



Short-term Outcomes of All TBI Classes from a Level-1 Trauma Center

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Introduction

Traumatic brain injury (TBI) consists of various types of intracranial hemorrhage that may occur in an isolated fashion, or in combination. We sought to determine if the incidence and types of intracranial hemorrhage encountered in TBI could, through their number and combination, predict the short-term hospital course and outcomes.

Methods

We retrospectively identified all patients admitted to a level-1 trauma center during an 11-year period. We created fifteen different classes of TBI using combinations of four TBI subtypes: tSAH, SDH, EDH, & IPH (included IVH). We then extracted all patients without major systemic injuries. We also created three subgroups of patients categorized by the number of TBI subtypes acquired.

Results

We identified 3,100 (36.9%) patients with TBI. We identified 1,716 (55.4% of the TBI population) patients who had TBI without major systemic injury (TBI-m). The highest number suffered from an isolated SDH (775; 45.2% of TBI-m), with isolated tSAH being the second most common (404; 23.5% of TBI-m). We found that SDH was the most common TBI subtype involved in any class of TBI (n=1,054; 61.4% of TBI-m), and EDH was the least common (n=65; 3.8% of TBI-m). We found that 1,393 (81.2%) patients suffered from one TBI subtype, 286 (16.7%) from two subtypes, and 37 (2.2%) from three or more subtypes. Unsurprisingly, patients with only one type of injury had higher GCS scores, lower ICU admission rates, and were more frequently discharged to home (p<0.01; p<0.01; p<0.05). Hospital and ICU length of stay were lower for single and dual injury patterns compared to triple or greater injury (p<0.01; p<0.05). Patients incurring more than one type of injury had lower initial GCS (p<0.01).

Conclusions

A simple, rapid assessment of the number and subtypes of intracranial hemorrhage in TBI provides information about the short-term hospital course.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Understand the patient demographics related to the subtypes and number of acquired classes of TBI and 2) Describe which TBI subtypes and which acquired number of classes of TBI are more likely to have better or worse short-term outcomes.

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