterobacteriaceae, PSA, and *Acinetobacter* spp. at published breakpoints.

Organism	Cumulative % inhibited at cefoperazone-sulbactam MIC (mg/L) of:								
Geographic region (n)	≤0.25	0.5	1	2	4	8	16	32	>32
Enterobacteriaceae									
W-EUR (8,440)	39.3	55.0	68.6	77.4	84.5	90.5	**94.4**	96.6	100.0
E-EUR (2,543)	23.5	34.7	44.1	52.0	61.3	72.4	**82.0**	90.5	100.0
APAC (1,645)	46.3	61.2	71.4	77.1	83.9	89.9	**94.2**	96.7	100.0
Latin America (1,789)	31.9	45.1	54.8	62.8	73.8	83.0	**89.5**	92.2	100.0
P. aeruginosa									
W-EUR (1,838)			3.6	13.4	58.9	72.1	**83.0**	93.7	100.0
E-EUR (891)			2.1	7.4	35.7	45.9	**59.5**	73.3	100.0
APAC (636)			4.7	15.1	61.2	75.3	**84.6**	94.2	100.0
Latin America (453)			3.3	12.8	61.1	73.3	**83.0**	90.1	100.0

Values in bold indicate % susceptible per Sulperazone package insert