TITLE: MOLECULAR DETECTION AND PROFILE OF RESISTANCE TO COLISTIN IN CLINICAL ISOLATES FROM PATIENTS OF SÃO LUIS-MA.

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ABSTRACT:

The indiscriminate use of antibiotics commonly used in clinical practice has facilitates the appearance of multidrug resistant (MDR) bacteria which constitutes a serious public health problem worldwide, since it limits the action of the drugs. The resistance to antimicrobial agents such as penicillins, cephalosporins, aminoglycosides and carbapenem agents in the treatment of infections caused by MDR strains has promoted large-scale use of last-resort antibiotics, such as colistin. However, the emergence of colistin resistance strains has been observed in the last years. In this aspect, the present study aimed to investigate the presence of the *mcr-1* gene that confers resistance to antimicrobials colistin (Polimixin E) in 131 clinical isolates recovered from patients in hospitals in São Luis-MA, from June 2016 to May 2017. The methodologies used for the phenotypic identification of the isolates were Vitek2 and MALDI-TOF. The detection of resistance gene *mcr-1* was done by Polymerase Chain Reaction (PCR) with specific primers, which were also used for the sequencing of this gene. Among the 131 bacterial isolates, until the moment were identified 30 (22.9%) strains. The species identified were *Klebsiella pneumoniae* (n=6), *Escherichia coli* (n=3), *Citrobacter freundii* (n=2), *Serratia marcescens* (n=2), *Pseudomonas aeruginosa* (n=6), *Acinetobacter baumannii* (n=10) and one *A. ursingii*. The presence of the *mcr-1* gene was detected in 8 (26.6%) isolated, among which four are *K. pneumoniae*, three are *E. coli*, and one is *P. aeruginosa*. Among the isolates of *K. pneumoniae* carrying the gene *mcr-1*, three (37.5%) also presented the gene bla_{KPC} that confers resistance to carbapenem agents. In this context, due to the increase in the number of nosocomial infections caused by different bacterial species, it is very important to use molecular methods for the rapid and correct identification of the genes of resistance carried by several species of bacteria. Thus, this study is pioneering in demonstrating the recent introduction and circulation of the gene *mcr-1* in clinical isolates collected in patients from different hospitals in São Luis-MA.

Keywords: Colistin. *mcr-1* gene. Resistance. bla_{KPC} gene

Development Agency: Fundação de Amparo à Pesquisa e Desenvolvimento Científico do Maranhão – FAPEMA.