P1529

Abstract (poster session)

Trends in susceptibility for Escherichia coli from intra-abdominal infections in three European regions: SMART 2008-2011

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Background: The Study for Monitoring Antimicrobial Resistance Trends (SMART) has monitored the in vitro susceptibility of organisms from intra-abdominal infections (IAI) since 2002. This analysis of SMART data was done to compare the occurrence of extended-spectrum beta-lactamase (ESBL) producers and susceptibility of E. coli collected from IAI between 2008 and 2011 in three European regions. Methods: 5,874 E. coli were collected from IAI patients by 49 labs in three European regions: Baltic (Estonia, Latvia, Lithuania), South (Portugal, Spain, Italy, Greece), and West (France, Germany, UK). Only countries with isolates in all four years were included. MICs were determined by broth microdilution, and interpreted using EUCAST guidelines. Linear trends in % ESBL+ and % susceptible were evaluated using the Cochran-Armitage test. Differences in % ESBL+ between regions were assessed with the Fisher exact test. Results: ESBL+ rates in the four years 2008-11 were 5.0, 5.7, 7.7, and 7.9% in the Baltic region, 10.7, 10.0, 8.2, and 12.0% in the South, and 11.6, 7.4, 10.3, 8.7% in the West. None of the trends were statistically significant. We therefore combined all four years for an overall ESBL+ rate of 6.6% in the Baltic region, which is significantly lower than in the South (10.2%) and the West (9.5%) ($p<0.05$). Trends in % susceptible are shown below for representative drugs of each drug class tested; values >=90% are shaded. Conclusions: Unlike what has been reported from many other regions in the world, there was no significant increase in ESBL+ E. coli in the three European regions in the four years from 2008-11. The Baltic region showed a significantly lower ESBL+ rate during this time period than the South and West, but did show a steady increase; ESBL+ rates should continue to be monitored. Susceptibility was generally slightly higher in the Baltic region than elsewhere, presumably due in part to the lower ESBL+ rates observed there. Although statistically significant increases in susceptibility were seen for amikacin and pip-tazo in some regions, the clinical significance of the increase is probably negligible. Only amikacin and ertapenem consistently showed rates higher than 90% across all regions.

Region (n per year)	**Drug**	**2008**	**2009**	**2010**	**2011**
Baltic	Amikacin	95.8	91.8	93.6	96.4
(120,159,155,140)	Cefepime	93.3	93.7	92.3	92.9
	Ciprofloxacin	85.0	86.8	82.6	87.1
	Ertapenem	100	100	100	100
	Pip-Tazo*	87.5	95.0	96.8	95.7
South	Amikacin*	93.6	95.0	96.7	96.8
(887,880,880,918)	Cefepime	89.2	89.9	91.5	88.6
	Ciprofloxacin	72.2	71.7	73.6	69.6
	Ertapenem	100	99.8	99.7	99.9
	Pip-Tazo*	86.8	87.5	89.2	89.5
West	Amikacin*	92.6	95.2	96.6	99.3
(406,460,445,424)	Cefepime	87.9	91.7	88.5	91.3
	Ciprofloxacin	81.5	83.3	81.6	85.9
	Ertapenem	99.8	100	99.8	100
	Pip-Tazo	91.9	93.7	91.7	94.8

* Significant increase in susceptibility ($p<0.05$)