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Abstract (poster session)

**A multinational study of colonisation with extended-spectrum beta-lactamases (ESBL)-producing Enterobacteriaceae in healthcare personnel and family members of patients admitted to rehabilitation centres**

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**Objectives:** Our aims were: 1) to define the prevalence of colonization by ESBL-producing Enterobacteriaceae (ESBL-PE) in healthcare workers (HCW) and family members (FM) of colonized patients admitted to rehabilitation centers (RCs), 2) to analyze the colonization risk factors and 3) to characterize the molecular features of these strains. **Methods:** The study was conducted in 5 RCs: in Tel-Aviv and Ra'anana, Israel; Rome, Italy; Berck, France and Barcelona, Spain. Carriage of ESBL-PE was surveyed by rectal swabs. Demographics, clinical characteristics and data regarding the type and degree of patient's contact were collected. ESBL types were determined by PCR-sequencing and typing was performed by PFGE and MLST. Comparisons of molecular characteristics were done between isolates from patients and their respective FM, and between those from HCW and from patients. **Results:** The study included 286 FM of 194 ESBL-PE carriers identified. ESBL-PE were detected in 26 (9.1%) FM. *E. coli* was the most common (n=20; 76%), followed by *K. pneumoniae* (n=5; 19%). Species concordance between patients and FM was found in 23 of 26 ESBL-PE-positive FM. In multivariate analysis, older age of the FM (O.R.=1.04 per year, 95% C.I. 1-1.08, p=0.022), longer mean number of hours spent with the patient (O.R.=1.09 per hour, 95% C.I. 1-1.19, p=0.036) being a daughter or a female spouse of a patient (O.R.=5.11, 95% C.I. 1.74-15.05, p=0.003) and chronic lung disease of the patient (O.R.=8.4, 95% C.I. 2.4-29.1, p=0.001) were associated with carriage in the FM. In all of the cases, isolates from FM and patients were indistinguishable by PFGE and ESBL types (if belonged to the same species). The HCW study included 73 physicians, 288 nurses, 179 nurse assistances, 205 physical therapists, 37 janitors, and 219 other staff members. ESBL-PE was detected in 33 (3.3%) of the HCW, including 32 *E. coli*. In multivariate analysis, feeding patients (OR=2.07, 95% C.I. 1.01-4.23, p=0.044) was associated with ESBL-PE carriage. Only 6 out of 20 subclones identified were also represented in a collection of 376 patient-derived ESBL-producing *E. coli* isolates characterized in a parallel study. In Spain, more HCW and FM were ESBL carriers than elsewhere (p<0.05). **Conclusion:** The molecular and epidemiological data suggest a close relation between ESBL-PE colonization in patients and their FM, but not between patients and HCW.