

Prospective Evaluation of PTSD and Depression in Orthopedic Injury Patients With and Without Concomitant Traumatic Brain Injury

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Purpose: The presence of psychiatric symptoms after injury, specifically those of posttraumatic stress disorder (PTSD) and depression, are becoming increasingly recognized as both a significant morbidity and a major determinant of overall outcome. Traumatic brain injury (TBI) has a known negative impact on patient outcomes with concomitant orthopaedic injury, but the specific association of concurrent TBI, orthopaedic injury, and the development of PTSD and depression has not been examined. The purpose of this study was to examine rates of PTSD and depressive symptoms in orthopaedic trauma patients who also sustained a TBI.

Methods: This prospective cohort study included patients 18 years and older with orthopaedic injuries admitted to a Level I trauma center for greater than 24 hours. Demographic and injury-related data were gathered in addition to assessments of PTSD and depression during initial postinjury hospitalization, as well as 3, 6, and 12 months later. Presence of orthopaedic injury and TBI was based on ICD-9 coding. Generalized linear models were used to determine if rates of PTSD and depressive symptoms at 3, 6, and 12 months postinjury were associated with TBI.

Results: A total of 214 orthopaedic trauma patients were included. Of these, 44 (21%) sustained a TBI. No significant differences were found between demographic factors; however, all injury-related variables, including injury severity, Glasgow Coma Scale, ICU length of stay (LOS), and total LOS, were significantly different between TBI and non-TBI groups ($P < 0.001$). Those with TBI had significantly higher odds of having depressive symptoms 6 months postinjury ($P = 0.038$) and PTSD symptoms 12 months postinjury ($P = 0.04$).

Conclusion: Presence of a TBI in addition to orthopaedic injury was associated with higher rates of depression at 6 months and PTSD at 12 months postinjury. The implications of these data suggest that sustaining a TBI at time of injury places one at risk for later negative psychological outcomes. This important finding may help clinicians identify patients at higher risk for PTSD and depression after injury and target these patients for screening, intervention, and referral for treatment.