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Traumatic Brain Injury and PTSD

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Background Information

The conflicts in Iraq and Afghanistan have resulted in increased numbers of Veterans who have experienced traumatic brain injuries (TBI). The Department of Defense and the Defense and Veteran's Brain Injury Center estimate that 22% of all combat casualties from these conflicts are brain injuries, compared to 12% of Vietnam related combat casualties. 60% to 80% of soldiers who have other blast injuries may also have traumatic brain injuries. This fact sheet provides information on the classification and natural history of traumatic brain injury; comorbidities in the Veteran population; challenges in the diagnosis and treatment of these disorders; and special issues for families living with traumatic brain injury.

Classification and Natural History of Traumatic Brain Injuries (TBI)

Severity

Many patients and clinicians assume that the terms mild, moderate and severe TBI refer to the severity of symptoms associated with the injury. In fact these terms refer to the nature of the injury itself. Here are the accepted definitions:

- Mild traumatic brain injury is defined as a loss or alteration of consciousness < 30 minutes, post-traumatic amnesia < 24 hours, focal neurologic deficits that may or may not be transient, and/or Glasgow Coma Score (GCS) of 13-15.
- Moderate traumatic brain injuries entail loss of consciousness > 30 minutes, post-traumatic amnesia > 24 hours, and an initial GCS 9-12.
- Severe brain injuries entail all of the moderate criteria listed above, but with a GCS < 9.

Mild TBI

About 80% of all TBI's in the civilian population are mild traumatic brain injuries (mTBI). The primary causes of TBI's in the civilian population are falls, motor vehicle accidents, being struck by an object, and assaults. Immediately subsequent to the initial insult, 80% to 100% of patients with mTBI will experience one or more symptoms related to their injury, such as headache, dizziness, insomnia, impaired memory and/or lowered tolerance for noise and light. In most cases of mTBI the patient returns to their previous level of function within three to six months, and it is important to reassure patients about this fact. However, some 10% to 15% of patients may go on to develop chronic post-concussive symptoms. These symptoms can be grouped into three categories: somatic (headache, tinnitus, insomnia, etc.), cognitive (memory, attention and concentration difficulties and emotional/behavioral (irritability, depression, anxiety, behavioral dyscontrol). Patients who have experienced mTBI are also at increased risk for psychiatric disorders compared to the general population, including depression and PTSD.

In the military population, the emerging picture is somewhat different. The primary causes of TBI in Veterans of Iraq and Afghanistan are blasts, blast plus motor vehicle accidents (MVA's), MVA's alone, and gunshot wounds. Exposure

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to blasts is unlike other causes of mTBI and may produce different symptoms and natural history. For example, Veterans seem to experience the post-concussive symptoms described above for longer than the civilian population; some studies show most will still have residual symptoms 18-24 months after the injury. In addition, many Veterans have multiple medical problems. The comorbidity of PTSD, history of mild TBI, chronic pain and substance abuse is common and may complicate recovery from any single diagnosis. Given these special considerations, it is especially important to reassure Veterans that their symptoms are time-limited and, with appropriate treatment and healthy behaviors, likely to improve.

Moderate and Severe TBI

Patients with moderate and severe brain injuries often have focal deficits and occasionally profound brain damage. However, it should be noted that the severity of the initial injury does not correlate in a linear fashion with the severity of the brain damage, and that some of these patients can make remarkable recoveries. They may need ongoing cognitive and vocational rehabilitation, case management, and pharmacological intervention to return to their highest level of function.

Diagnosis

The diagnosis of TBI, associated post-concussive symptoms and other comorbidities such as PTSD, presents unique challenges for diagnosticians. No screening instruments available can reliably make the diagnosis; the gold standard remains an interview by a skilled clinician. The current VA screening tool is intended to initiate the evaluation process, not to definitively make a diagnosis.

Details of the original injury can be elusive. Patients with moderate and severe brain injuries often, though not always, have unequivocal evidence of the relationship of their symptoms to their injury. Patients who have experienced mTBI can be more difficult to diagnose. The brevity of the initial alteration of consciousness may cause the initial injury to go unnoticed and the patient may present some time after the original injury when details are unclear. Another factor is that these injuries can occur in chaotic circumstances, such as combat, and may be ignored in the heat of events. Clinicians may be presented with vague concerns and little relevant detail about the original injury; whenever possible, clinicians and patients should attempt to obtain supporting documentation. At minimum clinicians should elicit as detailed an injury history as possible.

Once the injury history has been established, the patient's course of recovery and remaining post-concussive symptoms should be documented. Because of the considerable symptom overlap between post-concussive symptoms and symptoms of many psychiatric and neurologic disorders, this process can be challenging. Clinicians should have a low threshold to consult available expertise when making these diagnoses.

Patients with TBI often meet criteria for PTSD on screening instruments for TBI and vice versa. Some of these positive screens may represent false positives, but many OEF/OIF Veterans have experience a mild traumatic brain injury AND ALSO have PTSD related to their combat experience.

Treatment

To manage this new injury profile, the VA has initiated the Polytrauma System of Care, which treats patients with traumatic brain injury who also have experienced musculoskeletal, neurologic and psychological trauma. Many of the most severely injured Polytrauma patients are already receiving treatment at one of the 4 Polytrauma Rehabilitation Centers or one of the 21 Polytrauma Network Sites. Patients with milder injuries may present for treatment at other locales, including their local VA's or in their communities. Regardless of where a patient engages in treatment initially, there is no "wrong door" for treatment and the VA is working to ensure that any barriers to access are minimized.

Randomized controlled trials have demonstrated that education for the patient and family early in the course of recovery can improve outcomes in patients with TBI and help to prevent the development of other psychological problems.

Unfortunately, for reasons outlined above, many patients and their families do not receive education early in the course of illness and may require intervention after symptoms have become well established. Currently, the VA encourages a recovery message when prognosis is discussed, and inclusion of the family in treatment planning.

Treatments for PTSD, mTBI and other comorbidities should be symptom-focused and evidence based in concurrence with current practice guidelines (available at VA/DoD Clinical Practice Guidelines). For example, early data shows that the treatments that have worked well in Veterans with PTSD alone, such as cognitive processing therapy, prolonged exposure or SSRI's, can also work well for Veterans who have suffered a mild traumatic brain injury as well as emotional trauma. Memory aids can also be useful in this population. Patients can also benefit from occupational rehabilitation and case management, depending on the severity of their injuries. Patient should be referred to consultants, such as neurologists, neuropsychologists, and substance abuse or other specialized treatment as needed.

Given the complexity of treatment plans for these Veterans, careful collaboration and coordination of care between all providers is a critical element of treatment success. The VA is exploring ways to enhance this collaboration, particularly in more community-based outpatient clinics and more rural environments.

Family Issues

TBI of any severity can disrupt families, in no small part because of family members' changing roles in response to the patient's difficulties, even if these problems ultimately improve. Immediate family involvement and education about the course of illness is crucial, and ongoing attention should be paid to family needs as time passes. Supporting families can improve outcomes by ensuring that the patient's recovery is not hampered by a deteriorating family situation. Many providers will not have the time or expertise to include families in all phases of treatment; again, clinicians should not hesitate to seek out available expertise and support groups early in the course of illness.

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