

Title: Epidemiology and analysis of healthcare-associated infection in an adult intensive care unit of a public hospital in Brasília, Brazil

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Abstract:

Healthcare-associated infection (HAI) is associated with high levels of morbidity, mortality and health expenditures in intensive care units (ICUs). Epidemiology studies are useful to adjust programs to national demands. This study aims to verify characteristics of adult patients ICU, to relate hospitalization data and invasive interventions applied to patients undergoing HAI, to identify prevalence of HAI etiologic agents and to verify patients outcome. Retrospective and analytical study included 37 adult patients admitted to an ICU of a public general hospital from Brasília, Brazil. There was a random inclusion of 17 (45.9%) patients who have undergone HAI, compared to 20 (54.1%) who have not undergone HAI. Data were collected from medical registers and Hospital Infection Control Service. Results were significant with p-value < 0.05. Most of patients were female (54.1%) and the mean age was 63 ± 19 years. Clinical admissions corresponded to 73%. The most prevalent comorbidities were: hypertension (35.1%), heart failure (18.9%), diabetes mellitus (16.2%) and stroke (16.2%). Mechanical ventilation (MV) was used in 78.4% of the patients, central venous catheter in 94.6%, parenteral vasoactive medication in 86.5%, hemodialysis in 21.6% and urethral catheter in 97.3%. Lung infection previous to admission occurred 62.9%. The most prevalent sites of HAI were bloodstream (45.9%) and urinary tract (37.8%). HAI was significantly associated with clinical admissions (p = 0.002), MV (p = 0.003), duration of arterial catheter (p = 0.02) and venous central catheter use (p = 0.0002), duration of parenteral vasoactive medication use (p = 0.001) and days on ICU (p = 0.0001). General mortality was 21.6%; mortality among patients who underwent HAI was 29.4%. The most prevalent microorganisms were: drug resistance (DR) *Acinetobacter baumannii* (17%), DR *Klebsiella pneumoniae* (12.1%), DR *Pseudomonas aeruginosa* (9.7%), *Staphylococcus aureus* (MRSA) (7.3%) and fungal (7.3%). In most ICUs ventilator-associated pneumonia is the main cause of HAI. However there was high prevalence of pneumonia diagnosed previously to ICU admission. In conclusion, the need for more interventions during the hospital stay is related to increased risk for HAI. The high prevalence of HAI due to DR microorganisms suggests intensification of infection control measures. Approximately one in 5 patients has died.

Key-words: cross infection; intensive care units; delivery of health care; risk factors

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