

Title: HERE IS THE STORM: POLYMYXIN B RESISTANCE AMONG CARBAPENEM-RESISTANT *KLEBSIELLA PNEUMONIAE* IN SÃO PAULO, BRAZIL

Authors: BARTOLLETI, F.¹, SAMPAIO J.L.M.¹

Institution: ¹Faculty of Pharmaceutical Sciences, University of São Paulo, São Paulo

Resume: Carbapenemase-resistant *Enterobacteriaceae* (CRE) have spread worldwide during the last five years and have become a public health concern, once carbapenems are the main drugs to be prescribed for the empirical treatment of severe infections caused Gram-negative bacilli. Therapeutic options for those infections are limited to outdated antimicrobials with lower clinical efficacy or serious adverse effects. Polymyxins are among these few antimicrobials agents that maintain activity against CRE, showing potent killing action against most Gram-negative bacteria. Consequently polymyxins have been used to treat nosocomial infections empirically when CRE is a possible agent. However, the emergence of polymyxin resistance is a major treat for patients infected with CRE, mainly *Klebsiella pneumoniae*. In Brazil, very few studies have reported polymyxin resistance in *K. pneumoniae*; thereafter this study aimed to evaluate the susceptibility profile of *Klebsiella pneumoniae* from inpatients from São Paulo urban area, in order to generate data to support the empirical treatment of these infections. The evaluation was performed by a statistical analysis of retrospective data from hospitalized patients in eleven private hospitals served by Fleury Medicina e Saude between January 2011 and December 2014. The analysis was performed using Excel[®] after the exclusion of duplicates of a same patient. The data available contained the patient's identification number, date of birth, date of sample collection, the diagnostic method performed by the laboratory, the sample collection site, the species identification and drug susceptibility pattern. Our findings evidenced significant decrease in carbapenem sensitivity, ranging from 95.0% in 2011 to 65.0% in 2014 in all 2,284 isolates included in the study. A similar decrease was observed for polymyxin B sensitivity among 456 carbapenem-resistant isolates (), decreasing from 100% to 75.7% during the same period. Our results shows that combination therapy should always be used when treating nosocomial infections caused by CRE empirically.

Keywords: multidrug-resistant bacteria, polymyxin resistance, carbapenem resistance, *Klebsiella pneumoniae*.

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