

ORIGINAL ARTICLE

Contribution to mortality and resource usage of nosocomial and community infections in an intensive care setting

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ABSTRACT

Aim of the study

Adult or paediatric intensive care units (PICU)-based studies report high mortality rates in severe community-acquired or hospital infections. Simultaneously, critically ill patients are at greatest risk of acquiring nosocomial infections because of their serious underlying diseases, but also because of their exposure to life-saving invasive procedures. The aim of this study was to assess the relative contribution of community (CI), nosocomial (NI), and mixed (MI) infections to mortality and resource usage in an intensive care setting, in comparison to critically ill children without infection (WI).

Methods

All NI, CI (> or <48 hours after hospital admission, respectively), MI (both CI and NI), and WI data were recorded, analysed, and compared in and between groups. During a 5 year period, 510 patients, 5±.2 (.4-20) years old, were hospitalized for >24 hrs in our paediatric intensive care unit (PICU). More than 50% (54.5%) were WI, followed by severe CI (30.8%), NI (12.7%), and MI (2%).

Results

Severity of illness, septic shock, co morbidity, complications, and resource utilization was significantly higher in the NI and/or MI groups ($p<.0001$). Although mortality differed significantly between groups ($p<.0001$), each infection

group's relative contribution to the total PICU mortality was lower than that of WI. Only PRISM ($p<.0001$) and TISS ($p<.001$), but not infection, were independently associated with mortality.

Conclusions

Severity of illness and not infection is associated with mortality among critically ill children. Although NI has higher morbidity and mortality compared to CI or WI, most of those with poor outcome are patients immune-compromised or with cancer.

Keywords: *Intensive care, mortality, health resources, community-acquired infections, nosocomial infections, sepsis*

INTRODUCTION

Severe sepsis is a major health problem in children, with more than 42,000 cases and 4,400 associated deaths per year in the United States.¹ Intensive care units (ICU)-based studies report mortality rates of 20% to 50% in severe community-acquired infections (CI), depending on admission criteria.² Also, severe sepsis in ICUs is estimated to be 19.0% with hospital mortality varying between 38.1% and 50%.⁴

Evidenced-based recommendations regarding the acute management of sepsis and septic shock are the first step toward improved outcomes for this important group of critically ill patients,³ indicating potential targets for quality improvement initiatives that could decrease mortality and morbidity.³ There are no comparative studies, however, examining the relative contribution of NI or CI to the PICUs hard endpoints of outcome (MEDLINE search). We therefore sought to: 1) explore differences and similarities

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