

**TITLE:** VENTILATOR ASSOCIATED PNEUMONIA IN CRITICALLY ADULT PATIENTS DUE TO GRAM-NEGATIVE BACILLI: THE ASSOCIATION BETWEEN DRUG RESISTANCE AND INADEQUATE ANTIBIOTIC THERAPY WITH 30-DAY MORTALITY

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**ABSTRACT:**

The emergence of broad-spectrum resistance among Gram-negative bacilli (GNB) associated with ventilator associated pneumonia (VAP) is particularly worrisome since therapeutic options are scarce. These infections are a strong marker related with mortality. The aim of the study was described the importance of multi-resistant BGN in patients with VAP and their relationship with inadequate antibiotic therapy and 30-day mortality. This was a retrospective cohort study including 210 patients conducted over a period of three years (2012-2014), in adult clinical-surgical ICU (Federal University of Uberlandia). The collection of data was extracted from medical records. Hospital infections were defined according CDC guidelines. The underlying illnesses were classified according as the ASIS score ( $\geq 4$ ). The outcome measure was the mortality within 30 days after the onset of VAP, and resistant non-fermenters and Enterobacteriaceae BGN were considered when resistant to carbapenems and broad-spectrum cephalosporins, respectively. Antimicrobial treatment with agents that had no in vitro activity or antibiotic therapy administered  $\geq 48$ h, was considered inadequate. The statistical significance was defined as  $p < 0,05$ . The epidemiological indicators observed were very high, with incidence rate of 55.1% and hospital infection episodes rate of 91.3%. In total, pneumonias represented the second most frequent infection (30.6%), of which 98.3% were VAP. The etiology was predominantly due to GNB (78.9%), mainly frequency *Pseudomonas aeruginosa* (31.0%) and *Acinetobacter baumannii* (20.7%). The frequency of resistance was high (62.3%), particularly among *Klebsiella* spp. (83.6%), *A. baumannii* (80.0%) and *Enterobacter* spp. (71.4%) isolates. In total about 40.0% of the patients died. All factors analyzed: ASIS  $\geq 4$  ( $p=0,0058$ ), resistant agents ( $p=0,7066$ ), Enterobacteriaceae etiology ( $p=0,0165$ ) and inappropriate antibiotic therapy ( $p=0,015$ ) were more prevalent among non-survivors. Our observation showed that VAPs were caused by mult-resistant GNB associated with infection indicators very high. Given the limitation in the antibiotic therapeutic options for these infections and their association with the risk of mortality, prevention of these infections is critical.

**Keywords:** Inappropriate therapy, Mortality, Pneumonia, Resistance, VAP

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