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Abstract (poster session)

Spectrum and potency of ceftaroline against leading pathogens causing community-acquired respiratory tract infections in Europe and South Africa, 2010

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Objective: Ceftaroline (CPT), the active metabolite of the prodrug ceftaroline fosamil, is a novel cephalosporin exhibiting broad-spectrum in vitro bactericidal activity against Gram-positive organisms, including Streptococcus pneumoniae and methicillin-susceptible (MS) and -resistant (MR) Staphylococcus aureus (SA), as well as common Gram-negative organisms. The objective of this study was to determine the spectrum and potency of CPT against recent (2010) leading pathogens causing community-acquired respiratory tract infections (CA-RTI) isolated in Europe and South Africa (SAF). Methods: A total of 1608 isolates from the 2010 Assessing Worldwide Antimicrobial Resistance Evaluation (AWARE) Programme were identified as CA-RTI pathogens by the infection type and/or specimen type recorded by the submitter. Isolates were collected from patients in 53 medical centres in 19 European countries (including Israel and Turkey) and in South Africa (45 isolates, 1 medical centre) during 2010. Susceptibility testing for CPT and commonly used antimicrobials was performed by CLSI broth microdilution methodology. Susceptibility interpretations for comparators were as published in CLSI and EUCAST guidelines. Results: The potencies of CPT against the leading pathogens isolated are shown in the Table. CPT was very active overall against Streptococcus pneumoniae (SPN; MIC50/90, <=0.008/0.12 mg/L) and inhibited 100.0% of all isolates at a MIC <=0.5 mg/L. CPT was very potent against penicillin (PEN)-R and -intermediate (I) SPN (MIC50/90, 0.12/25 and 0.03/0.12 mg/L, respectively) but potency was lower than seen against PEN-S isolates (MIC50/90, <=0.008/<=0.008 mg/L). CPT was also very active against 536 Haemophilus influenzae (HI) isolates with activity being slightly lower against beta-lactamase positive (BLP) isolates compared to BL negative (N) isolates. CPT also demonstrated good activity against 211 Moraxella catarrhalis isolates (MCAT; MIC90, 0.12 mg/L). Conclusions: This study demonstrated the potent in vitro activity of CPT against recent (2010) pathogens isolated from patients with documented CA-RTI from Europe and South Africa. These data suggest that ceftaroline fosamil could emerge as an important therapeutic option for CA-RTI in Europe and South Africa.

	No. (cum. %) of isolates inhibited at Ceftaroline MIC (mg/L)								
Subset (n)	≤0.008	0.015	0.03	0.06	0.12	0.25	0.5	MIC50	MIC90
All SPN (861)	553 (64.2)	66 (71.9)	42 (76.8)	41 (81.5)	133 (97.0)	25 (99.9)	1 (100.0)	≤0.008	0.12
PEN-S (600)	550 (91.7)	44 (99.0)	6 (100.0)					≤0.008	≤0.008
PEN-I (112)	3 (2.7)	22 (22.3)	36 (54.5)	32 (83.0)	19 (100.0)			0.03	0.12
PEN-R (149)				9 (6.0)	114 (82.6)	25 (99.3)	1 (100.0)	0.12	0.25
All HI (536)	398 (74.3)	88 (90.7)	38 (97.8)	7 (99.1)	4 (99.8)	0 (99.8)	1 (100.0)	≤0.008	0.015
BLN (469)	382 (81.5)	65 (95.3)	20 (99.6)	1 (99.8)	1 (100.0)			≤0.008	0.015
BLP (67)	16 (23.9)	23 (58.2)	18 (85.1)	6 (94.0)	3 (98.5)	0 (98.5)	1 (100.0)	0.015	0.06
MCAT (211)	12 (5.7)	13 (11.9)	67 (43.6)	63 (73.5)	43 (93.8)	11 (99.1)	2 (100.0)	0.06	0.12