TRAUMATIC BRAIN INJURY AND DEPRESSION

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There are very few empirical studies which have addressed the issue of the incidence, etiology, assessment, and treatment of depression after a traumatic brain injury. Various studies report the incidence of depression being anywhere from 10 percent to 77 percent following traumatic brain injury. Even though there is a wide variance in the reported incidents of depression after a traumatic brain injury, depression occurs with enough frequency to be considered a significant consequence following traumatic brain injury. Recent studies show that there are a combination of factors responsible for the onset and maintenance of depression following a traumatic brain injury. Current literature suggests that depression following traumatic brain injury is caused by a combination of neuroanatomic, neurochemical, and psychosocial factors.

I. NEUROANATOMIC CORRELATES OF TRAUMATIC BRAIN INJURY

- The demonstrable lesions on CT head scans after traumatic brain injury most frequently involve contusions to the anterior orbital frontal and anterior temporal regions, despite the site of initial trauma. (1)

- Major depression is most often associated with left dorsolateral frontal lesions and/or left-basal ganglia lesions. Right parietal-occipital lesions are also associated with depression, however to a lesser extent. (1)

- As a general rule, the relation between depression and site of brain lesion is observed during the acute phase of recovery only, i.e. within one month. (1)

- Acute traumatic brain injury depression is associated with neurophysiological processees caused by brain injury, whereas late onset depressions were associated with psychosocial factors. (1)

- Brain damage caused by rotation and sheering injuries (i.e. diffuse axonal injury) is often not visualized on CT or magnetic resonance imaging (MRI) and this fact, therefore, limits the understanding of the relationship between depression and pathology. (1)

II. NEUROCHEMICAL CORRELATES

Despite recent developments in the study of neurobiologic correlates of depression following traumatic brain injury, scientific knowledge in this area is limited, and therefore, few conclusions can be drawn. (1)

III. PSYCHOSOCIAL CORRELATES

Studies of traumatic brain injury survivors and their families reveal that the disruption of social relationships is one of the most common findings. Frequently, there is a substantial loss of or decrease in pre-injury social contacts. Studies have documented a decrease in leisure activities and behaviors that traumatic brain injury survivors enjoyed before their injuries as well as difficulties engaging in new hobbies and other pleasurable activities. Relatives and spouses of traumatic brain injury survivors commonly report that personality and emotional changes are the most difficult aspects of post-injury adjustment -- more so than physical and cognitive dysfunction. Not surprisingly, families of the traumatic brain injury survivors report a considerable increase in their perceived burden and stress (both emotional and financial) associated with caregiver activities. (1)

A. PRE-INJURY PSYCHOSOCIAL FACTORS PLAY A PART IN POST-TRAUMATIC BRAIN INJURY DEPRESSION

- Researchers have found that depressed traumatic brain injury patients have a significantly higher incidence of previous psychiatric history, (i.e. depression, substance abuse), poor psychosocial adjustment (i.e. marital and employment difficulties), and lower perceived social support as compared with non-depressed traumatic brain injury patient. (1)

- Psychosocial adjustment issues undoubtedly pose the greatest challenge to traumatic brain injury survivors and their families. Although physical and cognitive recovery may occur during acute and post-acute treatment, personality and emotional disruption may persist for years. (1)

B. USE OF THE MMPI-II WITH REGARD TO THE ASSESSMENT AND DIAGNOSIS OF DEPRESSION FOLLOWING TRAUMATIC BRAIN INJURY

- A lot of neuropsychologists use the MMPI in assessing head injured individuals. The MMPI makes certain assumptions when applied to the neuropsychological population that may be unsuitable for head injured individuals. When the MMPI is administered to head injured individuals, the following assumptions are made which may very well not be true. 1.) It assumes that the head injured group will not respond differently due to fatigue when compared to the population on which the MMPI test was formed. 2.) It assumes that head injured individuals can read the questions accurately. 3.) It assumes that head injured individuals can comprehend the questions. 4.) Some of the questions on the MMPI test assess neurological sequelae rather than measuring the clinical syndromes for which they were

designed. For example, the (D) depression scale contains questions which can be sensitive to both a neurological condition and to functional psychiatric disturbance. If a head injured individual responds to these questions in a certain way, their perceived psychopathology may be elevated. Studies have shows that patients with "a minor head injury may very well be elevated on five of the ten clinical scales of the MMPI." (2)

