

00060 *Escherichia coli* multidrug-resistant high-risk clone: influence of the elder population in disseminationDaniela Gonçalves¹, Pedro Cecílio², Helena Maria Neto Ferreira^{*3,4}¹ ISAVE - Higher Institute of Health, Amares, Portugal, ² University of Porto, Porto, Portugal, ³ Faculty of Pharmacy, Porto, Portugal, ⁴ Faculty of Pharmacy, Microbiology, University of Porto, Porto, Portugal

Background: Pandemic multi-drug-resistant (MDR) and virulent *Escherichia coli* (*E. coli*) O25b-ST131 has been repeatedly associated with the health-care network worldwide. Nursing-homes (NH) and long-term-care-facilities (LTCF), usually receive patients discharged from the acute-care setting, potentially colonized with CTX-M-15 producers the most widely distributed extended-spectrum β -lactamase (ESBL), acting as potential reservoirs. Our main goal is to describe the installation of CTX-M-15-producing-O25b-ST131 clonal-group *E. coli* in the hospital setting and extra-hospital institutions (7 NH and 3 LTCF) in the same geographical area as a dissemination model of ESBLs producing *E. coli*, in a defined area.

Materials/methods: Susceptibility was accessed by disc-diffusion-methods according to CLSI, and bacterial identification of intestinal colonization isolates was achieved by API 20E and ID32 GN and by Vitek2-system in clinical isolates. ESBL-producers were confirmed by E-test and the double-disk-synergy-test. PCR was performed for detection of TEM/OXA/SHV/CTX-M-group1/CTX-M-15 genes, phylogenetic-groups, O25b-ST131-clonal-group, genes coding for resistance to non- β -lactam-antibiotics and twenty-two virulence-factors. Sequencing was performed using group-specific primers for β -lactamase-genes. *E. coli* isolates relationship was addressed by pulsed-field-gel-electrophoresis (PFGE). Transference of antibiotic resistance and virulence genes was determined by conjugation.

Results: Fifty-eight CTX-M-15-producing-*E. coli*-O25b-ST131 isolates were clustered in nine PFGE-profiles ($\geq 80\%$ homology). Each PFGE type contains clinical isolates from different products and intestinal-colonization isolates. These isolates showed also extended-resistance-phenotype to non- β -lactam-antibiotics and a virulent profile.

Conclusions: Clonality of CTX-M-producing-*E. coli*-O25b-ST131, alert to the circulation of patients between different types of care, favoring the dissemination of multi-resistant bacteria in elder-care network. Intestinal colonization is a silent form of dissemination of CTX-M-15-producing-*E. coli* and resistance genes, promoted by patient circulation through the healthcare network. Intestinal colonization with this high-risk clone in patients in the community may justify therapeutic failures in cases of worsening of the clinical situation and use of adequate antimicrobial therapy will make hospital admission necessary. The interactions that occur between acute-care hospital and extra-hospital institutions in the community are important in understanding the emergence and spread and of high-risk clones across different regions. Bacterial ecology of elder-care is influenced by the interrelationships in all types of care, justifying the dissemination, the public-health threat and contributing to the installation of outbreaks.

