

TITLE: ETIOLOGY OF NOSOCOMIAL INFECTION IN CRITICAL ADULTS: MORTALITY IN SEPSIS CAUSED BY ANTIBIOTIC RESISTANT MICROORGANISMS AND INAPPROPRIATE THERAPY

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ABSTRACT:

The incidence of sepsis in Intensive care unit (ICU) continues to rise with infection being a strong marker for mortality. Infections caused by resistant pathogens are difficult to treat and are associated with increased morbidity and mortality. The objective of this study was to describe the incidence, etiology and mortality of patients with bacteremia and its relationship with resistant agents and inappropriate antibiotic therapy. This was a retrospective cohort study conducted over a period of three years (2012-2014), in adult clinical-surgical ICU with 30 beds. The collection of data of the enrolled patients were extracted from medical records. Hospital infections were defined according to CDC guideline. The underlying illnesses were classified according to the APACHE II score (≥ 4). The outcome measures were the all mortality within 30 days after the onset of the bacteremia. Resistant non-fermenters Gram-negative Bacilli (GNB) and Enterobacteriaceae were considered when resistant to carbapenems and broad-spectrum cephalosporin, respectively, and *Staphylococcus* strains when resistant to methicillin. The epidemiological indicators were very high, with incidence of infected patients of 55.1 % and hospital infection episodes of 91.3%. The frequency of sepsis, corresponded to 33.4%. Considering only first episode (254 cases), the most frequent etiologic agents were: Coagulase Negative Staphylococci (CNS) 58.3%, members of Enterobacteriaceae family (28.3%), Non-fermenters (12.6%) and *Candida* spp. (9.4%). In the total, the proportion of antimicrobial resistance among the isolates was of 72.0%, being higher among strains of CNS (87.4%), *Acinetobacter baumannii* (70.0%) and *Klebsiella* spp.+ *Enterobacter* spp. (60.0 %). The mortality rate was approximately 40.0%. The following properties were significantly ($p < 0.05$) associated with the mortality: APACHE II ≥ 4 , mixed etiology, inappropriate therapy, sepsis resistant strains isolate when compared to patients who survived. In a cohort of 254 cases the predominant agent CNS (46.4%), followed by GNB as a group accounted for (34.5%) and most of the isolates behaved resistance organisms. Mortality was high and significantly associated with severity, etiology, resistance and inappropriate antibiotic therapy.

Keywords: Inappropriate therapy, Mortality, Sepsis, Resistance

Development Agency: Fundação de Amparo à Pesquisa do Estado de Minas Gerais (FAPEMIG) e Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES)