Simple Fatigue or Old Traumatic Brain Injury?

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Traumatic Brain Injury (TBI) is the result of some trauma to the brain. It can be the result of a slip and fall accident, motor vehicle accident, sports injury, or any type of sudden, severe impact to the head that causes movement of the brain within the head. In addition to the damage at the time of injury, brain trauma can alter functions within the brain that may not show up for weeks or even months.

A mild TBI is a concussion, and may or may not cause loss of consciousness at the time of injury. A person may suffer some confusion, headaches, loss of mental clarity, attention deficits, sleep disturbance, irritability and mood swings. Even though an MRI may look normal, the effects of a mild TBI can be devastating and since some symptoms may not reveal themselves for some time, a person may not link the symptoms to the event. An example of this may be a football player who suffers a "mild concussion" and next week is on the field again. Suddenly months later, he begins having a little memory loss or maybe loses his sense of smell – some symptoms that don't necessarily remind him of his injury months back.

A severe TBI can affect speech, vision, taste, smell, hearing, balance, perception, and touch as well as emotions, memory, and other cognitive functions. Again, this type of injury, although severity is more evident at time of injury, may not show some symptoms for months or longer.

There are two phases of TBI: Phase I – which is the initial, acute phase of all traumas, and Phase II – which includes all the secondary cascades of inflammation that smolder for years causing progressive damage to the brain, and leading to presentation of psychological and cognitive impairment.

Based upon a 2010 report looking at only the USA, brain injuries are more common than we might think. A brain injury occurs every seven seconds, and results in a death every five minutes. This represents about 4.5 million brain injuries and 53,000 deaths a year. These numbers come from those who seek medical care, but the bulk of the injured never seek medical attention until the subtle neuropsychological changes start occurring.

About 50 percent of the TBIs are the result of motor vehicle accidents, bicycle or pedestrian – vehicle accidents. Falls are the second most common cause of TBI (20-30%), being more frequent among the elderly and the very young. Violence related assaults account for approximately 20% of TBI, almost equally divided into firearm and non-firearm assaults.

Alzheimer's disease is now being linked to the occurrence of traumatic brain injury. A 1999, report by the American Journal of Epidemiology acknowledged that those with TBI developed Alzheimer's much sooner that statistically anticipated. (1) Adding to this study was a study commissioned by the NFL reporting that Alzheimer's disease or similar memory related diseases (dementia) appear to have been diagnosed in the league's former players more often than in the national population – and at 19 times the normal rate for men ages 30 through 49.

Two areas of the brain that are frequently damaged after TBI are the pituitary gland, which controls many of our hormones, and the hypothalamus. The hypothalamus is one if the busiest parts of the brain, and is mainly concerned with the process of returning the system to its established "set point".

This is like putting your computer back to factory reset because it slowed down or got a virus. It is responsible for regulating hunger, thirst, response to pain, levels of pleasure, sexual satisfaction, anger and aggressive behavior. It also regulates the functioning of the autonomic nervous system, including pulse, blood pressure, breathing and arousal in response to many emotional circumstances.

The damage to these two centers in the brain causes hormone deficiencies. Changes in hormones may be apparent within days of the injury or may take years to manifest. Recent data suggests that pituitary deficiency is not infrequent amongst moderate to severe TBI survivors with as many as 40-50 percent of these patients reported to develop some degree of pituitary dysfunction. In mild TBI, the reports have varied from 23 to 84 percent of cases having from one or more hormone deficiencies.

Some of the hormones that may be affected by TBI include growth hormone, thyroid, testosterone, pregnenolone, progesterone, FSH (follicle stimulating hormone), LH (leutinizing hormone), and prolactin. Growth hormone deficiency is the first and most common of pituitary impairment. (4)

Over the years, a significant number of articles have promoted an associated decline in cognitive functioning with low levels of testosterone, progesterone, estrogens, thyroid hormones, growth hormone, and DHEA-S. (5) Many patients with fatigue, memory issues, depression, insomnia and weight gain have hormonal imbalances as a result of a prior traumatic brain injury. Studies have found that there are specific changes to the brain chemistry and hormones that occur after these injuries. With proper evaluation and treatment these imbalances can be corrected. Thanks to technology and new methods of radiologic testing, we are now able to detect some of these injuries.

Note: Dr. Tracie Leonhardt is an Advanced Fellow of the Academy of Anti-aging and Restorative Medicine, has a Certification in Traumatic Brain Injury and is Board Certified in Emergency Medicine.

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