TITLE: Surveillance of colonization of extended spectrum β-lactamase (ESBL) producing *Enterobacteriaceae* in an Intensive Care Unit (ICU) of a teaching hospital in Goiânia-GO

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ABSTRACT

The family *Enterobacteriaceae* includes species that are sources of community and healthcare-associated infections. It is increasingly common to find cases of ESBL-producing enterobacteria in hospitals around the world, a fact attributed to indiscriminate and increased use of antibiotics and the ability of these bacteria in the acquisition and transfer of genes. The aims of this study were to determine the prevalence of Gram negative, especially the enterobacteria isolated from patients and environment in a medical ICU and the susceptibility profile of the isolates, as well as the production of ESBL. Samples were collected weekly between December 2012 and June 2013, in patients (nasal and rectal swabs) and environment (trays, bed rail, handle, monitor, support solutions, drain and tap the sinks) of an ICU of a teaching hospital in the city of Goiânia-GO. After collecting, the swabs were placed in Brain Heart Infusion broth (BHI). The isolation was performed on MacConkey agar, species identification was carried out by standard methodology and the susceptibility profile was done by disk-diffusion method. One hundred sixty six swabs were obtained, of which 79 (47.6%) isolates were Gram negative bacteria. Of these, 62 (78.5%) corresponded to enterobacterias and 17 (21.5%) the Gram negative non-fermenters (BGNNF). *Hafnia alvei* was the most prevalent specie obtained from environmental samples (25.0% of 104) and nasal swabs (35.5% of 31), all multidrug resistant. *Acinetobacter baumannii* was the most prevalent microorganism in rectal swabs (32.1% of 28). The isolates showed higher resistance to β-lactams (n = 35; 94.6%), followed by inhibitors of folate (n = 31; 83.8%) and carbapenems (n = 29, 78.4%). All enterobacteria isolated were multidrug resistant. Six (9.7%) strains were producing ESBL, three *Escherichia coli* (anal swab), one *Serratia liquefaciens* (environment swab), one *Hafnia alvei* (nasal swab) and one *Klebsiella ozaenae* (anal swabs). The results indicate that emergency control measures should be taken in the ICU studied, since the surveillance of multidrug resistant bacteria is an important tool in this process. The hospital environment can be a potential source of contamination and infection to patients and healthcare professionals, besides acting as a reservoir of resistance genes on patient-environment interface.

Key-words: *Enterobacteriaceae*, BGNNF, resistance, ESBL, ICU, environment.