

Even the elderly can recover from a severe traumatic brain injury

27 November 2015



Acute subdural hematoma is marked with a white arrow. The black areas in the middle are the ventricles containing cerebrospinal fluid, and the grey is brain tissue. Credit: Rahul Raj/ Helsinki University Hospital

According to a study completed at the Helsinki University Hospital Department of Neurosurgery, even patients over the age of 75 may recover from severe traumatic brain injury. This is the first study to describe the results of surgically treated elderly patients with acute subdural hematomas.

It is generally accepted that [elderly patients](#) who suffer from an acute subdural hematoma should not be treated surgically, as few survive and even fewer recover to an independent life. However, the

world's population is rapidly ageing leading to an increased rate of fall accidents. In the worst case, falling may result in brain hemorrhage.

Age is one of the most significant outcome predictors in patients with [traumatic brain injury](#). If the patient is young, an acute subdural hematoma is normally treated through a neurosurgical operation. However, even among young patients, mortality and significant morbidity are highly common, despite [surgical treatment](#). In older patients, the success rate of the [surgery](#) are made worse by the fact that many patients are typically using oral anticoagulant medications to treat other cardiovascular diseases.

The Neurosurgical Department in Helsinki University Hospital has been an exception in its policy to also treat elderly patients with acute subdural hematomas surgically. Researchers from the University of Helsinki and Helsinki University Hospital have now determined how the patients' functional status before the injury and the use of oral anticoagulant medications influence the prognosis of patients 75 years or older operated on for an acute subdural hematoma.

The study showed that no patients who had been brought to hospital unconscious, who had not been independent before the trauma, or who had used anticoagulants were alive at one year after the surgery.

"What was surprising, however, was that patients who were conscious at presentation, who were not using anticoagulants or were independent before the operation, recovered quite well. The expected lifespan of these patients was comparable to their age-matched peers," says MD, PhD Rahul Raj, one of the main authors.

"One should be careful to make to strong conclusions from such a small number of patients", Raj points out, "but it seems that in approximately

half of all cases, even elderly patients may benefit from surgery and recover to an independent life. It is important to note that included patients had an isolated acute subdural hematoma with no injuries to the brain tissue itself. This means that the results cannot be applied to patients with contusions or other intracranial injuries, whose treatment and prognosis are different."

The decision to operate should not be based on age alone

According to Raj, the study throws new light on the old assumption that surgical treatment of the elderly is not a sensible course of action: "The decision to treat through surgery should not be based on age alone, even though this is common."

Surgery of an acute subdural hematoma followed by intensive care and rehabilitation involve major costs and can cause significant suffering to patients and relatives. Thus, it is important to perform surgery on only the patients who are likely to benefit from it.

"But how do you define a bad prognosis? If only one in ten patients recovers sufficiently to live at home, is the treatment worthwhile? If half of the treated patients die within the year, is the treatment worthwhile? This is not a medical decision," the researchers emphasize. They believe that in the future, surgical treatment will be increasingly restricted to [patients](#) with the highest likelihood of recovering.

More information: Raj R, Mikkonen ED, Kivisaari R, Skrifvars MB, Siironen J: Mortality in elderly patients operated for an acute subdural hematoma: A surgical case series. *World Neurosurgery*, 2015 Nov 5.

Provided by University of Helsinki

APA citation: Even the elderly can recover from a severe traumatic brain injury (2015, November 27) retrieved 29 July 2022 from <https://medicalxpress.com/news/2015-11-elderly-recover-severe-traumatic-brain.html>

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