



YELM FAMILY MEDICINE, PLLC

## Committed to your health and our community National Traumatic Brain Injury (TBI) Awareness Month

## IN THIS ISSUE

### Traumatic brain injury

#### Overview

Traumatic brain injury usually results from a violent blow or jolt to the head or body. An object that penetrates brain tissue, such as a bullet or shattered piece of skull, also can cause traumatic brain injury.

Mild traumatic brain injury may affect your brain cells temporarily. More-serious traumatic brain injury can result in bruising, torn tissues, bleeding and other physical damage to the brain. These injuries can result in long-term complications or death.

#### Symptoms

Traumatic brain injury can have wide-ranging physical and psychological effects. Some signs or symptoms may appear immediately after the traumatic event, while others may appear days or weeks later.

#### Mild traumatic brain injury

The signs and symptoms of mild traumatic brain injury may include:

#### Physical symptoms

- Loss of consciousness for a few seconds to a few minutes
- No loss of consciousness, but a state of being dazed, confused or disoriented
- Headache
- Nausea or vomiting
- Fatigue or drowsiness
- Problems with speech
- Difficulty sleeping
- Sleeping more than usual
- Dizziness or loss of balance

#### Sensory symptoms

- Sensory problems, such as blurred vision, ringing in the ears, a bad taste in the mouth or changes in the ability to smell
- Sensitivity to light or sound

#### Cognitive or mental symptoms

- Memory or concentration problems
- Mood changes or mood swings
- Feeling depressed or anxious

#### Moderate to severe traumatic brain injuries



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Moderate to severe traumatic brain injuries can include any of the signs and symptoms of mild injury, as well as these symptoms that may appear within the first hours to days after a head injury:

### Physical symptoms

- Loss of consciousness from several minutes to hours
- Persistent headache or headache that worsens
- Repeated vomiting or nausea
- Convulsions or seizures
- Dilation of one or both pupils of the eyes
- Clear fluids draining from the nose or ears
- Inability to awaken from sleep
- Weakness or numbness in fingers and toes
- Loss of coordination

### Cognitive or mental symptoms

- Profound confusion
- Agitation, combativeness or other unusual behavior
- Slurred speech
- Coma and other disorders of consciousness

### Children's symptoms

Infants and young children with brain injuries might not be able to communicate headaches, sensory problems, confusion and similar symptoms. In a child with traumatic brain injury, you may observe:

- Change in eating or nursing habits
- Unusual or easy irritability
- Persistent crying and inability to be consoled

- Change in ability to pay attention
- Change in sleep habits
- Seizures
- Sad or depressed mood
- Drowsiness
- Loss of interest in favorite toys or activities

### When to see a doctor

Always see your doctor if you or your child has received a blow to the head or body that concerns you or causes behavioral changes.

Seek emergency medical care if there are any signs or symptoms of traumatic brain injury following a recent blow or other traumatic injury to the head.

The terms "mild," "moderate" and "severe" are used to describe the effect of the injury on brain function. A mild injury to the brain is still a serious injury that requires prompt attention and an accurate diagnosis.

In 2010, The Platelet Disorder Support Association announced the designation of the month of September as national ITP Awareness Month<sup>SM</sup>. PDSA requested this designation as part of our ongoing commitment to increase public understanding of ITP and other platelet disorders and to connect patients and caregivers with life-altering resources and support.

PDSA was founded to ensure patients would no longer travel the ITP journey feeling confused, lost, frightened and alone. To ensure that this rare diagnosis wasn't accompanied by limited or no information and resources and to encourage research and better treatment options for patient-

centered outcomes. While PDSA has always worked to encourage this progress, prior to 2010, there was no awareness month or color dedicated to understanding ITP and other platelet disorders. Causes

Traumatic brain injury is usually caused by a blow or other traumatic injury to the head or body. The degree of damage can depend on several factors, including the nature of the injury and the force of impact.

