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Infection prevalence and outcomes in Brazilians ICUs: another brick in the wall..

Prevalência e desfechos das infecções nas UTIs brasileiras: mais uma peça no quebra-cabeça...

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Infections significantly influence the morbidity and mortality rates of intensive care units (ICUs), and the prevalence and impact of severe infections in critically ill patients have increased progressively in recent years.[1,2] In addition, more than 70% of critically ill patients admitted to ICUs are prescribed an antimicrobial agent during their stay.[1]

Unfortunately, the actual situation in Brazil is difficult to assess because high-quality data on the local conditions are scarce in the literature. The few studies that sought to retrieve Brazilian data on infections and sepsis reported extremely important results, showing that both the prevalence and the lethality associated with infection in critically ill patients is high compared to the values reported in the international literature. For instance, the mortality rate of patients in Brazil with septic shock is greater than 50%.[3-5] The reasons underlying such unfavorable outcomes are unclear; however, organizational issues and early detection are certainly important features in such an assessment.

This issue of the Brazilian Journal of Intensive Care (Revista Brasileira de Terapia Intensiva – RBTI) includes an article that is crucial for a better understanding of the current status of sepsis and infections in critically ill patients.[6] This study performed a sub-analysis of EPIC II (Extended Prevalence of Infection in Intensive Care), which is a cross-sectional study that included 13,796 patients, more than 9,000 patients who received antimicrobial agents and approximately 7,000 patients who were diagnosed as infected. The sub-analysis assessed only patients in Brazil and provides precise, high-quality data on the prevalence and characteristics of the patients admitted to Brazilian ICUs. More than 1,200 patients admitted to 90 ICUs across Brazil were included for analysis in this sub-analysis, which is currently the largest study of its type in the literature.

Some data in the cross-sectional study are worth noting. Approximately 62% of the patients admitted to Brazilian ICUs presented with clinical evidence of infection; this prevalence is significantly higher than the prevalences reported by the same database for other areas, such as Europe and North America (where the prevalence is less than 50%).[1] In addition to higher prevalence, our ability to identify the etiology of infection is poor; thus, the pathogens that were potentially responsible for the infection were isolated in only 50% of the cases. The most frequent site of infection was the respiratory system (61%). The distribution of the pathogens associated with infection in Brazilian ICUs is also worth noting for several reasons. Brazil has a higher prevalence of *Gram*-negative agents compared to other

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areas (especially the most developed regions), which is consistent with other reports.[5]

Although the ICU (37.6%) and in-hospital (44.2%) mortality rates of patients with infection are lower than those in previously published reports, they are still high compared to the international data, especially the data from developed areas such as Western Europe, North America, and Australia. In addition, there is a patent correlation between infection and mortality, resulting in a higher lethality than with other clinical conditions whose severity and correlation with unfavorable outcomes are widely acknowledged (e.g., acute myocardial infarction and stroke).

Another feature must also be considered to better understand the reasons for the differences found in the clinical outcomes, mortality in particular, when comparing the Brazilian and the international data. An important fraction of the patients exhibited at least one comorbidity upon admission, which is consistent with the available international data. However, the data supplied by Silva et al. show high prevalence of organ dysfunction at admission. Nearly two-thirds of the patients exhibited respiratory dysfunction. Although that finding is consistent with the international data, the rate is higher than the prevalence of dysfunction in developed countries.[3]

Two complementary solutions may be provided for this situation: an earlier identification of the patients who may benefit from intensive care and a greater availability of resources (beds, equipment, and human resources) to provide intensive care to such patients. Optimization of both solutions through educational and training strategies allowing for the early identification of patients and increasing the quantity and more importantly the quality of available resources may have the greatest potential to affect the outcomes of patients with infections in the ICU. Unfortunately, one limitation of the study concerns its ability to assess infection management because the excessive mortality found in Brazil is not explained by the severity of the patients' primary disease alone, thus suggesting that specific management features may be associated with the unfavorable outcomes.

Such data provide an accurate picture of infection in Brazilian ICUs and represent an important step in identifying the reasons for the high prevalence and associated morbidity and mortality of infections in the ICU. These findings must be included in the design of institutional strategies and public policies aimed at optimizing the use of resources, continued education, and training of human resources to understand and modify the outcomes of patients with an infection who are admitted to ICUs.

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