Fall-Related Mild Traumatic Brain Injury

- Impact of anticoagulant therapy on delayed intracranial haemorrhage after traumatic brain injury: A study on the role of repeat CT scans and extended observation
- Risk Factors for Fall-Related Mild Traumatic Brain Injuries Among Older Adults: A Systematic Review Highlighting Research Gaps
- Critical gap in practice-lack of attention to falls and possible fall-related post-concussion symptoms in older adults and individuals with neurodegenerative disease
- Association Between Frailty and Head Impact Location After Ground-Level Fall in Older Adults
- Mild Traumatic Brain Injury in Older Adults: Are Routine Second cCT Scans Necessary?
- Recent trends (2010-2018) in traumatic brain injury in Greece: Results on 2042 patients
- In Patients Over 50 Years, Increased Age Is Associated With Decreased Odds of Documented Loss of Consciousness After a Concussion
- The Role of Neck Musculature in Traumatic Brain Injuries in Older Adults: Implications From Sports Medicine

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Fall-Related Mild Traumatic Brain Injury hospitalizations among older adults have been increasing in recent decades. One of the most common reasons for this is minimal or mild traumatic brain injury (mTBI) in older individuals taking anticoagulant medication. Hofmann et al. analyzed all inpatient stays from January 2017 to December 2019 of patients aged > 75 years with a mTBI on anticoagulant therapy who received at least two cranial computer tomography (cCT) scans. Of 1477 inpatient stays, 39 had primary cranial bleeding, and in 1438 the results of initial scans were negative for cranial bleeding. Of these 1438 cases, 6 suffered secondary bleeding from the control cCT scan. There was no significance for bleeding related to the type of anticoagulation. They conclude that geriatric patients under anticoagulant medication don't need a second cCT scan if the primary cCT was negative for intracranial bleeding and the patient shows no clinical signs of bleeding. These patients can be dismissed but require an evaluation for need of home care or protective measures to prevent recurrent falls. The type of anticoagulant medication does not affect the risk of bleeding [1)]

Findings suggest a shift in the epidemiologic profile of TBI patients in Greece with a rise in the proportion of elderly patients, a concomitant increase in fall-related injuries and a reduction in RTA-related injury. They also highlight fall-related injury as the predominant cause of IHM. The results point towards the urgent need for the intensification of fall prevention strategies, continuing medical education as well as public information campaigns on the risks of geriatric fall-related injury [2)].

Case series

Retrospective medical chart review of 339 patients aged 65 years and older admitted for TBI in 2014 due to a fall. Characteristics analysed include demographics, fall circumstances, prior ED visits, polypharmacy, readmission, functional status and specialist outpatient clinic utilisation before and after FRTBI.

Results: A total of 339 (37.4%) patients admitted due to FRTBI was 65 years old and older; 112 (33.0%) for subdural haemorrhage (SDH); 227 (67.0%) for head injury (HI), with a mean age of 80 years. A total of 46 (41.1%) patients with SDH and 107 (47.1%) with HI had a previous ED visit within the last year, while 22 (19.6%) of SDH and 49 (21.6%) of HI had hospitalisation 3 months prior to FRTBI. FRTBI was associated with significant decline in activities of daily living, polypharmacy and increased specialist outpatient clinic appointments ($P < 0.001$). Mortality was 11 (3.2%). Mild cognitive impairment or dementia was significantly associated with admissions for FRTBI, 3.31 (95% confidence interval 1.68-6.51, $P = 0.001$) using adjusted logistic regression.

Conclusion: FRTBI is associated with significant functional decline and increased resource utilisation with almost half of the patients having had prior ED visits or hospitalisation. Future studies should focus on falls risk assessment and interventions for high-risk older adults prior to discharge from ED and hospital, and its impact on readmissions due to FRTBI [3].

Case report from the HGUA

I14372

The wife called emergency services (112) because her husband has had a fall. The report from the Emergency Medical Service (SVB) indicates that they responded to a call from a patient with a Traumatic Brain Injury (TCE) and high blood glucose levels.

Additional information states that, upon their arrival, the patient was conscious but disoriented, with a blood glucose level of 400. It also mentions a wound in the occipital region.

CT:

Hyperdense images are noted on the hemispheric convexity in the right frontobasal lateral and left parietal regions with a biconcave morphology, consistent with subdural hematomas measuring up to 7 mm and 3 mm in thickness, respectively. Additionally, other images with sulcal distribution in the bilateral frontal region are consistent with bleeding in the subarachnoid space.

1)
Hofmann V, Deininger C, Döbele S, Konrads C, Wichlas F. Mild Traumatic Brain Injury in Older Adults: Are Routine Second cCT Scans Necessary? J Clin Med. 2021 Aug 25;10(17):3794. doi: 10.3390/jcm10173794. PMID: 34501243; PMCID: PMC8432134.
2)
Stranjalis G, Komaitis S, Kalyvas AV, Drosos E, Stavrinou LC, Koutsarnakis C, Kalamatianos T. Recent trends (2010-2018) in traumatic brain injury in Greece: Results on 2042 patients. Injury. 2020 Sep;51(9):2033-2039. doi: 10.1016/j.injury.2020.05.045. Epub 2020 Jun 1. PMID: 32536530.
3)
Teo DB, Wong HC, Yeo AW, Lai YW, Choo EL, Merchant RA. Characteristics of fall-related traumatic brain injury in older adults. Intern Med J. 2018 Sep;48(9):1048-1055. doi: 10.1111/imj.13794. PMID: 29573078.