

TITLE: EXTENDED-SPECTRUM BETA-LACTAMASES IN CLINICAL ISOLATES OF *Acinetobacter baumannii* IN A HIGH COMPLEXITY HOSPITAL IN MACEIÓ, ALAGOAS

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ABSTRACT:

Acinetobacter baumannii is considered an important opportunistic pathogen and capable of causing a broad spectrum of infections. They are frequently associated with infections in critical hospital areas such as Intensive Care Units (ICUs) and Surgical Centers. This pathogen has different mechanisms of resistance to antibiotics, including the action of enzymes such as extended-spectrum β -lactamases that act in the inactivation of β -lactam antibiotics. This research aimed at the molecular diagnosis and detection of β -lactam resistance genes in clinical samples of *A. baumannii* with resistance profile. The samples were obtained from a high complexity public hospital in the city of Maceió, Alagoas. We analyzed 33 clinical isolates whose specific molecular identification for *A.baumannii* and the screening of resistance genes were performed by polymerase chain reaction (PCR). The specific primers P-Ab-ITSF and P-Ab-ITSB were used for identification, and the resistance genes screened were OXA-23, OXA-24, OXA-51, OXA-58, GES, PER and EBV. Of 33 samples, 24 (72.7%) were positive for *A. baumannii*. All resistance genes were detected in some of the samples, except OXA-24. The OXA-51 gene was the most frequent, being detected in 17/24 (70.8%) of the isolates, followed by OXA-23, which was observed in 9/24 (37.5%) of the samples. Individually, GES and VEB genes were detected in 2/24 (8.3%) of the isolates, whereas OXA-58 and PER in 1/24 (4.1%) of the samples. Currently, β -lactam antibiotics are used as the first choice in the treatment of infections caused by *A. baumannii*. In this bacterium, extended-spectrum β -lactamase-mediated resistance is worrisome, especially because effective drugs are limited in the treatment of infections, which contributes to an increase in morbidity and mortality rates. In critical hospital areas the situation is even more serious due to the factors of the individual that tend to favor colonization and subsequent infection by this microorganism. In isolates of *A. baumannii* obtained from a hospital of high complexity, genes for the production of β -lactamases were detected, alerting to the need for continuity in the research involving the monitoring of these genes in this hospital. Thus, it is also essential to develop policies for the rational use of antibiotics in medical practice in order to reduce cases of infections involving strains with a β -lactam resistance phenotype.

Keywords: *Acinetobacter baumannii*, β -lactamases, hospital infection, multidrug resistance

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