

Risk Factors for Mortality after Admission for Traumatic Subdural Hematoma

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Introduction

Traumatic subdural hemorrhage (SDH) is a significant cause of socioeconomic burden and mortality. It is of considerable prognostic utility to understand patient factors associated with mortality at the time of admission. We present a multi-decade, single-institutional experience of traumatic SDH and identify mortality risk factors from data available at the time of admission.

Methods

Patients who were admitted for traumatic SDH from 1990-2015 were included in the study. The electronic medical record was reviewed for demographics characteristics, indicators of socioeconomic status, mechanism of injury, vital signs, and admission interventions. Statistical analysis was performed using Pearson's Chi-squared test, Student's t-test, and multivariable logistic regression. The outcome of interest was in-hospital mortality and the model was adjusted for injury severity and Glasgow coma scale (GCS) score at admission. The threshold for significance was 0.05 with Bonferroni correction for multiple comparisons.

Results

Among 3,024 patients (2,250 male, 819 female), 770 (25.1%) died in the hospital. On univariable analysis, factors associated with increased risk for mortality were unknown race, penetrating injury, gunshot wound, pedestrian struck by a motor vehicle, hypotension, and tachycardia (all $p < 0.001$). Factors associated with reduced mortality were homelessness, blunt injury or fall, and opiate-positive urine toxicology. On multivariable analysis, factors associated with increased odds of mortality were unknown race (odds ratio (OR) 1.87, $p = 0.049$), blunt assault (OR 2.18, $p < 0.001$), and pedestrian struck by a motor vehicle (OR 2.67, $p < 0.001$). From 1990 to 2015 there was a reduction in percent mortality by 27% (p -value for trend < 0.001).

Conclusions

In this 25-year experience of traumatic SDH, we have demonstrated factors that can be assessed at the time of admission and are associated with increased risk for mortality. Our results suggest that victims of blunt assault and pedestrians struck by motor vehicles are at high risk of death. This information will be useful in prognostication and triage.

Learning Objectives

1. Identify patient-level information available at the time of admission that is associated with a greater risk of death in traumatic subdural hemorrhage

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