

TITLE: DETECTION OF THE *bla_{CTX-M}* AND *bla_{TEM}* GENES IN GRAM-NEGATIVE BACTERIA ISOLATED FROM PATIENTS WITH PNEUMONIA

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Pneumonia is a major cause of nosocomial infection in intensive treatment unit (ITU) and responsible for a spread of multiresistant bacteria. Antimicrobial resistance has been an increasing risk in hospitalized patients, and both mortality and morbidity from infection are greater when caused by antimicrobial-resistant bacteria. The objective of this work was to detect the *bla_{CTX-M}* and *bla_{TEM}* genes in multiresistant bacteria isolated from patients with pneumonia. The research was approved by the Research Ethics Committee of UniCEUMA under the protocol 766.690 / 2014. The study was carried out using tracheal secretion samples from patients hospitalized in the ITU of public and private hospitals in São Luís. Standards culture media, such as blood and MacConkey agar, were used to isolate clinical strains. Automatized Vitek 2 method was used to identification of strains and disc diffusion method (Kirby-Bauer) was performed to determine the antimicrobial susceptibility profile, according to *Clinical and Laboratory Standards Institute*. DNA of the isolates was obtained and used for detection of *bla_{CTX-M}* and *bla_{TEM}* genes by PCR. A total of 95 Gram-negative bacteria were isolated, of which 32% were ESBL-producing enzymes derived from beta-lactamases, considered one of the main causes of resistance to β -lactam antibiotics among Gram-negative bacteria. The *bla_{CTX-M}* gene was detected in eleven isolates from different bacteria species: *Serratia marcescens*, *Acinetobacter baumannii*, *Morganella morganii*, *Enterobacter aerogenes*, *Pseudomonas aeruginosa*, *Klebsiella pneumoniae* and *Escherichia coli*. The *bla_{TEM}* gene presented 26 isolates, of which 70% were *Acinetobacter baumannii* and 7.6% *Klebsiella pneumoniae*. Thus, with the results obtained it was possible to observe a worrying bacterial resistance in the hospitals involved in the study. In addition, much of this resistance was related to the production of broad-spectrum beta-lactamases.

Keywords: Pneumonia, *bla_{CTX-M}*, *bla_{TEM}*, bacterial resistance; Gram-negative

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