

**TITLE: DETECTION OF EXTENSIVELY AND PANDRUG-RESISTANT IN *Acinetobacter baumannii* CLINICAL ISOLATES BELONGING TO HIGH-RISK CLONES FROM DIFFERENT BRAZILIAN INSTITUTIONS**

**AUTHORS:** BUENO, M.S.<sup>1,2</sup>; BARCELLOS, T.A.F.<sup>1,2</sup>; TIBA-CASAS, M.R.<sup>1</sup>; CHIMARA, E.<sup>1</sup>; CARVALHO, E.<sup>3</sup>; TAKAGI, E.H.<sup>1</sup>; CAMARGO, C.H.<sup>1,2</sup>

**INSTITUTION:** 1. INSTITUTO ADOLFO LUTZ - SP  
2. FACULDADE DE MEDICINA DA UNIVERSIDADE DE SÃO PAULO – SP  
3. INSTITUTO BUTANTAN – SP

**ABSTRACT**

The dissemination of resistant strains of *Acinetobacter baumannii* is increasingly reported, and in Brazil, there is a persistence of isolates belonging to high-risk clones (HRC) of Clonal Complexes (CC) CC1, CC15, CC79. Thus, surveillance of antimicrobial resistance is essential, because multidrug (MDR) and extensively drug resistance (XDR) are related to these clones. The objective of this study was to evaluate the susceptibility of clinical isolates of *A. baumannii* belonging to HRC, isolated from tracheal secretion, blood, urine and catheter tip. A total of 60 clinical isolates of *A. baumannii*, of different pulse types (Apal-PFGE) were studied between 2016 and 2017 from 11 Brazilian institutions. Clonal complexes were identified by the modified trilocus sequence typing (m3LST). The minimum inhibitory concentration (MIC) values were evaluated for amikacin, gentamycin, tobramycin, doripenem, imipenem, meropenem, ciprofloxacin, levofloxacin, cefepime, ceftazidime, cefotaxime, sulfamethoxazole-trimethoprim, ampicillin-sulbactam, piperacillin-tazobactam, colistin, polymyxin B, doxycycline, minocycline by microdilution in broth using commercial plates (Sensititre, Thermo Scientific) and interpreted by CLSI (2018) breakpoints. Each isolate was categorized as MDR, XDR or pandrug resistant (PDR) according to international recommendations by Magiorakos and colleagues (2012). Among the 60 isolates of *A. baumannii*, 19 (31.7%) were identified as CC1, 20 (33.3%) as CC15 and 21 (35%) as CC79. All of them showed high rates of antimicrobial resistance, including resistance to polymyxins (CC1 = 7.9%, CC15 = 27.5%, CC79 = 14.25%) and tetracyclines (CC1 = 21.1%, CC15 = 7.5%, CC 79 = 0%). For each drug, the MIC values able to inhibit the growth of 50% and 90% of the isolates (MIC<sub>50</sub>, MIC<sub>90</sub>, in µg /mL) were determined, highlighting high activities of doxycycline and minocycline (≤2; 2), polymyxin B (0.25; 2) and colistin (≤0.25; 4). Most of the isolates were classified as XDR (CC1 = 94.7%, CC15 = 70%, CC79 = 100%) and the PDR phenotype was detected in one CC15 isolate (5%). Only few antimicrobial agents presented in vitro activity against *A. baumannii*, and the emergence of XDR and even PDR strains alerts to the urgently need of implementing containment measures to avoid the spread of these pathogens associated with high morbidity, mortality and costs generated to the health systems.

Acknowledgments: Fundação de Amparo à Pesquisa do Estado de São Paulo, Process FAPESP 2017/16988-6 and CAPES.

**Keywords:** Susceptibility, *Acinetobacter baumannii*, high-risk clones.