Common events causing traumatic brain injury include the following:

- **Falls.** Falls from bed or a ladder, down stairs, in the bath and other falls are the most common cause of traumatic brain injury overall, particularly in older adults and young children.
- **Vehicle-related collisions.** Collisions involving cars, motorcycles or bicycles — and pedestrians involved in such accidents — are a common cause of traumatic brain injury.
- **Violence.** Gunshot wounds, domestic violence, child abuse and other assaults are common causes. Shaken baby syndrome is a traumatic brain injury in infants caused by violent shaking.
- **Sports injuries.** Traumatic brain injuries may be caused by injuries from a number of sports, including soccer, boxing, football, baseball, lacrosse, skateboarding, hockey, and other high-impact or extreme sports. These are

particularly common in youth.

- **Explosive blasts and other combat injuries.** Explosive blasts are a common cause of traumatic brain injury in active-duty military personnel. Although how the damage occurs isn't yet well-understood, many researchers believe that the pressure wave passing through the brain significantly disrupts brain function.

Traumatic brain injury also results from penetrating wounds, severe blows to the head with shrapnel or debris, and falls or bodily collisions with objects following a blast.

#### Risk factors

The people most at risk of traumatic brain injury include:

- Children, especially newborns to 4-year-olds
- Young adults, especially those between ages 15 and 24
- Adults age 60 and older
- Males in any age group

#### Complications

Several complications can occur immediately or soon after a traumatic brain injury. Severe injuries increase the risk of a greater number and more-severe complications.

#### Altered consciousness

Moderate to severe traumatic brain injury can result in prolonged or permanent changes in a person's state of consciousness, awareness or responsiveness. Different states of consciousness include:

- **Coma.** A person in a coma is unconscious, unaware of anything and unable to respond to any stimulus. This results from widespread damage to all parts of the brain. After a few days to a few weeks, a person may emerge from a coma or enter a vegetative state.
- **Vegetative state.** Widespread damage to the brain can result in a vegetative state. Although the person is unaware of surroundings, he or she may open his or her eyes, make sounds, respond to reflexes, or move.

It's possible that a vegetative state can become permanent, but often individuals progress to a minimally conscious state.

- **Minimally conscious state.** A minimally conscious state is a condition of severely altered consciousness but with some signs of self-awareness or awareness of one's environment. It is sometimes a transitional state from a coma or vegetative condition to greater recovery.
- **Brain death.** When there is no measurable activity in the brain and the brainstem, this is called brain death. In a person who has been declared brain dead, removal of breathing devices will result in cessation of breathing and eventual heart failure. Brain death is considered irreversible.

#### Physical complications

- **Seizures.** Some people with traumatic brain injury will develop seizures. The seizures may occur only in the early stages, or years after the injury. Recurrent seizures are called post-traumatic epilepsy.
- **Fluid buildup in the brain (hydrocephalus).** Cerebrospinal fluid may build up in the spaces in the brain (cerebral ventricles) of some people who have had traumatic brain injuries, causing increased pressure and swelling in the brain.
- **Infections.** Skull fractures or penetrating wounds can tear the layers of protective tissues (meninges) that surround the brain. This can enable bacteria to enter the brain and cause infections. An infection of the meninges (meningitis) could spread to the rest of the nervous system if not treated.
- **Blood vessel damage.** Several small or large blood vessels in the brain may be damaged in a traumatic brain injury. This damage could lead to a stroke, blood clots or other problems.
- **Headaches.** Frequent headaches are very common after a traumatic brain injury. They may begin within a week after the injury and could persist as long as several months.
- **Vertigo.** Many people experience vertigo, a condition characterized by

dizziness, after a traumatic brain injury.

Sometimes, any or several of these symptoms might linger for a few weeks to a few months after a traumatic brain injury. This is currently referred to as persistent post-concussive symptoms. When a combination of these symptoms last for an extended period of time, this is generally referred to as post-concussion syndrome.

