Abstract

INTRODUCTION: There is extensive data on the neuropsychiatric sequelae of Traumatic Brain Injury (TBI) and Acquired Brain Injury (ABI). Major depression is undertreated in both TBI and ABI. Early screening for insomnia, depression, and anxiety facilitates early diagnosis and treatment, and reduces the mortality and morbidity in patients with TBI or ABI.

METHODS: In order to understand and analyze tools to screen and monitor depression in those with brain injury, a literature review was undertaken. Relevant articles published between 2009 and 2013 were identified by searching PubMed using the following MeSH search terms: traumatic brain injury, acquired brain injury, and head injury. Each of these terms was cross-referenced with the following MeSH terms: psychosis, depression, rehabilitation, screening, and psychiatric status rating scales. The results were limited to human studies and English language peer reviewed articles.

RESULTS: 106 articles were identified and 64 articles met the final criteria. A total of 27 different screening tools were used in the 64 studies with the most common being: Becks Depression Inventory (BDI-II) (25%), Structured Clinical Interview Diagnostic (SCID-IV) (17%), Personal Health Questionnaire (PHQ) (14%), Hospital Anxiety and Depression Scale (HADS) (10%), and Hamilton Depression Scale (HAM-D) (9%). Fifty-three studies used multiple screening tools, which were usually a combination of BDI-II and a questionnaire created independently by a patient.

CONCLUSIONS: Standardized methods of screening are still in a state of flux and vary between hospitals, government agencies, and academic environments. Given that psychiatrists and neurologists have no neuropsychonanatomical markers to predict the development of major depression and thereby increasing disability, the standardization of depression screening tools could improve the outcome of recovery from TBI and ABI.

Introduction

There is extensive data on the neuropsychiatric sequelae of Traumatic Brain Injury (TBI) and Acquired Brain Injury (ABI). Major Depression is undertreated in both TBI and ABI. In neuropsychiatry there has been a collection of evidence that TBIs alter brain physiology and neurological make-up, which may lead to an individual being at higher risk for the development of depression and anxiety. The rates of depression within the first 3 months following a TBI range in the literature from 12% to 44%. However, there still is no definitive correlation between the injury sustained in TBI and depression.

In TBI and ABI it is methodologically challenging to screen for depression because there are many symptoms that mimic and overlap with the symptoms of depression such as difficulties with concentration and memory, fatigue, irritability, anhedonia, apathy, and lack of motivation. Many clinicians struggle to determine the best way to screen and diagnose depression due to this complicated overlay of symptoms. Additionally, research has reported that persons with TBI and ABI have higher rates of premorbid psychiatric disorders and therefore their likelihood for experiencing another episode of depression is much greater than a person who prior to the injury did not experience depression. Therefore these individuals are at higher risk and more effort should be spent screening them for depression.

Screening for insomnia, depression, and anxiety facilitates early diagnosis and treatment, and reduces the mortality and morbidity in patients with TBI or ABI. The challenge that clinicians face is that they must determine what kind of examinations and questionnaires are appropriate and accurate in the TBI and ABI population. Personality, psychiatric, and social factors all contribute to patient’s symptoms. Oftentimes self - reports of symptoms are exaggerated, fabricated, or minimized. Iverson, et al reports that patients endorse more symptoms on questionnaires than in clinical interviews.

Methodology

• In order to understand and analyze tools to screen and monitor depression in those with brain injury a literature review was undertaken with the assistance of a Library Information Scientists.
• Relevant articles published between 2009 and 2013 were identified by searching PubMed using the following MeSH search terms: traumatic brain injury, acquired brain injury, and head injury. Each of these terms was cross-referenced with the following MeSH terms: psychosis, depression, rehabilitation, screening, and psychiatric status rating scales.
• The literature search was limited to human studies and English language peer reviewed articles as well as literature reviews themselves.
• As articles were identified and read they were entered into RefWorks.
• Articles that were identified that met criteria were sorted conceptually using WebtirationPRO a concept mapping software.
• Statistical analysis of used screening tools was accomplished using Access and Excel software.

Concept Mapping

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Results

• 106 Articles were identified in PubMed. However, after review only 64 met criteria for analysis.
• A review of these 64 articles showed:
  • 27 types of screening tools with 86 combinations were identified.
  • Only 11 studies (17%) chose to use a single type of screening tool. It was more common for studies to use two screening tools.
  • The most common screening tools were: BDI-II (25%), SCID-IV (17%), PHQ (14%), HADS (10.9%), and HAM-D (9%).
  • Of the studies that used a combination of tools the most common was the BDI-II with another screening tool such as IMF/CAT, PHQ or NFI. This made up 14% of the studies.
  • 14% of the studies utilized the NFI making it the most common neurological screening tool to accompany a depression screening.
  • Eight military studies were identified of which 20% utilized the post-Deployment Health Assessment (PDHA) and 20% utilized BDI-II.
  • Historical analysis shows that the hospital assessment depression scale (HADS) has fallen out of use since 2010.
  • Three studies utilized magnetic resonance imaging in combination with a depression screening tool.

Conclusions

1. Standardized methods of screening for depression in persons with TBI and ABI vary between hospitals, government agencies, and academic environments.
2. Given that psychiatrists and neurologists have no definitive neuroanatomical markers to predict the development of major depression and thereby increasing disability, the standardization of depression screening tools could improve the outcome of recovery from TBI and ABI.
3. Guidelines for timing of screenings for neuropsychiatric sequelae of TBI and ABI need to be developed in a coordinated effort between neurologists, psychiatrists, and physiatrists.
4. To facilitate rehabilitation, improve prognosis, and subsequently influence long-term disability early screening for depression, anxiety, insomnia, and PTSD should be considered a vital part of treatment planning in individuals with TBI and ABI.

References:

7. Literature review articles are available upon request.