

TITLE: Antimicrobial susceptibility profile and risk factors of infections among patients admitted in an Intensive Care Unit.

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Staphylococcus sp. and *Klebsiella pneumoniae* are common pathogenic agents and are associated with infections in the Intensive Care Unit (ICU). Both groups of *Staphylococci* colonize the skin whereas *Klebsiella pneumoniae* is commonly found in oral mucosa, skin and intestines. These microorganisms cause infection majority in immunosuppressed patients, leading to nosocomial infections, as respiratory tract infections and bacteremias. Usually the treatment requires drug therapy and, in severe cases, invasive procedures. Our aim was to identify the most common pathogenic bacteria in ICU infections as well as the antimicrobial susceptibility using bacteria obtained in tracheal secretion cultures, for respiratory infection diagnosis only, and in blood cultures, for sepsis diagnosis, which is also related to pulmonary infections. A retrospective study was lead testing 63 patients admitted at the ICU of a University Hospital in the city of Bragança Paulista - SP between January 2015 and June 2017. Reasons for hospital admission were: infectious (26,98%), noninfectious (65,07%), and surgery/trauma (7,93%). Intubation rate was 93,65%, surgery 66,66%, pneumothorax 4,76% and tracheostomy 6,34%. A percentage of 66,66% patients developed infection after admission, as respiratory infection (19,05%), sepsis of pulmonary origin (50,00%) and others (30,95%). Microbiological findings in blood cultures, reveled high incidences of gram-positive bacteria, including *Staphylococcus* (coagulase-negative) and *Staphylococcus aureus*. In tracheal secretion cultures, we observed elevated frequency of gram-negative bacteria, such as *Klebsiella pneumoniae* and *Pseudomonas aeruginosa*. All of these bacteria are opportunistic pathogens that are associated with multi-drug resistant and hospital-acquired infection. The correlation between the development of infection and the cause of admission to the hospital showed that many patients (66,66%) were admitted with medical

conditions not associated with injured tissue or infection in place. Interestingly, the most prescribed antibiotics after antimicrobial testing were Vancomycin and Piperacillin with Tazobactam, efficient drugs against gram-positive and gram-negative microorganisms. Thus, this study showed high prevalence of patients not infected at the ICU admission and high incidence of invasive procedures, confirming that the exposure to the pathogenic agents occurred within a hospital environment.

Key Words: (1) Microbial infection; (2) Respiratory Tract Infection; (3) Hospital-acquired infections; (4) Intensive Care Unit.