Progression in Understanding Combat Induced Mental Disorders

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Many names have been created to describe the combination of symptoms that soldiers face after returning from combat. Until recent advancements in science, there has not been much consensus as to the cause and proper treatment of disorders that had medical symptoms but had no visible injuries to cause them. During World War I, the large amount of manpower involved in the conflict, along with the corresponding large numbers of soldiers that became afflicted, made these disorders unignorable for governments and the medical community. During this time, there was a disagreement within the medical community as to whether the symptoms were caused by physical injuries to the brain or were psychological. The term shell-shock was coined by Psychologist Charles Samulel Myers in 1915 to describe the disorder but had no concrete definition.

Presently, the term post-traumatic stress disorder (PTSD) has been developed to describe the mental condition that develops in response to experiencing or witnessing an event that has the potential to cause death or great bodily harm. Unlike shell-shock, PTSD is a more generalized term, applied to events such as natural disasters, sexual assault, war, and automobile accidents as opposed to exclusively experiences in war. During a traumatic event, the brain causes the body to enter a state of self-preservation during which the sympathetic nervous system. This is the division of the nervous system responsible for regulating involuntary body functions such as sweat secretion and reflex adjustments of the cardiovascular system. In a stressful or dangerous situation, it releases large quantities of epinephrine from the adrenal gland, which causes an increase in heart rate, the widening of skeletal muscle blood vessels, and other effects which prepare the body to either fight, flee or freeze. PTSD occurs when the transition from this state to a responsive state brought about by the parasympathetic nervous system fails to happen.

The symptoms of PTSD fall within the realm of intrusive memories, avoidance of reminders of the traumatic event, adverse changes in thinking and mood, and changes in physical and emotional reactions. In a military context, PTSD is often seen as the leading cause of mental ailments, and thus, these injuries are described as solely psychiatric. However, some research suggests that this is not always the case. Besides PTSD, another affliction, blast-induced traumatic brain injury (bTBI), is another prevalent injury among troops. While these conditions often exist simultaneously and have similar symptoms, bTBI is a form of traumatic brain injury which is currently not very well understood and, therefore, more difficult to detect and treat. A common assumption in past years was that explosive blasts had similar effects to sports concussions and traffic accidents; however, recent studies have shown that there are physical differences in the brain that develop after experiencing a survivable blast (Denes V Agoston, MD and Alaa Kamnaks 2015).

In one case, scientists found that brains of deceased veterans that survived explosions and lived for years afterward had a unique honeycomb pattern of axonopathy or damage to nerve cells called axons, which are different damage patterns from other types of head injuries. These lesions were found in multiple areas of the brain, including the frontal lobe, which contains the parts responsible for personality expression and the execution of voluntary muscle movement. These findings could explain why the survivors went on to develop behavioral symptoms similar to those of athletes with concussions. (Ryu, J., Horkayne-Szakaly, I., Xu, L. et al. 2014). In another study that examined the brains of veterans post-mortem, dustlike scarring was found along the borders between grey matter and interconnecting white matter. This is different from the brain scarring caused by concussions in that it did not have a staining appearance on the tissue it affected. When compared to samples of people who had experienced ordinary concussions or had drug addictions (which have the potential to cause visible brain damage), it was found that the dust pattern was unique to bast survivors. (Sharon Baughman Shively, MD, Iren Horkayne-Szakaly, MD, Robert V Jones, MD, et al. 2016) These and similar studies provide a foundation for further study in trying to understand the different types of mental injuries sustained in war as not much is currently understood as to how exactly blasts cause

war were completely psychological; however, these advances have confirmed the existence of causes that, while previously suggested, were unable to be proven due to technological limitations.

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