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Abstract (poster session)

Epidemiology and molecular analysis of multidrug-resistant (MDR) Enterobacteriaceae isolated from bacteraemias in a Greek hospital in a three-year period (2009-2011)

I. Galani*, K. Orlandou, F. Panagea, M. Drogari-Apiranthitou, G.L. Petrikkos, M. Souli (Athens, GR)

Objectives: The aim of this study was to retrospectively analyze the epidemiology of MDR enterobacteriaceae isolated from patients with bacteraemia in University Hospital ATTIKON from 2009 to 2011. **Methods:** 247 single-patient blood isolates were collected. Susceptibility testing was performed according to CLSI guidelines. All strains were phenotypically evaluated for the production of beta-lactamases and carbapenemases. Isoelectric focusing was performed in all ESBL and/or carbapenemase producing isolates and the respective genes were detected by PCR. Clonal relationship was assessed by REP-PCR. **Results:** Among E.coli 5.1% were ESBL and 1.2% were carbapenemase producers while 64.5% of K.pneumoniae (Kp), 10.3% of Enterobacter sp (Ent) and P.mirabilis (Pm) were ESBL and/or carbapenemase producers. A total of 51 isolates (10 E.coli, 36 Kp, 3 Ent and 2 Pm) were studied further. blaCTX-M was the predominant (50%) ESBL among E.coli isolates. KPC producing E.coli isolates were rare (1.2%) while blaKPC was the predominant mechanism among Kp (73%). Co-existence of blaKPC and blaVIM occurred in 14.1%, with one isolate (2.9%) harboring also blaOXA-48. blaVIM was the sole resistance mechanism in 5.7% of Kp, SHV-12 was the predominant ESBL (40%) followed by CTX-M- type (5.7%). Among Ent, blaKPC and blaVIM occurred in two and one isolates, respectively, one Pm harbored a blaVIM gene and OXA-10/17 was the only ESBL found in both species. No clonal spread of resistant E.coli, Ent and Pm strains was observed. Kp isolates belonged to 13 different clonal types with C type the predominant one (48.6%). In 2009, clonal type C represented the 62.5 % of the isolates declining to 46.7% in 2010 and disappearing in 2011. New clonal types were detected in 2009 (n=3), 2010 (n=7) and 2011 (n=3). **Conclusions:** When KPC Kp emerged in Greece in 2008, they dominated and rapidly disseminated making KPC production the most common mechanism of resistance in Kp the last years. Apart from the epidemic clone C (first detected in 2008), diffusion of blaKPC to at least 11 additional clones has taken place, reducing the incidence of epidemic clone C. Notably, isolates carrying both blaKPC and blaVIM belonged to 4 different clonal types including clone C while co-production of VIM, KPC and OXA-48 was also described by a clone C Kp strain. The predominant ESBL among nosocomial E.coli were CTX-M-type enzymes while the dissemination of carbapenemases to other species was documented in the present study.