- One researcher has recommended that whenever the MMPI is administered to head injury patients, certain neurologic items be subtracted from the total raw scores and a recalculation be made adjusting the T score profiles with this correction table. (7)

IV. IMPORTANT RESEARCH FINDINGS TO KNOW WHEN REPRESENTING TBI CLIENTS WITH DEPRESSION

- In the only study that has used a structured psychiatric interview, 26 percent of the patients hospitalized for acute traumatic brain injuries were found to have developed a major depressive episode about one month after the injury. Twenty-seven percent of the initially non-depressed patients had a major depressive episode within a year after the injury. There have been few studies which have examined psychiatric sequelae in outpatients with brain injuries. (3)

- Depressed patients perceive their injury or neurological condition and their cognitive deficits as more severe, despite the lack of differences on objective measures of severity of injury and cognitive functioning. (3)

- Research shows that individuals suffering from depression following traumatic brain injury suffer significantly more functional disability. This decrease in functional disability is generally not associated with objective measures of severity of injury and cognitive functioning. Studies also show that in those situations when both depression and medical conditions are present, the functional disabilities due to each illness are additive. Studies have shown that patients with the onset of depression three, six, and twelve months after traumatic brain injury experience greater impairment in social functioning than patients who develop depression immediately following their brain injury. (3)

- Studies have also shown that patients with major depression have significantly more somatic complaints and functional disability than other individuals even after the severity of the medical illness is controlled. (3)

- The nature of post-traumatic brain injury depression changes over time. Generally speaking, the major depression which occurs during the acute stage following a traumatic brain injury is associated with lesion location (i.e. left dorsal lateral frontal cortex and left basal ganglia). Major depression that occurs after the acute post-traumatic brain injury (i.e. delayed onset depression) is associated with poorer social functioning and less severe depressive symptoms than acute onset depression. (4)

- Acute traumatic brain injury depression is usually associated with neurophysiological or neurochemical processees provoked by brain injury whereas late onset depressions are provoked primarily by psychosocial factors. Anxiety symptoms, initial insomnia, diurnal mood variation, and perhaps decreased appetite and weight loss are generally clinical manifestations of a biologically determined depressive syndrome. On the other hand, terminal insomnia, loss of libido, and diminished ability to think or concentrate may be symptoms that emerge as distinguishing features of depression only after the acute effects of traumatic brain injury have subsided, and some recovery has taken place. (4)

- All post-traumatic brain injury major depressions are not the same. (4)

- The severity of depressive symptoms is not dependent totally upon the duration of loss of consciousness, duration of post-traumatic amnesia, or the presence of a skull fracture. (5)

- It is frequently observed that most patients who survive traumatic brain injury progress through predictable stages of recovery (coma, alertness, motor-sensory recovery, language recovery, memory improvement, and the return of higher cognitive functioning). The course of recovery, however, is quite variable. Generally speaking, the expected progression is gradual, and there is continuous improvement in each area of function until a plateau is reached. Emotional and cognitive impairments due to brain injury, however, are among the deficits that may deviate from the normal pattern of gradual, steady recovery. (6)

V. CONCLUSION

The etiology of depression in patients with TBI has still not been fully determined. The depression that follows TBI is probably due to a complex interaction among biological, psychological and social factors. Research has shown that complex psychological, cognitive, and social issues contribute more to the development of delayed onset depression than purely biological factors such as lesion type, size, and location. Early onset of depression is more likely to be related to neuroanatomic or neurochemical factors following traumatic brain injury. In many cases of depression, psychosocial-type deficits are often more predictive of adverse outcome rather than physical injury to the brain.

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