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Importance of repatriates from foreign hospitals and hospitalisation of foreign citizens for importation of multidrug-resistant bacteria to rehabilitation centre – a 5-year analysis

M. Pirs¹, V. Križan Hergouth¹, N. Žvent Kucina¹, M. Žen Jurancic², U. Zupanc²

¹Faculty of Medicine, Institute of clinical microbiology and immunology, Ljubljana, Slovenia ; ²University Rehabilitation Institute Republic of Slovenia, University Rehabilitation Institute Republic of Slovenia, Ljubljana, Slovenia

Objective: Patients treated at rehabilitation centres have an increased risk for colonization with multidrug-resistant organisms (MDRO) as they usually have a history of frequent and/or prolonged contact with health-care systems. University Rehabilitation Institute Republic of Slovenia (URI) is a central rehabilitation institution, approximately 1450 patients are treated as in-patients every year, MDRO are found on average in 72 patients per year. Beside Slovenian patients a number of foreign citizens are treated every year. The aim of our study was to perform a retrospective analysis to determine how many patients with MDRO were previously hospitalized in a foreign country or were foreign citizens.

Methods: Retrospective analysis of laboratory and patient data was performed for patients treated at URI between 2008 and 2012 that were colonized or infected with MDRO in particular *Enterobacteriaceae*, *Acinetobacter baumannii*, *Pseudomonas aeruginosa*, *Staphylococcus aureus* and enterococci.

Results: In total 361 patients were colonized or infected with MDRO, among those 35 were in contact with health-care systems in foreign countries. In majority of patients only one MDRO was isolated, however in one third up to 7 different MDR bacteria were isolated. ESBL-producing *Enterobacteriaceae* were found in 247 patients, 26 (10.5 %) were in contact with health-care systems in foreign countries, predominately Balkan states (69.2 %), followed by Gaza (19.2 %) and Libya (11.5 %). Majority were *Klebsiella pneumoniae* – ESBL (147 patients) and *E. coli* (124 patients). Carbapenemase producing *Enterobacteriaceae* (CPE) were found in six patients, five were in contact with health-care systems in foreign countries, two in Serbia, and one in India, Libya and Italy. KPC, NDM-1 and OXA-48 carbapenemases were detected, predominant CPE was *K. pneumoniae*. Carbapenem-resistant *A. baumannii* were found in 9 patients, two were repatriated from a foreign hospital (Serbia). *P. aeruginosa*, resistant to all antipseudomonal beta-lactam antibiotics were found in 17 patients, two were repatriated from a foreign hospital (Croatia). Methicillin resistant *S. aureus* (MRSA) was found in 140 patients, 17 (12.2%) were in contact with health-care systems in foreign countries, predominately Balkan states (52.9 %), followed by Gaza (29.4 %). Vancomycin resistant enterococci (VRE) were found in one patient, who was repatriated from a foreign country (Serbia).

Conclusion: Our retrospective analysis has shown that almost 10 % of patients colonized or infected with MDRs treated at URI were repatriated from foreign hospitals or were foreign citizens. Importation of MDRO from abroad represents an increased risk for acquisition of bacteria carrying resistance and virulence determinants and spread of clones with high risk for dissemination. As patients from rehabilitation centres usually have a history of frequent and/or prolonged contact with health-care systems they are at increased risk for colonization with MDRO and strict adherence to infection control guidelines is necessary.