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Abstract (poster session)

Comparative in vitro activity of amoxicillin/clavulanate against aerobic Gram-negative pathogens in Spain – SMART 2005-2010

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Objectives: The Study for Monitoring Antimicrobial Resistance Trends (SMART) has been monitoring worldwide activity of ertapenem (ETP), amikacin (AK), cefepime (CPE), cefoxitin (CFX), ceftazidime (CAZ), ceftriaxone (CAX), cefotaxime (CFT), ciprofloxacin (CP), imipenem (IMP), levofloxacin (LVX), ampicillin/sulbactam (AS), and piperacillin/tazobactam (PT) against gram-negative intra-abdominal infection (IAI) pathogens since 2002, and from urinary tract infection (UTI) starting in late 2009. Additionally, amoxicillin/clavulanate (AUG) was tested specifically against Spanish isolates. This report compares the in vitro activity of these drugs in Spain during this period. Methods: 9,461 isolates were collected by 11 Spanish hospitals from IAI (2005-2010) and UTI (2009-2010). Extended spectrum beta-lactamase (ESBL) confirmation and MIC determinations for all drugs except AUG were done following Clinical and Laboratory Standards Institute (CLSI) methods; AUG was tested by Etest using the same inoculum as the other drugs. EUCAST breakpoints were used to interpret MICs. Results: % Susceptible (%S) for all species with n>10 is shown below. Values >=90% are shaded. Note: blanks=no breakpoint established. ESBL+ rates in 2010 for E. coli and K. pneumoniae were 8.8 and 13.6%, respectively. Conclusions: • AUG was the second least active drug in the study, inhibiting >=90% of only 3 relatively minor species causing IAI and UTI (P. mirabilis, P. vulgaris, and C. koseri); only AS was less active. • AUG retained marginal activity (72%) vs. ESBL+ E. coli, but it only inhibited 48% of ESBL+ K. pneumoniae. With nearly 14% of K. pneumoniae being ESBL+ in Spain, use of AUG to treat IAI may be unwise until ESBL status of the pathogen is known. • Only ETP and IMP inhibited >90% of ESBL+ isolates. ESBL+ K. pneumoniae were especially troubling, as other than the carbapenems and AK, no other drug inhibited >50% of these isolates.

Organism	N	AS	AK	AUG	CAX	CAZ	CFT	CP	CPE	ETP	IMP	LVX	PT
A. baumannii	57		60					23			28	25	
A. hydrophila	14	42.9	**100**	50.0	78.6	**92.9**	85.7	**100**	**100**	57.1	64.3	**100**	78.6
C. freundii	190	46.3	**96.8**	10.1	65.8	67.4	66.8	**91.1**	**90.5**	**99.0**	**98.4**	**93.2**	84.7
C. koseri	39	**94.9**	**100**	**96.7**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
E. aerogenes	126	27.8	**99.2**	7.7	46.8	47.6	49.2	**95.2**	88.9	**92.1**	**95.2**	**96.8**	61.1
E. cloacae	385	17.1	**99.2**	4.7	60.0	60.3	60.0	**91.7**	81.0	86.8	**98.7**	**93.8**	75.6
E. coli, all	3771	39.4	**97.6**	82.4	**90.1**	**90.0**	89.6	73.1	**92.5**	**99.8**	**99.9**	74.9	**91.0**
E. coli ESBL+	308	13.0	87.3	71.8	5.2	19.5	4.2	29.6	20.8	**99.0**	**99.7**	33.4	80.2
H. alvei	22	18.2	**100**	0	31.8	22.7	45.5	**100**	**95.5**	**100**	**100**	**100**	77.3
K. oxytoca	307	73.3	**99.4**	88.0	**92.2**	**97.1**	**95.4**	**94.8**	**95.8**	**100**	**99.7**	**96.1**	**93.8**
K. pneumoniae, all	684	67.7	**97.4**	87.6	**90.8**	89.2	**91.2**	85.5	**92.3**	**99.0**	**99.6**	87.7	85.2
K. pneumoniae ESBL+	61	11.5	82.0	47.7	23.0	11.5	21.3	39.3	36.1	**96.7**	**100**	44.3	39.3
M. morganii	163	3.7	**96.9**	2.1	84.7	66.9	66.3	80.4	**98.2**	**99.4**	66.9	88.3	**97.6**
P. mirabilis	347	80.4	**91.6**	**92.5**	**95.7**	**97.4**	**96.3**	77.0	**99.1**	**99.7**	84.2	89.1	**99.4**
P. vulgaris	58	63.8	**98.3**	**94.4**	56.9	86.2	87.9	**98.3**	**96.6**	**100**	81.0	**98.3**	**98.3**
P. aeruginosa	423		80.1			76.4		73.1	74.7		72.3	68.8	74.2
S. marcescens	56	14.3	**100**	7.1	85.7	89.3	78.6	89.3	**94.6**	**98.2**	**100**	**96.4**	89.3