were performed by Kirby-Bauer method, MIC determination by automated system (Phoenix, BD) and E-test method (Biomerieux SA, France) according CLSI standards. Preliminary phenotypic detection was based on the boronic acid disk test, a simple phenotypic algorithm employing three combined-disc tests consisting of meropenem alone and with phenylboronic acid (PBA), EDTA, and both PBA and EDTA. Genotypic confirmation for the presence of the bla-KPC gene by PCR and molecular typing by PFGE.

Results: Of 12 cases of bacteremia, seven catheter related infections, three surgical site infections, two lower respiratory tract infections, five ventilator-associated pneumonia and two urinary tract infections were identified. Twenty-three infections were recorded in ICU, four in Surgical and four in Internal Medicine unit respectively. Ninteen out of 25 patients were mechanically ventilated, 21 had central venous catheter and 25 urinary-bladder catheter. The crude mortality, 28 days after the first positive culture, was 32%.

Multidrug resistance characterized the studied isolates with an MIC range to meromenem ≤1 to (32, with colistin, gentamicin and tigecycline being the most active agents. Boronic acid disk test was able to differentiate 26 KPC, 3 MBL producers and two co-producers of both carbapenemases. PCR confirmed that all 26 isolates produce KPC-2 β-lactamases and belong to the same dominant genotype in Greece.

Conclusion: In Greek hospitals, carbapenem resistance among *Klebsiella pneumoniae* clinical isolates, is alarming and poses a unique challenge for clinical microbiologists and clinicians. Continuation of antibiotic policy and proper infection control practices and barriers to prevent further spread, is mandatory. Boronic acid disk test provides a simple algorithm for phenotypic detection of carbapenemase production and for the differentiation of KPC and MBL enzymes

R2492 Carbapenemase-producing Enterobacteriaceae isolates collected in Portuguese hospitals

V. Manageiro, E. Ferreira, D. Louro, M. Caniça, on behalf of ARSIP Antibiotic Resistance Surveillance Program in Portugal*

Objectives: In Portugal, little is known on carbapenemase (CARB)-producing Enterobacteriaceae. The aim of this study was to identify the resistance mechanisms of Enterobacteriaceae isolates, identified at hospital laboratories as carbapenem (CA) non-susceptible.

Methods: This study included 61 Enterobacteriaceae isolates (26 *Klebsiella* spp., 15 *Escherichia coli*, nine *Enterobacter* spp., six Morganella morgannii, four *Proteus mirabilis*, one *Serratia marcescens*), collected between April 2006 and September 2011 and sent to the NIH-Lisbon for CA susceptibility confirmation. Antimicrobial susceptibility of clinical isolates was performed by disk diffusion method (CA-SFM). Clinical isolates showing synergism between CA and boronic acid (BOR) (and/or clavulanic acid, CLAV) or with EDTA were considered presumptively CARB-producers from class A or Class B, respectively. PCR and sequencing were applied to detect and identify CARB-encoding genes; the respective genetic environment was revealed by sequencing using PCR mapping. Direct transfer of the CA resistance phenotype was attempted by mating-out assays. Antibiotics susceptibility (MIC) of transconjugants and respective isolates were tested by microdilution.

Results: The majority of isolates were collected from the urine (57.4%) of elderly ((65 years old) male patients (54.1%), admitted at the emergency room/ambulatory (24.6%) and at internal medicine (18.0%) wards. Among all isolates, 50.8% were nonsusceptible to at least one CA, being 67.2% multidrug-resistant; 16 isolates showed synergy between CA and BOR (and/or CLAV). Among those, five were KPC-3-producers (four *Klebsiella pneumoniae* and one Enterobacter clocae), collected in 2010 (2) and 2011 (3). The blaKPC-3 genes were confirmed to be carried by plasmids. Genetic environment of blaKPC-3 gene revealed the presence of a Tn4401 transposon in all but one isolate (*E. cloacae*), suggesting that this last gene was included in other Tn4401-like isoform. We also detected a VIM-2-producing *Klebsiella oxytoca*, collected in 2009, among the seven isolates that showed synergy between imipinem and EDTA. No blaGES, blaNDM or blaIMP were detected.

