The Complexity of Psychiatric Trauma

Robert B. Perna*

Department of Behavioral Medicine, Walton Rehabilitation Health System, USA

Trauma can refer to a physical event/injury or an emotional response to a tragic event like an accident, rape, natural disaster, or act of terrorism. Many medical diagnoses and procedures may be considered traumatic as well. Emotionally overwhelming events can be traumatic for people of all ages and may cause significant and long-term physical and emotional symptoms. Society has had difficulty describing psychological trauma injuries. The labels chosen for these symptoms just never do justice in describing the scope or etiology of the symptoms. For example, traumatized and symptomatic soldiers throughout history have been described as suffering from shell shock (WWI), battle fatigue (WWII), PTSD (Vietnam), Gulf War Illness (Gulf War I), and others. Psychiatric trauma and physical trauma are often comorbid.

Following accidents, many times the apparent physical trauma will overshadow a co-occurring psychological trauma. This is easy to occur given the readily apparent presentation of many physical traumas. In acute care settings trauma is everywhere. Psychiatric trauma or accident-related psychological symptoms or problems are often overlooked during the acute medical treatment phase [1] or have not yet fully manifested. The person, who suffers a moderate to severe TBI or an SCI, may not fully be aware of the consequences of their injuries until weeks or months post injury. Not until psychological symptoms become evident are psycho-diagnostic and therapeutic measures undertaken. If such psychological problems persist, these issues may manifest in physical symptoms or behavioral changes. If these issues are not recognized early on and vigorously treated, recovery of the patient may be appreciably impaired.

There has been a growing public and healthcare provider understanding of posttraumatic stress disorder, particularly in its classic form involving nightmares, flashbacks and nightmares. However, trauma survivors don't always experience stereotypical PTSD symptoms. In fact, it is conceivable that many trauma survivors may significantly suffer in a diverse array of symptoms, even if never diagnosed. For many people, there are no outwardly visible signs of physical or psychological injury, but there can be nonetheless an emotional toll. It is common for people who have experienced disaster to have strong emotional reactions.

PTSD may be considered a psychological trauma, but there is considerable evidence suggesting it can result in long-term brain changes, alter the hypothalamic-pituitary-adrenal axis, and cause cognitive and related physical symptoms. As such, comorbid PTSD can significantly complicate differential diagnosis. In PTSD, neural networks representing information about trauma and fear become highly elaborated and accessible, which has implications and potential for over encoding and unintentional retrieval. For instance, an elaborated fear network may lower one's capacity to process non-threat related information, leading to attentional bias toward potential threats in the environment [2,3]. These trauma/fear cognitive networks have the potential to predispose an individual to interpret even innocuous stimuli as threatening.

Following trauma, many individuals feel stunned, disoriented or unable to integrate distressing information. Once these initial reactions subside, people can experience a variety of thoughts and behaviors. Common responses can be: Intense or unpredictable feelings, changes to thoughts and perhaps vivid memories of the trauma, Sensitivity to environmental factors that may stimulate memories of the trauma, and strained interpersonal relationships due to feeling on edge. For example it is not uncommon for multitrauma patients with TBIs to experience episodes of emotional dysregulation, and behavioral issues while in treatment. Longer term reactions include unpredictable emotions, flashbacks, strained relationships and even physical symptoms like headaches or nausea. Sometimes symptoms can be subtle and insidious, but can persist for many years.

Most people having experienced a traumatizing event will not develop PTSD [4]. If PTSD symptoms develop after a trauma, the PTSD symptoms may result when a traumatic event causes an over-reactive adrenaline response, which creates deep neurological patterns in the brain. These patterns can persist long after the event and are considered to be related to a dysregulated catecholamine system. Brain catecholamine levels are high in people with PTSD [5], and corticotropin-releasing factor concentrations are high [6]. Together, these findings suggest abnormality in the hypothalamic-pituitary-adrenal (HPA) axis. Hyperresponsiveness in the norepinephrine system can be caused by continued exposure to high stress. Overactivation of norepinephrine receptors in the prefrontal cortex can be associated with flashbacks and nightmares frequently experienced by those with PTSD. This pathophysiological explanation for PTSD suggests a maladaptive learning pathway to fear response through a hypersensitive, hyperreactive, and hyperresponsive HPA axis [7]. Dopamine levels in patients with PTSD can help contribute to the symptoms associated. Low levels of dopamine can contribute to anhedonia, apathy, impaired

attention, and motor deficits. Increased levels of dopamine can cause psychosis, agitation, and restlessness [8]. Other studies indicate that people that suffer from PTSD have chronically low levels of serotonin, which may contribute to the commonly associated behavioral symptoms such as anxiety, depression, irritability, aggression, and suicidality [8]. Though the diagnosis of PTSD is dichotomous, the effect of trauma on the individual and their nervous system probably more likely reflects a broad distribution. The brain changes associated with PTSD are well documented; however it is very unclear how trauma exposure affects the nervous system in the absence of diagnosed PTSD.

Journals such as the Journal of Trauma and Care can serve as a platform for diverse research exploring the effects of physical and emotional trauma and ideally the articles published will help trauma science further evolve. A translational science journal such as this can help provide the foundation for clinical new insights and paradigm shifts.

REFERENCES


