Mild Traumatic Brain Injury Classification

- Distinct clinical phenotypes and their neuroanatomic correlates in chronic traumatic brain injury
- Characteristics of traumatic brain injury-related healthcare visits across social determinants of health: A population-based birth cohort study
- Longitudinal analysis of pain-induced brain activations in post-traumatic headache
- A new characterisation of acute traumatic brain injury: the NIH-NINDS TBI Classification and Nomenclature Initiative
- Retrospective Identification and Characterization of Traumatic Brain Injury-Recommendations from the 2024 National Institute of Neurological Disorders and Stroke Traumatic Brain Injury Classification and Nomenclature Initiative Retrospective Classification Working Group
- Clinical Assessment on Days 1-14 for the Characterization of Traumatic Brain Injury: Recommendations from the 2024 NINDS Traumatic Brain Injury Classification and Nomenclature Initiative Clinical/Symptoms Working Group
- Neuroimaging Characterization of Acute Traumatic Brain Injury with Focus on Frontline Clinicians: Recommendations from the 2024 National Institute of Neurological Disorders and Stroke Traumatic Brain Injury Classification and Nomenclature Initiative Imaging Working Group
- Retinal manifestations of traumatic brain injury

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see Traumatic Brain Injury Classification

Concussion and mild traumatic brain injury (mTBI) are not interchangeable. Concussion may be thought as a subcategory of mTBI on the less severe end of the brain injury spectrum, though with similar clinical symptoms [1].

A major difference between the two is that mTBI may demonstrate abnormal structural imaging (such as cerebral hemorrhage/contusion) and concussion, by definition, must have normal imaging studies. mTBI is part of an injury severity spectrum primarily based on GCS score. TBI is evaluated 6 hours after injury and differentiated into mild, moderate and severe

Concussion is evaluated directly after the insult and based on a clinical diagnosis aided by a multitude of standardized assessment tools. To include concussion under the full spectrum of traumatic brain injury then it must fall at the low end of mTBI and overlap with the subset of “minimal” injury. Most mTBIs with negative imaging can be considered concussions, but the majority of sports concussions cannot be classified as mTBI [2] [3].

A definition of Mild Traumatic Brain Injury has been developed by the Head Injury Interdisciplinary Special Interest Group of the American Congress of Rehabilitation Medicine. Within the spectrum of injury severity in mild TBI there are several classification systems, primarily used in management of acute mild TBI, that breakdown mild TBI into grades of injury severity. These are based upon the presence or absence of mental status changes, amnesia, loss of consciousness, anatomical lesion or neurological deficit [4].

In 1999, a Task Force on Mild Traumatic Brain Injury (MTBI) was set up under the auspices of the European Federation of Neurological Societies. Its aim was to propose an acceptable uniform nomenclature for MTBI and definition of MTBI, and to develop a set of rules to guide initial management with respect to ancillary investigations, hospital admission, observation and follow-up [5].

The objective of a study of Si et al., from the School of Computing, Informatics, and Decision Systems Engineering, Arizona State University, Tempe, AZ, United States of America was to identify “sub-groups” of mild TBI (mTBI) patients based on data available at the time of the initial post-TBI patient evaluation and to determine if the sub-grouping correlates with patient outcomes at 90 and 180 days post-TBI.

Data from patients in the TRACK-TBI Pilot dataset who had a Glasgow Coma Scale (GCS) score of 13 to 15 at arrival to the Emergency Department and a closed head injury were included. Considering 53 clinical variables that are typically available during the initial evaluation of the patient with mild TBI, sparse heirarchial clustering with cluster quality assessment was used to identify the optimal number of patient sub-groups. Patient sub-groups were then compared for ten outcomes measured at 90 or 180 days post-TBI.

Amongst the 485 patients with mTBI, optimal clustering was based on the inclusion of 12 clinical variables that divided the patients into 5 mild TBI sub-groups. Clinical variables driving the sub-clustering included: gender, employment status, marital status, TBI due to falling, brain CT scan result, systolic blood pressure, diastolic blood pressure, administration of IV fluids in the Emergency Department, alcohol use, tobacco use, history of neurologic disease, and history of psychiatric disease. These 5 mild TBI sub-groups differed in their 90 day and 180 day outcomes within several domains including global outcomes, persistence of TBI-related symptoms, and neuropsychological impairment.

Sub-groups of patients with mTBI can be identified according to clinical variables that are relatively easy to obtain at the time of initial patient evaluation. A patient's sub-group assignment is associated with multidimensional patient outcomes at 90 and 180 days.

The twelve clinical variables that contributed to the clustering structure included: gender, employment status, marital status, injury mechanism, head CT findings, systolic blood pressure, diastolic blood pressure, receiving IV fluids while in the ED, having a history of alcohol use, a history of tobacco use, a history of psychiatric disease, and a history of neurologic disease. Patients in each of the five clusters have different outcomes in regards to global post-TBI outcomes (e.g. GOSE), psychological health (e.g. BSI), cognition (e.g. WAIS), and post-TBI related symptoms (RPQ). This study helps to identify patient variables that should be further investigated when developing and validating prognostic models for TBI and when identifying more precise sub-categories of mTBI that correlate with patient outcomes. Predictive outcome models consisting of data that are easily and routinely collected during the initial evaluation of patients with mTBI would assist the clinician with determining how aggressively to manage the patient and with providing prognoses to the patients [6].

see Sport-related concussion.

see Explosive blast mild traumatic brain injury.

Mild Traumatic Brain Injury with traumatic intracranial hematoma.

Pediatric mild traumatic brain injury

Pediatric mild traumatic brain injury.

1)
Harmon KG, Drezner JA, Gammons M, et al. American Medical Society for Sports Medicine position statement: concussion in sport. Br J Sports Med. 2013; 47:15–26
2)
McCrory P, Meeuwisse WH, Echemendia RJ, et al. What is the lowest threshold to make a diagnosis of concussion? Br J Sports Med. 2013; 47:268–271
3)
Yuh EL, Hawryluk GW, Manley GT. Imaging concussion: a review. Neurosurgery. 2014; 75 Suppl 4: S50–S63
4)
Esselman PC, Uomoto JM. Classification of the spectrum of mild traumatic brain injury. Brain Inj. 1995 May-Jun;9(4):417-24. Review. PubMed PMID: 7640688.
5)
Vos PE, Battistin L, Birbamer G, Gerstenbrand F, Potapov A, Prevec T, Stepan ChA, Traubner P, Twijnstra A, Vecsei L, von Wild K; European Federation of Neurological Societies. EFNS guideline on mild traumatic brain injury: report of an EFNS task force. Eur J Neurol. 2002 May;9(3):207-19. Review. PubMed PMID: 11985628.
6)
Si B, Dumkrieger G, Wu T, Zafonte R, Valadka AB, Okonkwo DO, Manley GT, Wang L, Dodick DW, Schwedt TJ, Li J. Sub-classifying patients with mild traumatic brain injury: A clustering approach based on baseline clinical characteristics and 90-day and 180-day outcomes. PLoS One. 2018 Jul 11;13(7):e0198741. doi: 10.1371/journal.pone.0198741. eCollection 2018. PubMed PMID: 29995912.

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