

Information for Patients

Mild Closed Head Injury and Headache

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Key Points:

1. *Mild traumatic brain injury (TBI) is common*
2. *TBI can be associated with significant disability*
3. *Concussion does not require loss of consciousness*
4. *Prolonged post-concussion symptoms are more common in those who expect disability, have psychological difficulties and in older age*
5. *Tension-type headache, occurs in nearly all for some time period*
6. *Treatment depends on the headache type, patient and provider*

Definitions

A traumatic brain injury (TBI) results when an object or blow hits the head. Other causes include a jolt to or shaking of the head. A closed head injury results when there is no entry through the skull into brain tissue. A mild injury means the person may be dazed, confused or lose consciousness for up to 30 minutes. Memory (amnesia) may exist for up to 24 hours. A concussion occurs when head injury causes a person to be dazed and confused or knock a person out or unconscious. Loss of consciousness is not required.

How common are these injuries?

There are about 1.7 million cases of TBI each year in the United States. About 75% result in mild closed head injury. The causes are: a motor vehicle accident (45%), falls (30%), job related accidents (10%), recreational accidents (10%), and assaults (5%). American football, ice hockey, soccer, boxing, and rugby are common sports related causes. In football alone, an estimated 10 percent of US college and 20 percent of US high school players suffer brain injuries each season. As many as 360,000 U.S. troops have suffered brain injuries, mostly concussions, representing about 20 percent of the 1.8 million who have served in Iraq and Afghanistan. About 75% of these injuries are due to blast trauma due to improved explosive devices and rocket propelled grenades.

How might mild traumatic brain injury or concussion actually damage the brain?

Mild TBI results from bruises on the surface of the brain, damage to nerves and release of excitatory nerve transmitters. A repeat concussion that occurs before the brain recovers from the first—usually within hours, days, or weeks—can rarely result in brain swelling, permanent brain damage, and even death. This condition is called second impact syndrome. This is especially important in athletes who should not return to play until they have recovered. Information is available for high school players, parents and coaches at http://www.cdc.gov/ncipc/tbi/Coaches_Tool_Kit.htm and also <http://www.aan.com/practice/guideline> under brain injury under Management of Concussion in Sports.

What is the post-concussion syndrome (PCS)?

Post-concussion syndrome is a set of complaints that a person experiences for weeks, months, or sometimes years after a concussion. The most common PCS complaints are headaches, dizziness, fatigue, irritability, anxiety, insomnia, loss of concentration and memory, and noise sensitivity. Other symptoms can include ringing in the ears, hearing loss, blurred vision, light and noise sensitivity, decreased smell and taste, depression, personality change, post-traumatic stress disorder, decreased sex drive, and nausea and sometimes vomiting. One or more PCS complaints occur in about 50% (38-80%) of people with a mild closed head injury. It is not known with any certainty why PCS occurs and sometimes lasts long periods of time. Persistent or prolonged PCS (PPCS) is associated with increased risk when preexisting psychological conditions, expectations of disability and older age are present. For most, memory and concentration problems are better within 3 months.

Are tests or further evaluation helpful?

Scans of the brain such as CT or MRI are usually normal or show slight bruising of the brain. Rarely, a mild head injury can cause a blood clot on the brain (a subdural or epidural hematoma) which can be seen on the scan. Brain wave tests (EEG) are not helpful unless seizures are suspect. If memory problems continue, a battery of memory tests, called neuropsychological tests, can be obtained. Additional evaluation depends upon the symptoms. For example, evaluation by an ENT specialist for dizzy spells, ophthalmologist for blurred or double vision, or neurologist for persistent headaches or memory problems.

Post-traumatic headaches

Headaches occur in up to 90% of persons who have symptoms from mild head injuries. Post-traumatic headaches are more common in those who have a prior history of headaches. The headaches start within 7 days after the injury according to official criteria. Many people have more than one type of headache.

What types of headaches occur?

About 85% are tension type. The pain can be infrequent or intermittent or as often as daily and constant. Pain quality is typically pressure, tight, or dull aching. The headache can be all over the head, the back of the head and the neck, across the forehead, the temples, around or on top of the head. Some people have pain maximum at the back of the head, often diagnosed as greater occipital neuralgia (ON). This may be due to a blow to the back of the head or tight muscles pinching this nerve which is responsible for feeling over the back of the scalp. There may be an aching, pressure, stabbing, or throbbing pain in the back of the head. It may also be felt additionally or instead in the sides or in the front of the head or behind or around the eye. ON can be on one or both sides. About 15% have migraine headaches which occur for the first time due to the head injury. Acute migraine headaches can also be triggered by minor dings or impacts on the head in those with a history of migraine. This can occur in soccer players who head the ball or football players after minor head injuries. Injury of the nerve above the eyebrow can cause shooting, tingling, aching or burning pain along with decreased or altered feeling of the forehead.

How long before the headaches get better?

The headaches are still present in up to 78% of people 3 months after the injury, 35% after 1 year, and 24% after 2 years.

How are the headaches treated?

Good sleep, exercise to tolerance, relaxation and stress management, reduced caffeine, regular healthy eating and avoidance of acute symptomatic medication overuse are recommended regardless of headache severity or type. Use Physical therapy for tension type headaches when a neck pain or injury is also present. Biofeedback training is worth exploring. ON can be treated by an injection around the irritated nerve with a local anesthetic sometimes combined with a steroid medication. Both acute and preventative medications are used determined by headache type(s).

Education

Many people are reassured to learn that their symptoms are not unique or crazy but are instead part of a well-described medical condition. Too many people believe that mild head injuries are not serious. Perhaps this is from watching too many make believe injuries in movies and on television. The trauma (TBI) often looks serious in action, martial arts, Western, detective, and sports stories (and in real life would be deadly) but nothing much happens to the actor. In cartoons or comedies, like "Road Runner or the Three Stooges," head trauma is even funny. People hopefully realize how serious mild head injuries can be when they think about professional athletes who have had to retire because of football, hockey, and boxing concussions.

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