TITLE: Co-prodution of *bla*$_{NDM-1}$ and *bla*$_{OXA-23}$ in multidrug resistance *Acinetobacter baumannii* clinical isolates from Brazil

AUTHORS*:* ÉVORA B. H. S. R.[1]; LOPES. M. C. S.[1]; OLIVEIRA, E. S.[1]; TAVARES, I. L. L.[1]; LIMA, C. A. C. N. R. A. [1]; MELO, M. C. N[1].

INSTITUTION*:* 1. Universidade Federal Rio Grande do Norte - Centro de Biociências – Departamento de Microbiologia e Parasitologia, Laboratório de Bacteriologia Médica – Campus Universitário Lagoa Nova, CEP 59078-970 - Natal/RN – Brazil. Phone: +55 84 3215 3437.

ABSTRACT:

Acinetobacter baumannii species stand out as on of the major pathogens involved in infections in hospitalized patients, particularly in intensive care units. In addiction, has a great capacity to acquire antimicrobial resistance mechanisms. This study describes NDM-1 and OXA-23-producing *Acinetobacter baumannii* isolates clinical from Natal, northeastern Brazil. Four isolates collected from patients admitted to private hospitals were identified as *Acinetobacter baumannii* through conventional biochemical tests, confirmed by the *bla*$_{OXA-51}$ gene and MALDI-TOF system. All isolates were characterized by antimicrobial susceptibility testing by disk-diffusion for 12 antibiotics commonly used in clinical practice, E-test (tigecycline) and broth-microdilution (polymyxin B). Investigation of phenotypic production of Metallo-β-lactamases was assessed by using the EDTA-modified carbapenen inativation method (eCIM). In addition, search for carbapenemases genes such as *bla*$_{NDM-1}$, *bla*$_{VIM-1}$, *bla*$_{IMP-1}$, *bla*$_{OXA-23}$, *bla*$_{OXA-58}$, and *bla*$_{OXA-143}$ genes were screened by PCR. The isolates were resistant to all β-lactams including carbapenems. None was resistant to polymyxin B (MIC=0,5 to 2 µg/ml) and tigecycline (MIC=0,5 to 1mg/L). All isolates were phenotypically positive for metallo-β-lactamases. The PCR results were positive only to *bla*$_{NDM-1}$ and *bla*$_{OXA-23}$ genes in all isolates and the presence of *bla*$_{NDM-1}$ was confirmed by sequencing. This is the first case of co-prodution of *bla*$_{NDM-1}$ and *bla*$_{OXA-23}$ in *Acinetobacter baumannii* strains isolated from northeastern Brazil. This description emphasizes the need for new strategies to prevent and control the spread of *Acinetobacter* that harbor both important genes in the same isolates since this profile may compromise the treatment of infections by this microorganism, which are associated with a high mortality rate.

Key words: *Acinetobacter baumannii*; *bla*$_{OXA-23}$; *bla*$_{NDM-1}$

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