Incidence of Withdrawal of Life Sustaining Measures in Patients Readmitted to the Intensive Care Unit

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Introduction

Traumatic brain injury (TBI) constitutes a major cause of death and disability in the United States. Failure to rescue these patients can cause unwanted complications, such as unplanned intensive care unit (ICU) readmission or death. This study aimed to analyze the characteristics of TBI patients with unplanned readmission to the ICU and to determine the incidence of withdrawal of life sustaining measures (WLSM).

Methods

A retrospective chart review was performed from 2016-2023 at a Level 1 Trauma Center in New Orleans. Adult TBI patients with unplanned readmission to the ICU were included. Patients were stratified based on mild, moderate, or severe TBI classifications at hospital admission. The primary outcomes were incidence of WLSM and mortality. Secondary outcomes included ICU length of stay (LOS), hospital LOS, and number of ICU admissions.

Results

Seventy-four patients with unplanned readmission to the ICU during hospitalization were identified. All groups were similar in age, race, and body mass index ($p>0.05$). The most common causes of readmission were respiratory management, hemodynamic monitoring, and neurological observation. The most common hospital acquired conditions were ventilator assisted pneumonia, acute kidney injury, seizure, hyponatremia, and sepsis. Twenty-five percent of patients with mild TBI who were readmitted to the ICU ultimately died, and eighteen percent underwent WLSM in the ICU. Seventeen percent of severe TBI patients who were readmitted to the ICU ultimately died. The hospital LOS among the mild, moderate, and severe TBI groups was 26.8, 37.9, 58.2 days, respectively.

Conclusions

Unplanned readmissions are associated with a significant proportion of mortality and increased hospital LOS, particularly among patients with mild TBI. Respiratory management, hemodynamic monitoring, and neurological observation were the most common causes of ICU readmissions in patients presenting with TBI. Early identification of these patients and implementation of process measures to reduce unplanned ICU readmission is warranted to mitigate unnecessary mortality and increased LOS.