EV0451
ePoster Viewing
Resistance mechanisms

Dissemination of carbapenemase-producing Enterobacteriaceae at the Taher Sfar University Hospital, Mahdia, Tunisia

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Background: The dissemination of carbapenemase producers is a worldwide concern, which dramatically limits the treatment options at hospital. Carbapenem resistance can be conferred by various carbapenemases, among which OXA-48, a carbapenem-hydrolyzing class D beta-lactamase, was abundantly reported, in particular from North Africa countries such as Tunisia. From June 2012 to June 2013, among 106 non-repetitive *K. pneumoniae* (Kp) consecutively recovered from clinical infections in the 800-bed Taher Sfar University hospital in Mahdia, Tunisia, the first two carbapenemase producers, a ST101 CTX-M-15/OXA-48 and a ST147 CMY-4/OXA-204-producing Kp isolates, were identified. We now report an increased prevalence of carbapenemase-producers in our hospital.

Material/methods: From 2013 to 2015, 16 Enterobacteriaceae resistant to ertapenem according to EU-CAST guidelines were isolated from various clinical infections in several wards, including orthopaedics (5 isolates), intensive care unit (4 isolates), urology (3 isolates) and 1 isolate from the medicine, surgery, pediatric and pneumology wards, respectively. Isolates were identified by MALDI-TOF and included 14 Kp and 1 Serratia. One isolate was not further studied due to contamination. Antimicrobial susceptibility was performed by disc diffusion. Genetic characterization was performed by PCRs for the detection of bla_{CTX-M}, bla_{SHV}, bla_{KPC}, bla_{NDM}, $bla_{IMP,}$ bla_{VIM} and bla_{OXA-48}. *bla* genes were sequenced and plasmids were characterized by rep-typing (Diatheva) and Southern blot on S1-PFGE gels. Clonality was assessed by PFGE and MLST.

Results: All isolates produced CTX-M-1 and most of them produced OXA-48-like enzymes. Sequencing is currently in progress to identify the spread of possible OXA-48 variants. NDM was detected in two isolates. Plasmids encoding those genes were mostly of the IncL but also IncFIIk, IncR or IncX2 families. Clonality studies are underway but preliminary results argue in favor of multiple spread and not the dissemination of a unique clone.

Conclusions: Next to the identification of the first two carbapenemase-producers, we now highlight the expansion of carbapenem resistance in our hospital in Mahdia, Tunisia. Such an evolution is of major concern for public health.