

GENOTYPIC AND PHENOTYPIC IDENTIFICATION OF *Acinetobacter baumannii* FROM HOSPITAL SAMPLES (PATIENTS, HEALTH CARE WORKERS AND ENVIRONMENT)

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Acinetobacter baumannii is an opportunistic pathogen that causes healthcare-associated infections (HAI) worldwide with high morbidity and mortality. Infections by *A. baumannii* multidrug-resistant (MDR) have increased and worried hospital institutions to figure out the appropriate treatment for these patients. The most common mechanism of resistance to carbapenems in *A. baumannii* is enzymatic degradation by carbapenemases, such as Class A β -lactamases, Metallo- β -lactamase (MBL) and Oxacillinases. In this study we identified and characterized *A. baumannii* from a University Hospital (HU-UFSC, Florianópolis/SC, Brazil) isolated in Nov-2014, Mar/Apr/May-2015 from health care workers, patients and high-touch surfaces at 4 hospital units: Emergency (EMG), Intensive Care (ICU), Surgical Center (SC), Surgical Inpatient (SIU) and Medical Inpatient (MIU). Samples were collected using Amies swabs and were cultured on MacConkey agar to select Gram negative bacteria (GNB), such as *A. baumannii*. The identification and the AST (antimicrobial susceptibility test) were determined by an automated method (Vitek2; bioMérieux). Species were also identified by 16S rDNA sequencing (Neopropecta Microbiome Technologies S/A; MiSeq Sequencing System, Illumina, Inc). The presence of 6 resistance genes was tested by qPCR (NDM-1, KPC, OXA-23, CTXM-1/2/9). From the 642 samples collected, we obtained 287 GNB, out of these, 34 were *A. baumannii*. The detection of resistance genes showed that 62% were positive for OXA-23, 18% for CTXM-1 and 3% for CTXM-2 and 9, there was no positive for NDM. Some of *A. baumannii* with resistance genes were found in the snack room at the MIU, on a patient bed transfer board at the ICU, nurses station at the EMG and hands of health care workers. Interestingly, we found *A. baumannii* classified as Resistant (resistant to 1 or 2 classes of antimicrobials) without resistance to carbapenems, but showed carbapenem resistance genes, found in the snack room at the MIU (CTXM-1 and OXA-23) and in the recovery room of the SC (OXA-23). One of the isolates classified as MDR (resistant to 3 or more antimicrobial classes) did not show any resistance gene and may have other mechanism of resistance not described here. These results highlight some critical points found in the hospital and show that a rapid detection of strains with resistance genes circulating in the hospital may contribute in the conduits for the reduction of hospital infection.

Key words: *Acinetobacter baumannii*, healthcare-associated infections (HAI), multidrug-resistant (MDR), resistance genes, qPCR.

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