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Abstract (poster session)

In vitro activity of ceftaroline against Klebsiella spp. as evaluated by both broth microdilution (BMD) and Etest

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Objectives: Ceftaroline is an advanced generation cephalosporin with activity against Gram-positive and Gram-negative organisms including enterobacteriaceae. As ceftaroline is new to the market, automated susceptibility testing panels do not contain ceftaroline, and if susceptibility testing is warranted, institutions utilize Etests in order to determine minimum inhibitory concentrations (MICs). Previous analyses have demonstrated that for some organism/antimicrobial combinations discrepancies exist between in vitro testing methodologies. This analysis was conducted to determine if discrepancies exist for ceftaroline activity versus Klebsiella spp as determined by Etest and BMD. Methods: 107 unique patient Klebsiella isolates (83 K. pneumoniae, 24 K. oxytoca) were collected at Detroit Medical Center. Each isolate underwent susceptibility testing via Etest and BMD and the results were analyzed for concordance. FDA breakpoints were utilized to determine susceptibility (susceptible <= 0.5 mcg/mL, intermediate = 1 mcg/mL, resistant >= 2 mcg/mL) Results: Overall there was excellent concordance between methodologies (Table). Of 72 non-ESBL producing K .pneumoniae, 52 (72%) were susceptible via BMD and 55 (76%) via Etest. For K. oxytoca 21/22 (95%) of the non-ESBL producing isolates were susceptible by both methodologies. Concordance for ESBL producing isolates could not be analyzed as definitive MICs could not be determined due to growth at the highest tested MIC. Of 87 isolates that could be analyzed for errors, minor errors occurred in 4% of isolates and very major errors in 3% of isolates. No major errors were identified. In each of the three instances of major errors the organism was highly susceptible via Etest, but resistant via BMD. For 83/87 (95%) isolates, susceptibility results by Etest and BMD were within one dilution of another. Conclusions: Utilizing Etests for determining susceptibility of clinical Klebsiella isolates to ceftaroline appears to be an accurate and clinically appropriate method. Further analysis of the cause of major errors between Etest and BMD is warranted.

Table

non-esbl K.pneumoniae (n = 72)

	Susceptible	Intermediate	Resistant	MIC50	MIC90	Range
BMD	52 (72)	2 (3)	18 (25)	0.25	16	(0.03 ->16)
Etest	55 (76)	2 (3)	15 (21)	0.25	8	(0.016 -> 32)

Non-ESBL producing K.oxytoca (n = 22)

	Susceptible	Intermediate	Resistant	MIC50	MIC90	Range
BMD	21 (95)	0 (0)	1 (5)	0.25	0.5	(0.06 - >16)
Etest	21 (95)	0 (0)	1 (5)	0.25	0.5	(0.06 - >32)