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Abstract (poster session)

Activity of ceftaroline against the leading community-acquired respiratory tract infection pathogens in Europe and the Mediterranean region, 2011

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Objective: To monitor the spectrum and potency of ceftaroline (CPT) against the leading community-acquired respiratory tract infection (CA-RTI) pathogens in Europe and the Mediterranean region (EMR). CPT, the active form of ceftaroline fosamil, a novel, parenteral cephalosporin with bactericidal activity against Gram-positive and common Gram-negative organisms, was approved for clinical use in the European Union in 2012 for the treatment of community-acquired pneumonia and complicated skin and soft tissue infections. Methods: 3251 non-duplicate, clinically relevant isolates of Staphylococcus aureus (SA), Streptococcus pneumoniae (SPN), Haemophilus influenzae (HI), and Haemophilus parainfluenzae (HP) from 41 medical centres in 16 countries from SENTRY as part of the 2011 AWARE ceftaroline surveillance programme were evaluated to determine susceptibility (S) profiles against CPT and commonly used comparator agents. S testing was performed by CLSI broth microdilution methodology. S interpretations were as published in CLSI and EUCAST guidelines. Results: CPT was active against SA (24.4% methicillin-resistant [MRSA]; 95.6% susceptible). The CPT MIC 50/90 for MRSA was 1/2 compared to 0.25/0.25 mg/L for methicillin-susceptible SA (MSSA). For SPN, the CPT MIC50/90 was at <=0.015/0.12 mg/L; 99.3% of isolates were S. There were only three strains (0.2%) at the highest MIC value of 1 mg/L from Poland, Romania and Turkey. CPT activity against penicillin-resistant (Pen-R) and –intermediate SPN was at MIC50/90, 0.25/1 and 0.12/0.25 mg/L, respectively, but activity was lower than seen against penicillin-susceptible isolates. CPT was 16-fold more active than ceftriaxone (MIC50/90, 4/>8 mg/L) and >32-fold more active than amoxicillin/clavulanic acid (MIC50/90, >8/>8 mg/L) against the Pen-R strains. All Pen-R SPN strains and 21.7% of all SPN were non-susceptible to ceftriaxone. CPT was active against 591 beta-lactamase (BL) negative and 90 BL positive HI isolates with MIC50/90 <=0.015/0.03 mg/L. Activity was also demonstrated for CPT against 39 HP (MIC50/90, <=0.015/0.06 mg/L). Conclusions: CPT demonstrated in vitro activity against the leading CA-RTI pathogens SA including MRSA, SPN and Haemophilus spp. in this recent (2011) collection of pathogens from EMR. The activity of CPT against MDR SPN strains merits further study.

	no. of isolates (cumulative %) inhibited at ceftaroline MIC (mg/L) of:										
Organism (no. tested)	**<=0.015**	**0.03**	**0.06**	**0.12**	**0.25**	**0.5**	**1**	**2**	**4**	**MIC_{50}**	**MIC_{90}**
Staphylococcus aureus (1159)	0.1	-	0.8	10.4	74.6	86.9	95.6	100.0	-	0.25	0.5
MSSA (876)	0.1	-	1.0	13.8	97.7	100.0	-	-	-	0.25	0.25
MRSA (283)	-	-	-	-	3.2	46.3	82.0	100.0	-	1	2
Streptococcus pneumoniae (1372)	64.7	70.7	79.7	95.6	99.3	99.8	100.0	-	-	<=0.015	0.12
(1263)*	70.2	76.8	85.7	99.1	100.0	-	-	-	-	<=0.015	0.12
penicillin-intermediate (MIC, 4 mg/L) (89)*	-	-	11.2	66.3	98.9	100.0	-	-	-	0.12	0.25
penicillin-resistant (MIC, >=8 mg/L) (20)*	-	-	-	-	55.0	85.0	100.0	-	-	0.25	1
Haemophilus influenzae (681)	86.8	97.7	99.6	100.0	-	-	-	-	-	<=0.015	0.03
beta-lactamase negative (591)	88.8	98.5	99.8	100.0	-	-	-	-	-	<=0.015	0.03
beta-lactamase positive (90)	73.3	92.2	97.8	100.0	-	-	-	-	-	<=0.015	0.03
Haemophilus parainfluenzae (39)	84.6	89.7	92.3	97.4	97.4	97.4	97.4	97.4	100.0	<=0.015	0.06

*Criteria as published by the CLSI for 'Penicillin parenteral non-meningitis' (S≤2, I=4, R>=8 mg/L)