

POSTER PRESENTATION

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Comparative risk factors for nosocomial New Delhi metallo-beta-lactamase (NDM-1) producing Enterobacteriaceae and non-carbapenemase producing (NCP) Enterobacteriaceae

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Introduction

Carbapenem resistance occurs via two mechanisms: acquisition of resistance genes (NDM-1, KPC, OXA) or combination of extended spectrum beta-lactamase production and alteration of the expression of porins (NCP *Enterobacteriaceae*).

Objectives

We conducted a case-case-control study to identify if NDM-1 *Enterobacteriaceae* share risk factors with NCP *Enterobacteriaceae*.

Methods

Patients admitted for at least 48 hours between September 2010 and July 2013 were included. Case 1: Patients with NDM-1 *Enterobacteriaceae* isolated from either clinical or surveillance cultures. Case 2: Patients with NCP *Enterobacteriaceae* isolated from either clinical or surveillance cultures. Control: Patients screened negative for carbapenem-resistant *Enterobacteriaceae* (CRE). Patients with both NDM-1 *Enterobacteriaceae* and NCP *Enterobacteriaceae* were excluded. Demographic, clinical, microbiological and antibiotics usage data were collected from electronic medical records. We conducted time at risk adjusted bivariate analysis followed by multivariate analysis using STATA 12.0.

Results

A total of 1934 patients were screened for CRE. A total of 40 NDM-1 *Enterobacteriaceae* and 43 NCP

Enterobacteriaceae patients were compared with 61 randomly selected control patients. There was no significant difference in age, sex and Charlson index between cases and controls. Independent risk factor for NDM-1 *Enterobacteriaceae* was intensive care unit (ICU) admission in the preceding 3 months (OR, 3.2; 95% CI 1.2 – 8.6; $p=0.02$) and for NCP *Enterobacteriaceae* was number of days exposed to carbapenems (OR 1.2; 95% CI 1.1 – 1.3; $p=0.002$).

Conclusion

NDM-1 *Enterobacteriaceae* and NCP *Enterobacteriaceae* do not share similar risk factors in this small single center study. This finding has an implication on infection control strategies for CRE control.

Disclosure of interest

None declared.

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