Exploring the relationship between acute severity of traumatic brain injury and psychiatric outcomes at 12 months following injury

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Introduction

The relationship between acute traumatic brain injury (TBI) severity and subsequent neuropsychiatric outcomes remains unclear

It is important to understand which acute measures are linked to psychiatric outcomes, from both a mechanistic and clinical perspective

Investigating this issue has been difficult due to a lack of representative data that includes adequate measures of acute TBI severity and multiple mental health outcomes

Aims

To examine the association between acute TBI severity measures at hospital admission and mental health symptoms and service use at 12 months following injury using longitudinal data

Methods

Dataset

TRACK-TBI study: a multicentre study of 2,700 participants with TBI recruited from trauma centres across the United States

Measures

TBI severity measures

- Glasgow Coma Scale (GCS), injury cause, hospital admission type, computed tomography (CT) findings, post-traumatic amnesia (PTA), loss of consciousness (LOC), alteration of consciousness (AOC), Marshall score

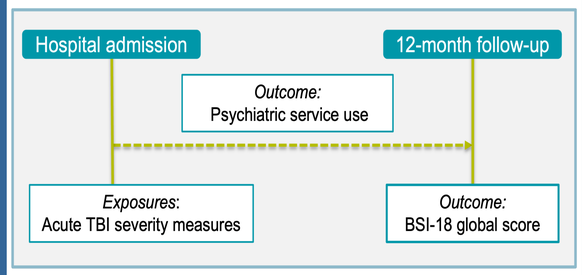
Psychiatric symptoms

- Brief symptom inventory-18 (BSI-18) global score

Psychiatric service use

- Psychologist, psychiatrist, psychiatric medication or hospitalisation use

Study design



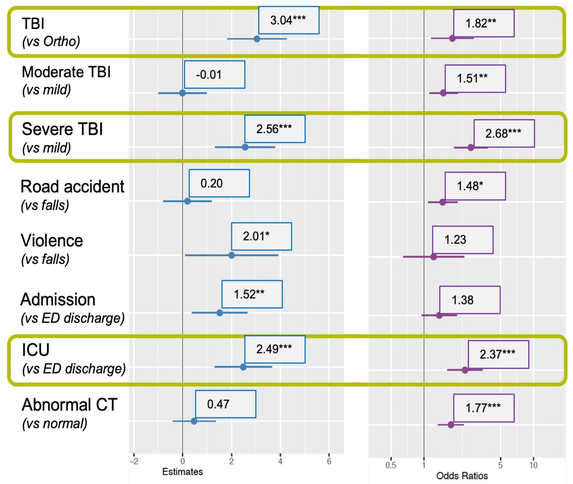
Analysis

Mixed-effects models adjusted for:

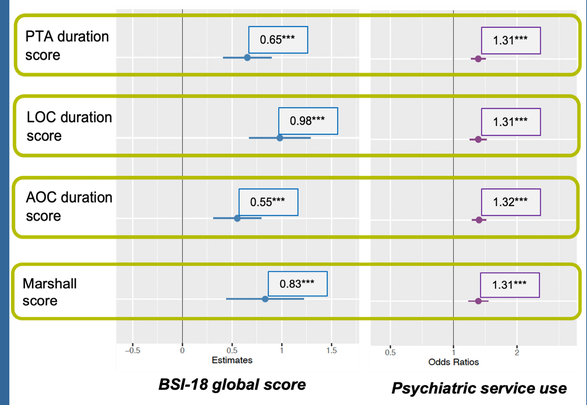
- Sex, age, race/ethnicity, annual household income, previous history of TBI, pre-injury mental health, alcohol and drug use.

Results

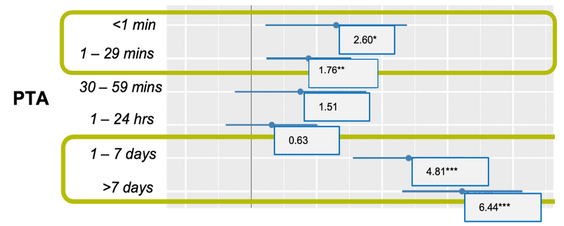
1) TBI, severe TBI and ICU admission associated with psychiatric outcomes



2) PTA, LOC, AOC and Marshall Score associated with psychiatric outcomes



3) However, the association between duration of symptoms and outcomes did not always follow a linear pattern



AOC = alteration of consciousness, CT= computed tomography, ED = emergency department, GCS = Glasgow Coma Scale, ICU = intensive care unit, Ortho = orthopaedic control. LOC = loss of consciousness, PTA = post-traumatic amnesia.

Conclusion

Higher levels of mental health problems and service use generally associated with more severe TBI

However, these associations may not always follow a linear pattern, and further research is needed to understand the mechanisms behind this

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Acknowledgements

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