

Traumatic Brain Injuries Are Increasingly Common, But Easily Missed

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The incidence of Traumatic Brain Injury (TBI) has increased dramatically in the United States in the last several years, and it may be a missing link in a host of seemingly unrelated physical and behavioral conditions.

Head trauma, even from minor incidents, can cause a wide range of simultaneous or discontinuous mental, emotional and physical ailments that may seem unrelated but can, if you look carefully, be traced to specific events. TBI can have profound negative consequences in many areas of a person's life, and the impact is not limited to the person suffering the initial injury. Since many sequelae are behavioral, TBI can cause significant suffering for family members, colleagues, and others in a patient's social circle.

There are a number of rapidly evolving and highly effective therapies for TBI. In my practice, I use nutritional supplementation, homeopathic protocols and neurofeedback, depending on each patient's specific needs. I'll describe these in the Fall edition of *Holistic Primary Care*. For now, let's focus on recognizing TBIs. Good therapeutic decision-making depends on accurate assessment. As primary care doctors, we can play an essential role in this, as we are often the first doctors these patients will visit. Odds are good you've already got patients suffering from consequences of TBI; it's a matter of learning to recognize them.

Every 23 Seconds

The Centers for Disease Control estimate that a head injury occurs at least once every 23 seconds, translating into approximately 1.5 million incidents yearly. Most researchers believe that number is low; the actual figure may be closer to 3 million each year. The most common cause of TBI is falls, followed by motor vehicle accidents (MVAs), physical contact (sports injuries), and assaults.

Most of these incidents do not result in overt physical damage, but there is growing concern that even so-called "mild" head trauma can cause long-lasting problems. A head injury need not result in loss of consciousness in order to cause long-term physical, cognitive, or behavioral changes. The trauma need not even involve direct impact to the head (Parker RS, Rosenblum A. *Clin Psychol*. 1996 Jan; 52(1): 32-43). The effects of a mild TBI can be delayed for weeks or months such that the patient does not even recognize the onset of symptoms (MacKenzie JD, et al. *Am J Neuroradiol*. 2002; 23: 1509-1515).

TBI can manifest in many ways, including but not limited to, headaches, seizures, sensory loss, difficulty concentrating, fatigue, depression, pituitary dysfunction, digestive

disorders, incontinence, depression, anxiety, insomnia and unpredictable behavior. Often it is a family member or loved one who first notices subtle cognitive changes, erratic behavior, or sudden problems with impulse control.

Many TBI patients, especially intelligent, high-function types, quickly learn to mask seemingly minor changes, so the problems may remain hidden for months or years. Most TBI patients do experience impairments in learning and performing new tasks (Zohar, Schreiber, et al. *Neuroscience*. 2003; 118(4): 949-955). In some functional domains, a person may not realize that s/he is having difficulty until the problem progresses, or other health problems push the difficulty to the surface.

Physical Effects

The physical effects of TBI can be very surprising to people new to the study of brain injury. Post-TBI effects can sometimes look like food allergies, Lyme disease, autoimmune conditions, and many other diagnoses. It is certainly possible that these other conditions are present before a head injury, and I don't mean to imply that TBI is always the cause. The point is that TBI can be the foundation for problems throughout the body. Physical symptoms of TBI include but are not limited to:

- Hyper/hypopituitarism
- Sensory loss or exaggeration
- Loss of motor control or coordination
- Bladder and bowel changes
- Headaches, including migraines
- Fatigue

Some people have migratory symptoms or seemingly unrelated symptoms that can, in fact, be linked to a brain injury. A key component of TBI is often unexplained anxiety and/or panic. This may be related to higher autonomic output of excitatory neurotransmitters such as adrenaline. Some TBI patients experience tachycardia, hyperventilation, and body temperature instability. These diverse symptoms reflect a combination of factors, including location and extent of injury, and how the brain's immune system affects other organ systems.

Hypopituitarism is common post-TBI, leading to imbalances that cannot be explained by looking at the endocrine system alone. Patients may experience problems in any of the hormonal system controlled by the pituitary (Agha A, et al. *J Clin Endocrinol Metab*. 2007; 89(10): 4929-4936). Diabetes insipidus, thyroid dysregulation, hypoadrenal states, and infertility can all arise from TBI. A patient who has pre-existing endocrine problems or is at-risk for hormonal imbalance should consult an endocrinologist within six months of any incident of head trauma (Ghigo E, Masel B. *Brain Inj*. 2005; 19(9): 711-724).

Sensory Changes

TBI often leads to sensory changes. Roughly 65% of patients have olfactory dysfunction (Callahan CD. *J Head Trauma Rehab*. 1999; 4(6): 581-587). Some also report changes in vision. Several of my patients found that their vision improved after treatment, and they had not even realized that their vision was impaired! Severe brain trauma can lead to more serious conditions such as Anton's syndrome and diplopia. Hearing loss can also be an issue; the tell-tale sign for this is unnecessarily loud talking, especially in someone who was previously sensitive to sound and decorum.

