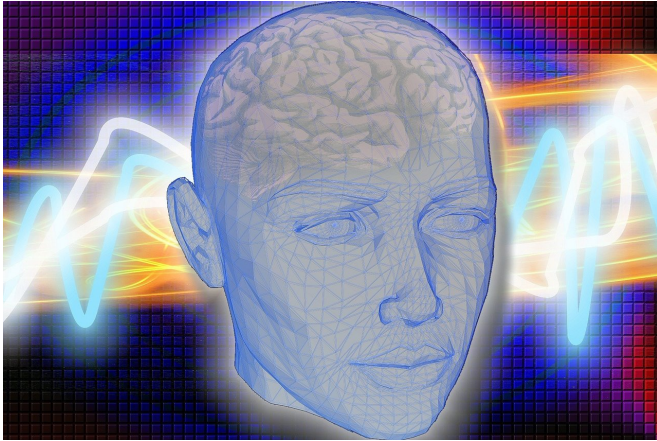


An improvement in outcome for patients with severe traumatic brain injury

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Patients with severe traumatic brain injury treated at Helsinki University Hospital, Finland, recover to functional independence more often than before. At the same time, the proportions of elderly patients and patients treated conservatively have increased. The study found no specific reason to explain the observed improvement in outcomes; the results are accounted for by improvements in performance and effectiveness throughout the treatment chain, researchers say.

According to a recent study by researchers from Helsinki University Hospital (HUH), [patients](#) with severe [traumatic brain injury](#) (TBI) recover to functional independence more often than before. The study also observed a marked increase in the proportions of [elderly patients](#) and patients treated without surgery during the study period.

Patients with severe TBI face poor prognoses; approximately half dies or are left with permanent disabilities. Accordingly, in the past two decades there has been numerous pharmaceutical studies that have aimed at improving outcomes after severe TBI. Unfortunately, all studies have ended

with negative results. Moreover, these efforts have been simultaneous with an epidemiological shift towards more elderly TBI patients whose treatment is often complicated by chronic comorbidities.

"These circumstances encouraged us to investigate whether patient outcomes have improved during the past two decades", says Dr. Jari Siironen, chief physician of the neurosurgical [intensive care unit](#) at Helsinki University Hospital and one of the principal investigators of the research group.

The researchers analysed patient records and imaging studies of more than 3,000 patients treated at the HUH neurosurgical intensive care unit due to a TBI during 1999-2015.

There was no significant change in mortality over the course of the study period, but outcomes improved in those who survived.

"The results demonstrate a considerable increase in the likelihood of recovery to functional independence during the study period", says BM Matias Lindfors, the lead author of the study.

The study also observed notable increases in the proportions of elderly patients and patients treated without surgery. Interestingly, outcomes improved most in those treated without surgery.

"The results indicate that certain patients can be successfully treated by conservative means", says Dr. Rahul Raj, adding:

"Intracranial surgery performed on [critically ill patients](#) is associated with significant risks, and these risks may sometimes outweigh potential benefits, particularly in the case of elderly patients."

The study found no specific reason to explain the observed improvement in outcomes. "The results are accounted for by improvements in performance and effectiveness throughout the treatment chain,

from pre-hospital emergency care to rehabilitative services", Raj says.

A considerable proportion of patients who have sustained a severe TBI may recover seemingly well and still suffer from significant cognitive and emotional defects, limiting re-employment and everyday life.

"Regaining functional independence does not necessarily equal full recovery. More research into other aspects of recovery are needed to further develop the rehabilitation of TBI patients based on each patient's individual needs ", Lindfors says.

TBI is a major cause of mortality and long-term disability worldwide, and a leading cause of death in young Finnish adults. In the western world, ageing populations are increasing the number of TBIs, while low- and middle-income countries grapple with TBIs caused by road traffic accidents. The WHO has predicted that TBIs will become a leading cause of morbidity and mortality within the upcoming years.

More information: Matias Lindfors et al.

Temporal changes in outcome following intensive care unit treatment after traumatic brain injury: a 17-year experience in a large academic neurosurgical centre, *Acta Neurochirurgica* (2018).
[DOI: 10.1007/s00701-018-3670-1](https://doi.org/10.1007/s00701-018-3670-1)

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