TITLE: EPIDEMIOLOGY OF CARBAPENEM-RESISTANT *Klebsiella pneumoniae* INFECTIONS IN PEDIATRIC PATIENTS

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ABSTRACT:

Carbapenem-resistant *Klebsiella pneumoniae* (CRKP) is one of the most frequent pathogens related to healthcare-associated infections (HAI), belonging to the WHO's priority pathogens and it is responsible for high rates of mortality in adults and pediatric patients. Gram-negative resistance to β-lactams is mainly associated with β-lactamases production, such as carbapenemases. This study aimed to evaluate the clinical data associated with CRKP infections in pediatric patients and genotypic carbapenemases detection. Twenty-five single CRKP isolates were selected of several sterile sites from pediatrics patients with invasive infection, between August 2016 to October 2021. These isolates were identified using the MALDI-TOF MS, and minimum inhibitory concentration (MIC) was assessed according to BrCAST guidelines. Carbapenemase production was carried out using mCIM and eCIM following CLSI guidelines and confirmed by PCR for *bla*$_{KPC}$, *bla*$_{NDM}$, *bla*$_{VIM}$, *bla*$_{IMP}$, and *bla*$_{OXA-48}$. The clinical data were evaluated by the statistical analysis performed by the Chi-Square test. A total of 25 CRKP were identified and all of them showed a multidrug resistance phenotype (MDR). The main determinant of resistance among isolates was *bla*$_{KPC}$ (84%, n=21), followed by *bla*$_{NDM}$ (8%, n=2), and in the other isolates (8%, n=2) carbapenemase genes were not detected. It was observed that ICU admission (p-value: 0.04687) and use of catheters (p-value: 0.0000042) were statistically significant for CRKP infections. These results have shown that in our pediatric hospital *bla*$_{KPC}$ was the most prevalent gene in *K. pneumoniae*. Although the number of cases analyzed is small, mechanical ventilation can be considered a risk factor for mortality. Considering that there are few studies involving CRKP infections pediatric population, our data contribute to increasing the knowledge on this issue in the Brazilian population.

Keywords: *Klebsiella pneumoniae*, carbapenem-resistant, KPC, pediatric patients.

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