Some TBI patients describe changes in their ability to sense their bodies. I've had patients report nearly continuous tingling or total loss of sensation. Think about TBI in anyone experiencing changes in motor control and coordination. Hemiplegia, dysarthria, dysphagia and ataxia are common TBI sequelae. For example, TBI patients are often unable to touch their noses with their eyes closed. Some lose their ability to move gracefully.

Bowel and bladder changes are more common than previously realized (Schmulson MJ. *IMAJ*. 2001; 3(2): 104-110). These changes are related to neurotransmitter imbalances arising from the head injury. Many of my patients have reported resolution of long-standing Irritable Bowel Syndrome following treatment focused on their TBI.

TBI-related fatigue can be debilitating. Many patients report being unable to work or even get out of bed following accidents. A patient who came to me two years after a serious car accident reported that his ability to work was greatly reduced, and that he was profoundly tired even while on vacation.

Emotional Effects

Many people post-TBI show increased emotional lability, and may laugh or cry inappropriately. Some will show previously rare aggression or inappropriate social behavior. Abrupt changes in manner or courtesy (i.e., a previously polite person suddenly leaving out the "please's" and "thank you's") should raise a warning flag. Here are some common emotional changes following TBI:

- Loss of motivation
- Impaired social judgment
- Increased risk-taking
- Disregard for the future
- Anxiety and/or depression
- Failure to recognize impact of one's behavior on others
- Sudden increase in libido with a loss of libidinal control
- Poor grooming and hygiene
- Loudness not associated with hearing loss
- Indifference to the needs of others

(Vaishnavi S, et al. *Psychosomatics*. 2009; 50(3): 198-205. Zwill AS, et al. *New Dir Ment Health Serv*. 1993; (57): 109-115. Temkin NR, et al. *J Head Trauma Rehabil*. 2009; 24(6): 460-467).

With all of these emotional manifestations, the key feature is not so much the symptom itself as its relatively sudden, unpredicted onset. For example, when an otherwise socially-adjusted person starts acting out sexually six months after a head injury, you should think about TBI. The same holds when a previously cautious driver starts driving erratically. I had a patient who had never before been in a car accident, and then had five in a single year! This is a strong indicator that the first accident caused a TBI resulting in impaired spatial relations and judgment.

This raises an important point: statistically, a single TBI doubles the risk of a second one. Subsequently, the rates increase exponentially (Zemper E. *Am J Physical Med Rehab*. 2003; 8(9): 653-659. Annegers J, et al. *Neurology*. 1980; 30: 912-919). The effects of multiple TBIs are cumulative without treatment.

Cognitive Effects

TBIs usually impair the ability to remember and reason. Even a mild TBI—the easily written-off bump on the head, for example—can cause significant changes in memory.

In my experience, difficulty with attention is one of the most common reasons patients with previously undiagnosed brain injuries seek a doctor's help. TBI is related to Attention Deficit Hyperactivity Disorder (ADHD) in several ways. First, a TBI prior to age two doubles one's statistical risk of ADHD (Keenan BT. *Br Med J*. 2008; 337). Further, TBI can impair brain function and mimic ADHD symptoms such as loss of concentration, inability to focus, and impaired executive function.

In my experience, people with TBI almost always present with some mental/cognitive dysfunction that interferes with daily life tasks. But be aware that many people are really good at hiding cognitive dysfunction.

One of my TBI patients, who initially spoke only of increased anxiety, later commented after successful treatment that she did not realize she had been living in a "fog" for so long. The effect of treatment revealed the extent of cognitive dysfunction that had been ignored or unrecognized up until that point. TBI-associated cognitive impairment can be gradual and cumulative; patients are often unaware of the decline (Zohar O. *Neuroscience*. 2003; 118(4): 949-955).

How to Know If Someone Has a TBI

Generally, if you ask patients, "Have you ever had a brain injury?" they will answer, "No." People tend to forget or minimize the significance of "minor" incidents that did not cause physical damage, loss of consciousness, or hospitalization. If you ask specific and detailed questions, you'll get a much more accurate picture. I've found the following questions very helpful in eliciting good information:

- Have you ever been in a car accident?
- Do you play sports?
- Is your work dangerous?
- Do you ride horses, motorcycles, or bicycles?
- Do you ski?
- Have you ever felt dizzy after falling?
- Were you in the military? If so, what was your job?

A person may not remember a particular incident (keep in mind that TBIs cause memory dysfunction) but may recognize that their problems began at a particular time. I have had patients report that they "suddenly" had several seemingly unrelated health issues arise at the same time. This is a red flag for TBI.

I've also had patients who don't remember anything about an accident or other traumatic incident until I start treating them. In one case, a gentleman answered "No," to all of the aforementioned questions. I treated him presumptively, as I suspected TBI. Two weeks later, he told me he remembered falling off a ladder 10 years prior, and that many of his complaints started after that incident.

Treatment of TBI is possible, and the really good news is that the most effective treatments are safe, natural and generally helpful for healthy people as well. In the next article, I'll discuss how to treat TBI. In the mean time, be on the lookout for TBI symptom patterns among your patients; you'll be able to alleviate considerable suffering if you can identify these hidden-in-plain-sight problems. ☺

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