Traumatic brain injuries at the base of the skull can cause nerve damage to the nerves that emerge directly from the brain (cranial nerves). Cranial nerve damage may result in:

- Paralysis of facial muscles or losing sensation in the face
- Loss of or altered sense of smell
- Loss of or altered sense of taste
- Loss of vision or double vision
- Swallowing problems
- Dizziness
- Ringing in the ear
- Hearing loss

### **Intellectual problems**

Many people who have had a significant brain injury will experience changes in their thinking (cognitive) skills. It may be more difficult to focus and take longer to process your thoughts. Traumatic brain injury can result in problems with many skills, including:

### **Cognitive problems**

- Memory
- Learning

- Reasoning
- Judgment
- Attention or concentration

### **Executive functioning problems**

- Problem-solving
- Multitasking
- Organization
- Planning
- Decision-making
- Beginning or completing tasks

### **Communication problems**

Language and communications problems are common following traumatic brain injuries. These problems can cause frustration, conflict and misunderstanding for people with a traumatic brain injury, as well as family members, friends and care providers.

Communication problems may include:

### **Cognitive problems**

- Difficulty understanding speech or writing
- Difficulty speaking or writing
- Inability to organize thoughts and ideas
- Trouble following and participating in conversations

### **Social problems**

- Trouble with turn taking or topic selection in conversations
- Problems with changes in tone, pitch or emphasis to express emotions, attitudes or subtle differences in meaning

- Difficulty understanding nonverbal signals
- Trouble reading cues from listeners
- Trouble starting or stopping conversations
- Inability to use the muscles needed to form words (dysarthria)

### **Behavioral changes**

People who've experienced brain injury often experience changes in behaviors. These may include:

- Difficulty with self-control
- Lack of awareness of abilities
- Risky behavior
- Difficulty in social situations
- Verbal or physical outbursts

### **Emotional changes**

Emotional changes may include:

- Depression
- Anxiety
- Mood swings
- Irritability
- Lack of empathy for others
- Anger
- Insomnia

### **Sensory problems**

Problems involving senses may include:

- Persistent ringing in the ears
- Difficulty recognizing objects
- Impaired hand-eye coordination

- Blind spots or double vision
- A bitter taste, a bad smell or difficulty smelling
- Skin tingling, pain or itching
- Trouble with balance or dizziness

### Degenerative brain diseases

Research suggests that repeated or severe traumatic brain injuries might increase the risk of degenerative brain diseases. But, this risk can't be predicted for an individual — and researchers are still investigating if, why and how traumatic brain injuries might be related to degenerative brain diseases.

A degenerative brain disorder can cause gradual loss of brain functions, including:

- Alzheimer's disease, which primarily causes the progressive loss of memory and other thinking skills
- Parkinson's disease, a progressive condition that causes movement problems, such as tremors, rigidity and slow movements
- Dementia pugilistica — most often associated with repetitive blows to the head in career boxing — which causes symptoms of dementia and movement problems

### Prevention

Follow these tips to reduce the risk of brain injury:

- **Seat belts and airbags.** Always wear a seat belt in a motor vehicle. A small child should always sit in the back seat of a car secured in a child safety seat or booster seat that is appropriate for his or her size and weight.
- **Alcohol and drug use.** Don't drive under the influence of alcohol or drugs, including prescription medications that can impair the ability to drive.
- **Helmets.** Wear a helmet while riding a bicycle, skateboard, motorcycle, snowmobile or all-terrain vehicle. Also wear appropriate head protection when playing baseball or contact sports, skiing, skating, snowboarding or riding a horse.

### Preventing falls

The following tips can help older adults avoid falls around the house:

- Install handrails in bathrooms
- Put a nonslip mat in the bathtub or shower
- Remove area rugs
- Install handrails on both sides of staircases
- Improve lighting in the home
- Keep stairs and floors clear of clutter
- Get regular vision checkups

- Get regular exercise

### Preventing head injuries in children

The following tips can help children avoid head injuries:

- Install safety gates at the top of a stairway
- Keep stairs clear of clutter
- Install window guards to prevent falls
- Put a nonslip mat in the bathtub or shower
- Use playgrounds that have shock-absorbing materials on the ground
- Make sure area rugs are secure
- Don't let children play on fire escapes or balconies