Conclusion: This study provides new data regarding the molecular epidemiology of CARB-producing Enterobacteriaceae in Portugal. Overall, our results emphasize the need of a concerted action to manage CA use. This is supported by EARS-Net, which reported an increase in CA nonsusceptibility of *K. pneumoniae* isolates from 0.72% in 2008 to 1.58% in 2010.

R2493 Susceptibility comparison of uropathogens isolated from adults with complicated and uncomplicated community-acquired urinary tract infections in Russia, 2010–2011

I. Palagin, M. Sukhorukova, M. Edelstein, R. Kozlov, A. Shevelev, A. Dekhnich, on behalf of ''DARMIS'' Study Group*

Objectives: To compare the resistance of *Escherichia coli* isolates from adults with complicated and uncomplicated community-acquired urinary tract infections (CAUTIs) in Russia.

Methods: A total of 282 and 196 uropathogens from adults with signs of complicated and uncomplicated CAUTI in 17 cities of Russia (Moscow, St. Petersburg, Chelyabinsk, Irkutsk, Kazan, Krasnodar, Omsk, Rostov-on-Don, Samara, Seversk, Smolensk, Surgut, Tomsk, Tyumen, Ufa, Yakutsk, Yekaterinburg) were collected during 2010–2011. The MICs for antibiotics (amikacin – AMK, amoxicillin/clavulanate – AMX/CLV, ampicillin – AMP, cefotaxime – CTX, ceftazidime – CTZ, cefepime – CFPM, ciprofloxacin – CPX, co-trimoxazole – TMP/SMX, ertapenem – ERT, fosfomycin – FSF, gentamicin – GNT, imipenem – IPM, nitrofurantoin – NTF) were determined by agar dilution and interpreted according to the EUCAST criteria (2011).

Results: Among the identified microorganisms the most frequent were Enterobacteriaceae members (225 isolates [79.8%] in the group of complicated CAUTI and 160 isolates in the group of uncomplicated CAUTI [81.6%]) out of which there were 173 (61.3%) and 129 (65.8%) *E. coli* strains, respectively. Resistance rates of *E. coli* in both study groups are summarized in the Table. A statistically significant difference in resistance rates to ampicillin (37.9% and 53.1%; $p < 0.05$), cefotaxime (2.3% and 13.8%; $p < 0.05$), ceftazidime (3.0% and 13.8%; $p < 0.05$), cefepime (3.0% and 11.0%; $p < 0.05$), co-trimoxazole (21.8% and 32.4%; $p < 0.05$) and ciprofloxacin (10.8% and 27.7%; $p < 0.05$) was observed between the groups of adults with uncomplicated CAUTIs and complicated CAUTIs, respectively. A significant distinction in ESBL production rate (2.3% and 13.8%; $p < 0.05$) was also noted. The changes in susceptibility to other drugs were statistically non significant.

Table. Susceptibility of *E. coli* isolated from adults with CAUTI in Russia in 2010-2011

Antibiotic	Complicated CAUTI, I+R,%	Uncomplicated CAUTI, I+R,%	p value (χ^2 test)
AMK	2.3	0.0	0.0821
AMX/CLV (2mg/L)	46.2	35.6	0.0650
AMP	53.1	37.9	0.0088*
CTX	13.8	2.3	0.0005*
CTZ	13.8	3.0	0.0014*
CFPM	11.0	3.0	0.0106*
CPX	27.7	10.8	0.0003*
TMP/SMX	32.4	21.8	0.0408*
ERT	1.8	0.0	0.1328
FSF	1.8	1.6	0.9015
GNT	11.6	10.8	0.8473
IPM	0.0	0.0	-
NTF	2.9	0.8	0.1926
% ESBL-positive	13.8	2.3	0.0005*

* - statistically significant difference

Conclusions: The resistance rates of *E. coli* to ampicillin, co-trimoxazole, III-IV generation cephalosporins and ciprofloxacin were significantly higher in the group of adults with complicated CAUTIs