

Traumatic brain injury poses complex diagnostic, management and treatment challenges in older people

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Each year more than 1.7 million people in the United States sustain a traumatic brain injury (TBI). The incidence of TBI in older adults poses special diagnostic, management and treatment challenges, say experts in a special collection of papers on TBI in the elderly in *NeuroRehabilitation: An Interdisciplinary Journal*.

"As our understanding of TBI increases, it is becoming clear that its impact is not uniform across the lifespan and that the response of a young brain to a TBI is different from that of an old brain," writes Guest Editor Wayne A. Gordon, PhD, ABPP, Vice Chair of the Department of [Rehabilitation Medicine](#) at Mount Sinai School of Medicine, New York, NY. "Indeed, the literature is beginning to suggest that TBI in the elderly brings to light a complex set of challenges, some of which are highlighted in this issue."

Although evidence is mixed, several previous studies have found an association between lifetime TBI and dementia risk in later life. Kristen Dams-O'Connor, PhD, Mount Sinai School of Medicine, and colleagues compare the medical history and cognitive function of those with dementia and a history of TBI and those with dementia without a TBI history and report subtle differences between the groups. Their findings suggest that dementia in patients who have sustained a TBI is a unique phenotype that is distinct from that seen among individuals who develop dementia without a history of TBI.

A study by Jeff Victoroff, MD, University of Southern California Keck School of Medicine, presents the first published provisional [diagnostic criteria](#) for traumatic encephalopathy (TE) based on a [systematic analysis](#) of its clinical characteristics in 436 published cases of TE.

"Provisional research diagnostic criteria for TE should allow clinicians to focus on this significant subset of TBI victims, and hopefully accelerate the understanding of this important condition," says Victoroff.

"Currently diagnosis of this disorder is based solely on post-mortem examination, making the differential diagnosis of TBI, dementia, and CTE all but impossible in living Individuals," adds Gordon. "While these criteria require validation, research and the subsequent endorsement by professional organizations, they represent an important first step in this process."

The factors related to death following TBI in the elderly are in need of more research and our understanding of the long-term consequences of TBI is quite limited, according to an article by Chari I. Hirshson, PhD, Mount Sinai School of Medicine, and colleagues. They report on the findings of a medical chart review of individuals 55 years and older who died one to four years after moderate or severe TBI, and compared these to matched living patients. Deceased patients were discharged with significantly more medications including diabetic medication (35%) and there was a significantly higher proportion of deceased patients with a diagnosis of Abnormality of Gait (53%), respiratory medications at admission (32%) and discharge (17%). These results suggest the need for medical and lifestyle interventions for selected elderly TBI patients, say the authors.

The characteristics of the inpatient rehabilitation treatments received by individuals with a TBI who were above the age of 65 when they received their injury are examined in a paper by Marcel Dijkers, PhD, Mount Sinai School of Medicine, and colleagues. They found that in contrast with the situation just a few decades ago, elderly people with TBI are

admitted to rehabilitation in fairly large numbers. Elderly patients may have relatively limited brain injury severity, and make significant but nevertheless more restricted progress (compared with young and middle-aged patients) during and after inpatient rehabilitation. The majority of elderly people with TBI can be rehabilitated successfully and discharged home, where they may even resume employment and driving, say the authors.

As Gordon points out, "Cognitive assessments are costly, time-consuming and are often a burden on the patients and their families." The Brief Test of Adult Cognition by Telephone (BTACT) has been recommended for inclusion in the National Institutes of Health Common Data Elements for assessing TBI and is currently being piloted by the National Institute on Disability and Rehabilitation Research,-funded TBI Model Systems, for potential inclusion in a prospective longitudinal study of TBI outcomes. Brandon E. Gavett, PhD, University of Colorado at Colorado Springs, and co-investigators applied modern psychometric approaches to examine the validity of using the BTACT in TBI patients. They conclude that modern psychometric approaches have the benefit of linear scaling and a modest criterion validity advantage, and that the tool has the potential of increasing understanding of the long-term impact of TBI on cognitive function.

To round off this collection of papers, Angela Yi, PhD, Sports Concussion Institute, Atlanta, and Kristen Dams-O'Connor, PhD, Mount Sinai School of Medicine, review the literature on age-specific factors that are related to successful outcomes in the elderly who sustain a TBI. They conclude there is a clear need for more cross-sectional and prospective studies that examine psychosocial issues in this unique population. "The trajectory of recovery and social reintegration after a TBI sustained in older adulthood is unique," say the authors. "It should not be assumed that predictors of psychosocial outcomes in younger adults apply to [older adults](#) with TBI. Level of severity, cause of injury,

age at injury, co-morbid conditions, cohort characteristics, and pre-morbid functioning are all factors to take into account when exploring how a TBI affects psychosocial functioning in the older adult cohort."

More information: *NeuroRehabilitation: An Interdisciplinary Journal*, 32(2) April, 2013

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