Psychiatric History as a Predictor of Outcomes Following Mild Traumatic Brain Injury

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Introduction

Mild traumatic brain injury (mTBI) constitutes 75% of annual TBI's in the US

mTBI can result in a variety of significant sequelae lasting more than one year

Psychiatric problems are associated with TBI, yet precise relation is unclear

Difficult to identify those patients likely to develop poorer outcomes, who may benefit from increased follow-up

Objective

To examine the relationship and predictive ability of pre-injury, self-reported history of psychiatric illness on outcomes following mTBI

Methods

-Prospective, multi-center "Transforming Research and Clinical Knowledge in TBI (TRACK-TBI) Study"
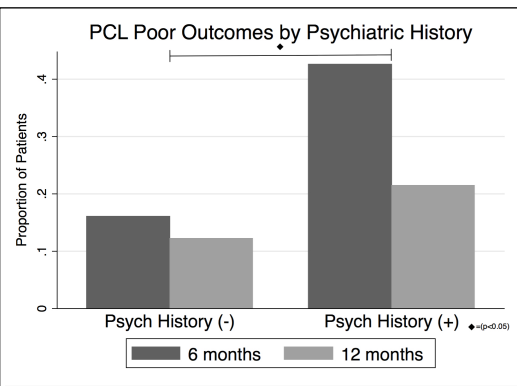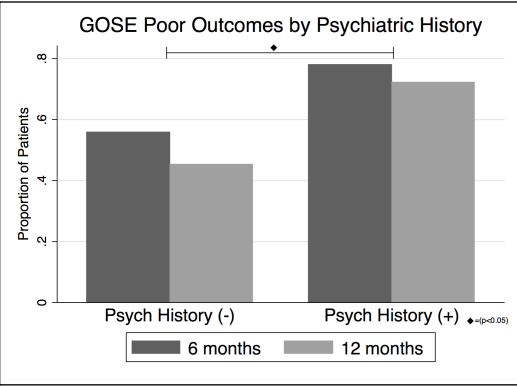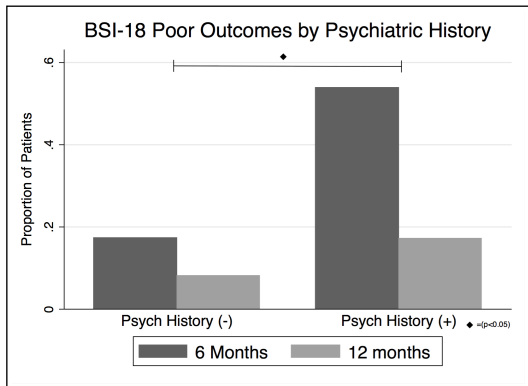-mTBI defined as Glasgow Coma Scale Score (GCS) of 13-15
-Self-reported history of psychiatric illness was primary independent variable
-Utilized 4 measures of outcome at 6 and 12 months:
  - Glasgow Outcome Scale-Extended Score (GOSE)
  - Brief Symptom Inventory 18-Item score (BSI-18)
  - Post-Traumatic Stress Disorder Checklist (PCL)
  - Rivermead Post-Concussion Symptom Questionnaire (RPQ)
-Adjusted logistic or linear regression were utilized for analysis; controlled for age, gender, race, GCS, neurologic history and previous TBI

Total Patients			329
Age		**Race**	
Mean(SD)	44(18.3)	White	272
Min-Max	18-94	Black	27
		Asian	18
Gender		*HAPI	10
Male	230	Other	2
Female	99	**Psychiatric History**	
		Total	104
Admission GCS		**Neurologic History**	
13	11	Total	75
14	65	**Previous TBI**	
15	253	Total	176

GOSE Poor Outcomes by Psychiatric History

BSI-18 Poor Outcomes by Psychiatric History

PCL Poor Outcomes by Psychiatric History

Univariable Analysis

Outcomes (month)	OR (95% CI)
GOSE (6m)	2.97 (1.7-5.2)**
PTSD (6m)	3.28 (1.85-5.84)**
BSI (6m)	6.15 (3.39-11.15)**
GOSE (12m)	3.05 (1.56-5.98)**
PTSD (12m)	2.91 (1.47-5.73)*
BSI (12m)	2.57 (1.1-6.01)^
	β
RPQ-13 (6m)	9.03**
RPQ-3 (6m)	1.58**
RPQ-13 (12m)	3.4^
RPQ-3 (12m)	NS

^(p<0.05); *(p<0.01); **(p<0.001); NS(p>0.05)

Multivariable Analysis

Outcomes (months):	OR (95% CI)
GOSE (6m)	2.47 (1.38-4.41)*
PTSD (6m)	2.47 (1.34-4.55)*
BSI (6m)	4.7 (2.51-8.82)**
GOSE (12m)	2.64 (1.3-5.32)*
PTSD (12m)	2.69 (1.32-5.51)*
BSI (12m)	NS
	β
RPQ-13 (6m)	7.05**
RPQ-3 (6m)	1.2**
RPQ-13 (12m)	NS
RPQ-3 (12m)	NS

^(p<0.05); *(p<0.01); **(p<0.001); NS(p>0.05)

Conclusions

Self-reported history of psychiatric illness is predictive of worse outcomes following mTBI at both 6 and 12 months

Predictive of worse outcome on multiple measures of functional status

Predictive strength is independent of history of neurological illness and previous TBI

Limitations

Validity of self-reported measures

Loss to follow-up

Outcomes not specific to mTBI

Implications

Obtaining psychiatric history during work-up following mTBI may screen for those patients likely developing worse outcomes

Identified patients can be targeted for closer follow-up and more individualized care

History of psychiatric problems may exacerbate the effects of traumatic brain injury

Acknoledgements