Traumatic brain injury prognosis

- Expression Significance and Relationship of Serum miR-542-3p and lncRNA TUG1 in STBI Patients and Their Predictive Value for Prognosis
- Development and validation of a dynamic nomogram for predicting enteral nutrition feeding intolerance in patients with severe traumatic brain injury: An external validation study
- An Updated and Comprehensive Review Exploring the Gut-Brain Axis in Neurodegenerative Disorders and Neurotraumas: Implications for Therapeutic Strategies
- Traumatic Brain Injury: Novel Experimental Approaches and Treatment Possibilities
- Association between traumatic brain injury and risk of developing infections in the central nervous system and periphery
- Deciphering the effectiveness of computed tomography scoring systems in improving mortality prediction for traumatic brain injury: a systematic review and bibliometric analysis
- Research progress in the use of botulinum toxin type a for post-stroke spasticity rehabilitation: a narrative review
- Statins could improve short-term prognosis in patients with traumatic brain injury: a propensity-matched cohort study

IMPACT prognostic calculator.

Predicting the prognosis and length of hospital stay of patients with TBI may improve therapeutic effects and significantly reduce the societal healthcare burden. Applying novel machine learning methods to the field of TBI may be valuable for determining the prognosis and cost-effectiveness of clinical treatment.

In a review, LeRoux will examine the implications of the Benchmark Evidence from South American Trials: Treatment of Intracranial Pressure (BEST TRIP) trial, evidence for an influence of ICP care on outcome, and a need for greater understanding of the pathophysiology than just ICP through multimodal monitoring (MMM) to enhance the outcome.

ICP-based monitoring and treatment alone may not be enough to enhance traumatic brain injury outcome, but ICP and cerebral perfusion pressure therapy remain important in TBI care. Although high-quality evidence for MMM is limited, it should be more widely adapted to better understand the complex pathophysiology after TBI, better target care, and identify new therapeutic opportunities [1)].

Limited retrospective data suggest that dural venous sinus thrombosis (DVST) in traumatic brain injury (TBI) patients with skull fractures is common and associated with significant morbidity and mortality.

Severe Traumatic brain injury outcome

see Severe Traumatic brain injury outcome.

Retrospective population-based cohort study with matched controls, using longitudinal follow-up

In a retrospective, population-based cohort study with matched controls and longitudinal follow-up, Heinonen et al. from Tampere University Hospital, Helsinki University Hospital, and Harvard Medical School in the Neurosurgery Journal compared 10-year survival rates and causes of death between patients with traumatic head injuries treated at a university hospital and matched population controls. They aimed to identify factors associated with long-term mortality after TBI.

Patients with head injuries exhibited significantly reduced long-term survival compared to matched controls, even after excluding early mortality. However, patient-related characteristics (e.g., comorbidities, lifestyle factors) — more than injury severity itself — appeared to drive this increased mortality risk.

Notably, even patients without documented TBI (likely mild or undiagnosed) showed decreased survival, suggesting an under-recognized long-term impact of head injury across all severity levels [2)].

In this population-based cohort study, the authors track 10-year mortality in over 1,900 patients with head injuries versus 9,600 matched controls. Unsurprisingly, trauma patients die more — especially from alcohol, accidents, and “patient characteristics.” The conclusion? It’s not the injury; it’s the person. This study doesn’t just underdeliver — it underthinks.

1. Conceptual Cowardice: "Patient Characteristics" as a Black Box

The study’s main conclusion — that patient-related factors, not injury severity, explain increased mortality — is not only reductive but evasive. The term “patient characteristics” serves as a statistical landfill for all the unmeasured, uncontrolled, and misunderstood variables: mental health, addiction, social deprivation, neurobehavioral sequelae… all dumped under one lazy label.

Rather than confront the neuropsychiatric aftermath of head trauma, the authors retreat behind correlational shields.

“They died because of who they were, not what happened to them.**”** — That’s not science. That’s resignation.

2. Methodological Smoothing: Sanitized Survival Curves

By excluding deaths in the first year, the authors amputate the most relevant part of the TBI survival curve — the acute-to-subacute transition — where complications, psychiatric destabilization, and loss of autonomy are rampant.

It’s like studying cancer survival but excluding all Stage IV patients. The result? A deceptively clean

data set that supports a pre-fitted narrative: long-term mortality is about the person, not the pathology.

3. Statistical Theater: Matching Without Meaning

Age, sex, and residence were used to match controls — commendable, but entirely insufficient when the key drivers of mortality (psychiatric comorbidity, socioeconomic status, access to care, pre-existing substance abuse) are absent from the model.

This is matching for cosmetics. The analysis is dressed up for publication but lacks causal traction.

It's not a statistical model. It's a public health pantomime.

4. Diagnostic Blindness: "No Documented TBI" as a Variable

The authors found that patients with no documented TBI had worse survival than controls — and treated this as a meaningful subgroup. But without MRI, neurocognitive testing, or clinical nuance, this label likely captures undiagnosed mTBI, psychiatric deterioration, or social collapse.

Instead of exploring this paradox, the authors move on. A missed opportunity to say something novel. Or anything at all.

5. Discussion Section or Sleep Aid?

The discussion fails to synthesize — or even speculate. It reiterates the results with slightly more adjectives. There's no translational insight, no policy implication, no suggestion for clinical follow-up protocols. Just a shrug, elegantly formatted.

It's the academic equivalent of saying:

"Well, that happened.**"**

Takeaway for Neurosurgeons

If you are a neurosurgeon looking for guidance on how to reduce long-term mortality after head injury, you'll find nothing here but observational fatalism. No mention of follow-up pathways, psychiatric screening, social rehabilitation, or neurobehavioral monitoring.

Just a data dump, followed by narrative retreat.

Final Verdict

A longitudinal study that goes nowhere, avoids causality, and replaces clinical insight with statistical inertia.

Academic Smokescreen – It looks rigorous, says little.

Statistical Minimalism – Just enough to publish, not enough to matter . Neuroscientific Inertia – More survival curves, fewer ideas.

Public Health Theater – Real patients, imaginary relevance.

1)
Le Roux P. Intracranial pressure after the BEST TRIP trial: a call for more monitoring. Curr Opin Crit Care. 2014 Apr;20(2):141-7. doi: 10.1097/MCC.0000000000000078. Review. PubMed PMID: 24584171.
2)
Heinonen A, Rauhala M, Isokuortti H, Raj R, Kataja A, Iverson GL, Huhtala H, Luoto T. Long-Term Mortality of Patients With Head Injuries—A 10-Year Follow-up Study With Population Controls. Neurosurgery. 2025 Jun 20. doi: 10.1227/neu.0000000000003593. Epub ahead of print. PMID: 40539797.