Detection of Carbapenemase Production in Clinical Isolates of Klebsiella pneumoniae

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Background & Objectives: Carbapenem antibiotics are commonly used to treat infections caused by multidrug resistant Enterobacteriaceae especially members that produce extended spectrum β-lactamases (ESBLs). Carbapenemase (KPC) producing multidrug resistant strains of K. pneumoniae have been increasingly isolated worldwide and is often plasmid mediated. Detection of KPC production is often difficult. Antibiotic susceptibility tests for KPC producing K. pneumoniae may show susceptiblity to imipenem or meropenem, and carbapenem susceptible KPC producing strains have also been reported. The aim of this study was to detect the occurrence of carbapenem resistance and KPC production in clinical isolates of *K. pneumoniae*.

Methods: Fifty five *K. pneumoniae* clinical isolates were collected between Sept to Dec 2011 from Shariati and Shahid Motahari burn hospitals. Carabapenem susceptibility was determined according to the CLSI standards by disc diffusion using imipenem discs. Imipenem resistant isolates were tested for KPC production by the modified Hodge test.

Results: Imipenem resistance was observed in 5 isolates (9.1%) of which KPC production was detected in 3, showing the overall KPC production at 5.45%.

Conclusion: Detection of KPC-producing *K. pneumoniae* clinical isolates is alarming since the plasmids harboring antibiotic resistance genes could be spread among other organisms and cause major health problems.

Keywords: *Klebsiella pneumoniae*; Carbapenemase; Modified Hodge Test; Carbapenems