The Investigation of Clinical Characteristics and Outcomes of ICU Readmission among Elderly Patients

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Background: ICU readmission has been identified as a reliable performance indicator for intensive care. ICU readmission not only increases medical expenditure and prolongs the length of the hospital stay, but it also increases the mortality and morbidity of patients. However, ICU readmission of elderly patients has rarely been investigated. To address this issue, our aim was to delineate the clinical characteristics and outcomes of ICU readmission among elderly patients.

Materials and Methods: Patients who were aged 65 years or above and admitted more than once to the ICU during the same hospitalization were retrospectively collected for the year 2003 from a medical ICU and a surgical ICU with a total of 79 beds at a tertiary care center. Clinical characteristics and outcomes were recorded. The risk factors associated with mortality on ICU readmission were evaluated.

Results: The ICU readmission rate among the elderly patients was 12.0%. Eighty-three (56.5%) of these patients were male. The average age was 74.7 ± 6.1 years. Respiratory disease (46.3%) was the most common diagnosis among the elderly patients who were readmitted. The mortality rate was 38.1%. The non-survivors had significantly higher APACHE II scores (25.8 ± 9.5 vs. 19.1 ± 7.8, p=0.036) and therapeutic intervention scoring system (TISS) scores (29.3 ± 9.4 vs. 23.1 ± 6.7, p=0.019), but had a lower GCS (9.8 ± 5.1 vs. 11.7 ± 3.6, p<0.001) during ICU readmission. The length of ICU stay was significantly longer for the ICU readmitted non-survivors group (11.6 ± 13.4 vs. 9.6 ± 6.7, p=0.002). In addition, the length of hospital stay was longer for the survivor group (55.4 ± 55.9 vs. 38.6 ±28.3, p=0.010). Multivariate analysis showed that the APACHE II scores (odds ratio 1.085, 95% confidence interval 1.003-1.172, p=0.041) and TISS scores (odds ratio 1.114, 95% confidence interval 1.040-1.193, p=0.002) on ICU readmission were the two risk factors associated with mortality.

Conclusions: ICU readmission is associated with a high mortality and morbidity rate among elderly patients. The severity of the disease during readmission is correlated with the higher mortality of these patients. Respiratory disease was the major reason for ICU readmission. Strategies for reducing ICU readmission and improving the outcome among the elderly patients should be highlighted and studied further.

Key words: elderly, readmission, intensive care unit, clinical characteristic, outcomes, mortality rate

Introduction

Elderly patients have increased as a proportion of the intensive care unit (ICU) population. The elderly use about one third of all health care resources and account for between 26% and 51% of all intensive care admissions¹,². The mortality of elderly patients in ICU is high; nevertheless a