

TITLE: OCCURRENCE OF GRAM-NEGATIVE BACTERIAL SPECIES RESISTANT TO AMINOGLYCOSIDES ISOLATED FROM HEALTHCARE-ACQUIRED INFECTIONS IN TWO PUBLIC HOSPITALS OF MACEIÓ, AL

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ABSTRACT: Aminoglycosides are important antimicrobials in the treatment of infections caused by multidrug-resistant (MDR) gram-negative bacteria, which are often associated with infections related to healthcare-acquired infections (HAIs). These drugs are considered one of the last resources when carbapenems, β -lactams with a broad spectrum of action, have no effectiveness. The aim of this work was to determine the occurrence of MDR gram-negative bacterial species resistant to aminoglycosides isolated from HAIs in two hospitals of the public network of Maceió, AL. Bacterial isolates, previously identified as MDR and gram-negative species in the source laboratory through biochemical tests and disk diffusion technique (CLSI, 2019), were obtained from two public hospitals of Maceió-AL during May to December 2018. Data about the source sample of the bacterial isolates were provided by the hospitals. The species were confirmed by mass spectrometry (MALDI-TOF) and the resistance profile confirmed by disk diffusion. We obtained 114 MDR bacterial isolates. Of these, 68 (59.6%) had resistance to amikacin and/or gentamicin. The species most frequently found were *Acinetobacter baumannii* (n=28, 41.2%) and *Pseudomonas aeruginosa* (n=25, 36.8%), followed by *Klebsiella pneumoniae* (n = 6, 8.8%). We also identified *Escherichia coli* (n=3, 4.4%), *Serratia marcescens* (n=2, 2.9%), *Enterobacter cloacae* (n=2, 2.9%), *Burkholderia cepacia* (n=1, 1.4%) and *Citrobacter freundii* (n=1, 1.4%). The 68 isolates studied also were resistant to at least one carbapenem antibiotic (meropenem, imipenem or ertapenem). Most of the isolates were obtained from urine samples (n=26, 38.2%), tracheal secretion (n=20, 29.4%) and blood samples (n=13, 19.1%). Other isolates were from wound secretion (n=4, 5.9%), catheter tip (n=2, 2.9%), cerebrospinal fluid (n =2, 2.9%) and gastric secretion (n=1; 1.5%). We observed a high occurrence of gram-negative bacterial isolates resistant to aminoglycosides in public hospitals in Maceió-AL, mainly in infections related to the urinary and respiratory tract. The three species most found in this study – *A. baumannii*, *P. aeruginosa* and *K. pneumoniae* - are the most frequent among the IRAS in the world and investigations about their mechanisms of resistance are considered by the WHO as a priority.

Keywords: multidrug-resistant, gram-negative bacteria, healthcare-acquired infections

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