

Original Article

Risk factors for depression following traumatic injury: An epidemiological study from a scandinavian trauma center



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ABSTRACT

Introduction: A significant proportion of patients suffer depression following traumatic injuries. Once manifested, major depression is challenging to overcome and its presence risks impairing the potential for physical rehabilitation and functional recovery. Risk stratification for early detection and intervention in these instances is important. This study aims to investigate patient and injury characteristics associated with an increased risk for depression.

Methods: All patients with traumatic injuries were recruited from the trauma registry of an urban university hospital between 2007 and 2012. Patient and injury characteristics as well as outcomes were collected for analysis. Patients under the age of eighteen, prescribed antidepressants within one year of admission, in-hospital deaths and deaths within 30 days of trauma were excluded. Pre- and post-admission antidepressant data was requested from the national drugs registry. Post-traumatic depression was defined as the prescription of antidepressants within one year of trauma. To isolate independent risk factors for depression a multivariable forward stepwise logistic regression model was deployed.

Results: A total of 5981 patients met the inclusion criteria of whom 9.2% (n=551) developed post-traumatic depression. The mean age of the cohort was 42 [standard deviation (SD) 18] years and 27.1% (n = 1620) were females. The mean injury severity score was 9 (SD 9) with 18.4% (n = 1100) of the patients assigned a score of at least 16. Six variables were identified as independent predictors for post-traumatic depression. Factors relating to the patient were female gender and age. Injury-specific variables were penetrating trauma and GCS score of ≤ 8 on admission. Furthermore, intensive care admission and increasing hospital length of stay were predictors of depression.

Conclusion: Several risk factors associated with the development of post-traumatic depression were identified. A better targeted in-hospital screening and patient-centered follow up can be offered taking these risk factors into consideration.

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Introduction

There is an abundance of studies demonstrating that trauma patients are an at-risk group for post-traumatic stress disorder (PTSD) and major depressive disorders, both conditions being recognized as a long-lasting complication following injury [1–5]. Although not required by The American College of Surgeons' Committee on Trauma, it recommends the use of screening tools for early detection of PTSD and depressive symptoms in trauma patients [6]. Once manifest, such conditions are challenging to treat and in the context of trauma, the development of depression does not only impact on the psychological welfare of the patient and the quality of life, it also risks impairing the potential for physical recovery [7,8]. Furthermore, the wellbeing of a patient, and more specifically the degree of motivation to recover, is paramount in the phase of rehabilitation following initial life-saving interventions [9]. The mobilization of resources on this patient group demands significant extra expenditure for health-care systems, whereas limited resources and time constraints are commonly given reasons against routine screening by trauma centers.

Studies examining trauma specific risk factors for post-traumatic depression are scarce and poorly documented. The ability to better target patients for early screening may allow the prevention of established depression and facilitate more cost-effective trauma care. The aim of the presented study is to investigate what patient or injury characteristics are associated with an increased risk for depression following trauma.

Methods

Ethical approval of the study was applied for and granted by the Regional Review Board in Stockholm County. The ethical principles outlined in the Declaration of Helsinki were adhered to. All adult (age ≥ 18 years) trauma patients admitted between 1 January 2007 and 31 December 2011 were obtained from the trauma registry at

Karolinska University Hospital, a major urban trauma center in Sweden. All patient and injury characteristics and clinical outcomes were collected from this registry. Patients meeting the following criteria were excluded: patients younger than 18 years of age, those prescribed antidepressant therapy up to one year before their trauma, in-hospital deaths and deaths within 30 days of admission. Access to the national drugs registry was granted by The National Board of Health and Welfare. The national drugs registry contains information about all drugs prescribed by physicians in Sweden. The information collected and stored in the registry includes: name of drug, dosage, recommended drug frequency (i.e. when required or daily), date on which the prescription is issued and date on which the prescription is collected. Information was acquired for any antidepressant therapy (selective serotonin reuptake inhibitors, serotonin-norepinephrine reuptake inhibitors, tricyclic antidepressants and monoamine oxidase inhibitors) prescribed within 12 months prior to admission and following discharge. The diagnosis of post-traumatic depression was given to pre-admission antidepressant naïve patients who were prescribed such drugs within one year of discharge. The date on which a prescription was issued, rather than that on which it was collected, was used as a reference in order to avoid losing patients with poor compliance from the cohort.

Statistical analysis

Continuous variables with clinically relevant cut-off points in trauma outcomes were dichotomized accordingly: Injury Severity Score (ISS) ≥ 16 vs. < 16 , Abbreviated Injury Scale (AIS) ≥ 4 vs. < 4 , Glasgow Coma Scale (GCS) ≤ 8 vs. > 8 , systolic blood pressure < 90 mmHg vs. ≥ 90 mmHg. These cut-off points have been demonstrated to have significant impact on outcomes and potential for recovery following trauma. The following factors are considered beneficial: ISS < 16 , AIS < 4 , GCS > 8 and systolic blood pressure ≥ 90 mmHg. Patient demographic and clinical information of the total cohort and subgroups based on depression

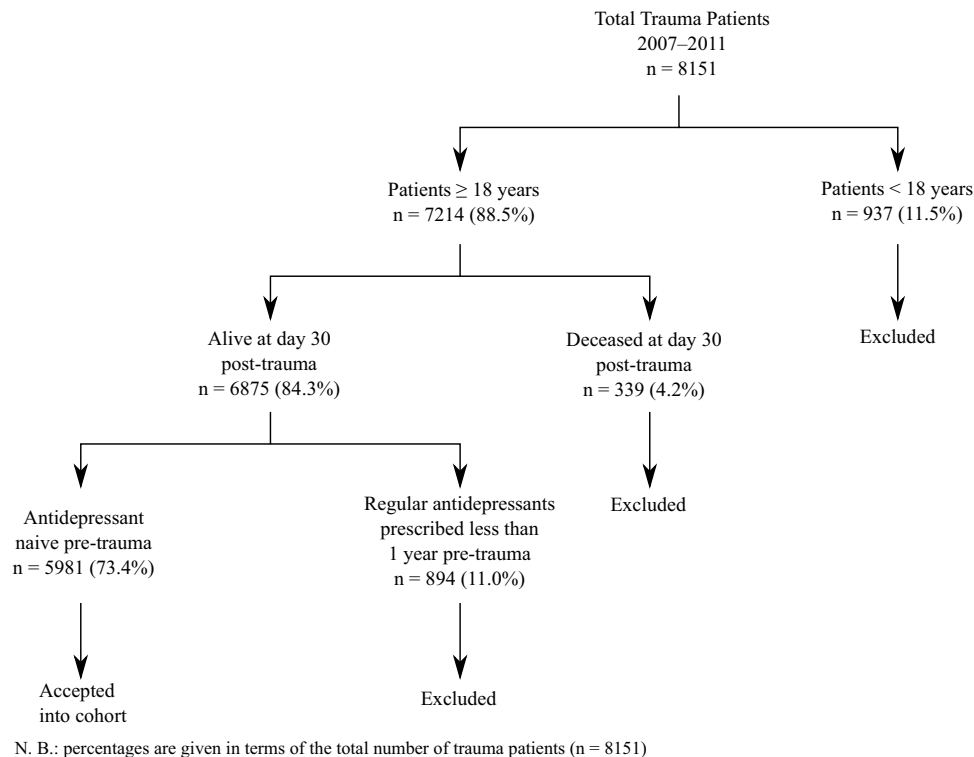


Fig. 1. Patient inclusion algorithm.

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