Molecular characterization of *Klebsiella pneumoniae* carbapenemase-producing (KPC) in Salvador, Bahia.

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Abstract:

Klebsiella pneumoniae carbapenemases (KPC) are serine β-lactamases which confers resistance to all β-lactames and are carried by multidrug-resistant clinical. These bacteria has 21 variants KPC described until the moment, is a plasmid-carried gene harbored in an Tn3-like transposons (Tn 4401- highly mobile genetic elements). Infections by KPC-producing *K. pneumoniae* limit treatment options for patients and are associated with unfavorable clinical outcomes, longer hospitalizations and an increased morbidity and mortality. We perform a molecular characterization of Carbapenemase-producing *K. pneumoniae* isolates from different hospitals in Salvador in two different periods (2010/2011 and 2013/2014). Molecular types of isolates were determined by pulse-field gel electrophoresis (PFGE) and multilocus sequence typing. Screening of ß-lactamase genes was performed by multiplex PCR and alleles were identified by DNA sequencing. From 2010 to 2011, a total of 23 patients infected by *K. pneumoniae* isolates resistant to carbapenems were identified. The patients average age was 60 (± 2.8) years and 65% (13/20) were male. Ninety-one percent (21/23) of isolates were positive for the *bla*KPC gene. Forty-six percent of the isolates producing KPC have the same PFGE patterns, distributed in 3 clonal group. From 2013 to 2014 were identified 5 patients with infections by *K*. *pneumoniae* resistant to carbapenems. The average age of these patients was 47 (±11.3) years old and 80 % (4/5) were male. The isolates were positive for *bla*KPC (60%; 3/5) and *bla*IPM (40%; 2/5) and had a diversity of fingerprint pattern by PFGE. This study contributes to a better understanding of the molecular epidemiology of emerging infections by multidrug resistant microorganisms in our community, signaling the need for strengthening contole and prevention measures in order to prevent the spread of these microorganisms that are a public health problem.

Keywords: *K. pneumoniae*, carbapenemase, *bla* KPC

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