Medical Xpress

Traumatic brain injuries can increase risk of stroke for up to five years, finds study

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Stroke risk for patients with traumatic brain injuries is at its highest in the four months following injury and remains significant for up to five years post-injury, finds a new systematic review led by a team at the University of Birmingham.

Traumatic brain injury (TBI) is a global health problem affecting over 60 million people a year worldwide. Incidences of TBI are rising due to a range of factors including increased falls in the elderly, military conflict, sports injuries and road traffic accidents. However, advances in critical care and imaging have led to a reduction in TBI-related mortality.

Previous studies have associated TBI with a long-term risk of neurological diseases including dementia, Parkinson's and epilepsy, and TBI has been proposed as an independent risk factor for stroke.

This latest review, which brings together 18 studies from four countries and publishes today (April 9) in the *International Journal of Stroke*, is the first of its kind to investigate post-injury stroke risk.

Funded by the National Institute for Health Research's Surgical Reconstruction and Microbiology Research Centre based at University Hospitals Birmingham NHS Foundation Trust, the review showed that TBI patients have an 86% increased risk of stroke compared to patients who have not experienced a TBI. Stroke risk may be at its highest in the first four months post-injury, but remains significant for up to five years, found the review.

Significantly, the findings suggest that TBI is a risk factor for stroke regardless of the severity or subtype of the injury. This is particularly noteworthy because 70% to 90% of TBI's are mild and suggests that TBI's should be considered a chronic condition even if it is mild and patients recover well.

Researchers also found that the use of anti-coagulants, such as VKA's and statins, could help to reduce stroke risk post-TBI, while the use of some classes of anti-depressants are associated with increased stroke risk post-TBI.

Lead author Dr. Grace Turner, of the University of Birmingham's Institute of Applied Health Research, said: "Stroke is the second leading cause of death and third leading cause of disability worldwide, however, urgent treatment can prevent stroke related death and long-term disability.

"Our review found some evidence to suggest an association between reduced stroke risk post-TBI and the stroke prevention drugs VKAs and statins but, as previous studies have found, stroke prevention drugs are often stopped when an individual experiences a TBI.

She said more research is required to investigate the effectiveness of stroke prevention drugs post-TBI to help inform clinicians' prescribing and facilitate shared decision making.

Dr. Turner added: "As our review has shown, TBI patients should be informed of the potential for increased stroke risk and with the risk of stroke at its highest in the first four months post-injury, this is a critical time period to educate patients and their care givers on stroke risk and symptoms.

"This initial four-month period should also be used by clinicians to administer stroke prevention medication and lifestyle advice to mitigate the excess risk of stroke associated with TBI."

More information: Grace M Turner et al. Stroke risk following traumatic brain injury: Systematic review and meta-analysis, *International Journal of Stroke* (2021). DOI: 10.1177/17474930211004277

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