

O446

Abstract (oral session)

Investigation of a polyclonal outbreak of NDM-1 producer *Providencia* in a tertiary hospital in Israel

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Objective: The spread of carbapenem resistance mediated by the beta-lactamases among Enterobacteriaceae represent an emerging threat. A single clone of KPC producer *K pneumoniae* (CRKP) is endemic in our facility since 2006. Rectal colonization is present among more than 95% of infected patients. Acquisition rates of CRKP in the ICUs in our facility has ranged between 2-25%. We describe the recent emergence of NDM-1 producing *Providencia* spp (NDM-P) in different locations in our facility during a short period of time.

Methods: Clinical isolates were identified by standard laboratory methods following Clinical and Laboratory Standards Institute guidelines. Antibiotic susceptibility was performed using the disk diffusion method. Minimal inhibitory concentration was determined by Etest. An imipenem/EDTA disc potentiation test was performed for phenotypic detection of MBLs. For partial gene PCR amplification, primers specific for the blaNDM-1 gene were used for reaction with bacterial DNA as template. The genetic relatedness of strains was determined by pulsed-field gel electrophoresis (PFGE) analysis. Rectal screening was conducted among contacts to identify asymptomatic colonization. **Results:** During a period of 90 days, NDM-P Spp was identified among 4 patients. Patient's details are shown in the table. None of the patients had a history of recent travel. The first 3 patients had no epidemiologic link. The fourth case occurred in the same unit of the third patient. PFGE demonstrated clonally diverse strains. All isolates carried the NDM-1 gene. Of the 85 patients who were identified as contacts of the index patients, all were negative on rectal screening cultures for NDM-producing bacteria. **Conclusions:** NDM producing *Providencia* has emerged in 3 different ICUs within a short period of time. None of the patients had a history of recent travel. In comparison to CRKP in our facility, rectal colonization is rare both among the NDM-P infected patients and contacts.

Table: Clinical features of NDM-1 producing *Providencia rettgeri* and results of contact screening

	Pt 1	Pt 2	Pt 3	Pt 4
Gender	M	M	M	F
Age (years)	28	50	40	27
Date of cultures	01/06/2011	09/06/2011	10/08/2011	24/08/2011
Site	rectal	blood	blood	blood
Rectal colonization	positive	negative	negative	negative
Unit	respiratory rehabilitation unit	general ICU	burn unit	burn unit
Length of stay before positive culture (days)	47	21	40	8
Antibiotic Exposure	yes	yes	yes	no
Travel history	no	no	no	no
Positive NDM-P of the contact patients screened	0/50	0/24	0/11	