

TITLE: ANTIMICROBIAL RESISTANCE ANALYSIS IN *Acinetobacter* spp. ISOLATES FROM A PUBLIC HOSPITAL OF RECIFE

AUTHORS: SOUZA, P. M. S.^{1,2}; BARBOSA, B. G. V.¹; MORAIS, M. M. C.¹; ALMEIDA, A. C. S.^{1,2}

INSTITUTION: ¹LABORATÓRIO DE RESISTENCIA MICROBIANA, INSTITUTO DE CIÊNCIAS BIOLÓGICAS – ICB/UPE (RUA ARNÓBIO MARQUES, 310, CEP 50100-130, RECIFE – PE, BRAZIL); ²LABORATÓRIO DE GENÉTICA, BIOQUÍMICA E SEQUENCIAMENTO DE DNA, DEPARTAMENTO DE BIOLOGIA, UFRPE (RUA MANUEL DE MEDEIROS, 97, CEP 52171-900, RECIFE – PE, BRAZIL).

ABSTRACT:

The genus *Acinetobacter* is involved in many hospital infections. The main representative species of this genus is *Acinetobacter baumannii*, with rapid and global emergence of multidrug-resistant strains (MDR). In this study, we analyzed the antimicrobial susceptibility profile in *Acinetobacter* spp. strains isolated from hospitalized patients and identified by the Laboratory of Clinical Microbiology of a public hospital, through Vitek® automated system, from August 2013 to August 2017. Of the 568 positive cultures for *Acinetobacter* spp., 440 were from ICUs and 128 from the wards. Blood culture was the most prevalent clinical specimen (30,3%) followed by tracheal secretion (29%). The high frequency of *Acinetobacter* infections in sites such as blood and respiratory tract may be related to the ability of this pathogen to survive in dry places and surfaces, which promotes its propagation in the hospital environment. Moreover, the results showed resistance to penicillins and cephalosporins in 100% of the samples in these two clinical specimens. In general, the data demonstrated an increase in the number of resistant isolates over the years, for all the antimicrobials tested (beta-lactams, aminoglycosides, glycolcyclines, quinolones and polymyxins), especially for carbapenems (85,7 - 90,1%) and polymyxins (0 - 1,6%). Besides being related to its extensive use, in *Acinetobacter*, resistance to beta-lactams is commonly associated to chromosomal enzymes and dissemination of beta-lactamase genes located in mobile genetic elements, as described by previous studies in this hospital, which reported large occurrence of OXA enzymes (group 23, 253) in *Acinetobacter* spp. isolates. Although the occurrence of polymyxin-resistant *Acinetobacter* spp. was lower than the world average (5%), the detection of such isolates highlights the potential risk of emergence and dissemination of these bacteria in response to antibiotic exposure. Such exposure may generate different responses in cells, such as modifications or total loss of LPS. In addition, all *Acinetobacter* spp. isolates included in this study were classified as XDR (not susceptible to at least one agent in all antimicrobial categories). Resistance in *Acinetobacter* spp has evolved over the years and, in many cases, is related to the extensive use of antibiotics, resulting in the emergence of XDR pathogens, fact that highlights the importance of severe control and appropriate use of antimicrobial therapy against these bacteria.

Keywords: *Acinetobacter*, resistance, XDR.

Development Agency: Fundação de Amparo à Ciência e Tecnologia de Pernambuco (FACEPE); Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES); Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq).