

Traumatic Brain Injury

More than 1 million head injuries occur every year in the United States. From these injuries, 52,000 individuals die, and 800,000 persons have permanent disability. These injuries cost more than \$40 billion each year. Because head injuries (also known as **traumatic brain injuries**) are common and may have such devastating effects, preventing them is critical.

Traumatic brain injury is the result of a blow to the head. This can come from a fall, a vehicle crash, an assault, or shaking a baby. The brain tissue itself may be hurt, the blood vessels can rupture and cause bleeding, or a combination of these injuries may occur. **Concussion** (a temporary loss of brain function), **contusion** (bruising of the brain), **fracture** (broken skull bones), and **hematoma** (blood clot) are all types of traumatic brain injury. The June 11, 2003, issue of JAMA includes an article about use of **hypothermia** (lowered body temperature) in treating traumatic brain injury.

SYMPTOMS OF BRAIN INJURY

- Headache
- Fatigue
- Memory loss
- Confusion
- Loss of consciousness
- Dizziness
- **Tinnitus** (ringing in the ears)
- Nausea or vomiting

PREVENTING BRAIN INJURY

- Wear a seatbelt when riding in a motor vehicle.
- Wear a helmet for motorcycle riding, bicycle riding, or other activities that risk head injury.
- Use alcohol only in moderation and never while driving or boating.
- Assist the elderly in maintaining a safe environment and preventing falls.

DIAGNOSTIC TOOLS AND TREATMENT FOR BRAIN INJURY

- **Computed tomographic (CT)** scan tests use high-speed x-rays. CT images can show swelling, bleeding, or compression of brain tissue.
- **Magnetic resonance imaging (MRI)** tests use magnetic energy to produce detailed pictures of brain tissue, bones, and other structures.
- Oxygen may be given by mask, nasal tubing, or **ventilator** (breathing machine). Individuals who are unconscious (**comatose**) may require a ventilator to breathe for them.
- Medicines to prevent or treat seizures, decrease brain swelling, control agitation, or control blood pressure may be given to patients with brain injury. The more severe the injury, the more medications and treatments are required.
- **Hypothermia** (lowered body temperature) has been shown in some medical studies to help improve recovery after a severe traumatic brain injury. This must be done as part of intensive care for a severe brain injury and must be carefully monitored. Further research is required to determine the effectiveness of this treatment.
- After the **acute phase** (first part) of care for the injury, persons with traumatic brain injury often receive intensive rehabilitation to maximize their **functional level** (make the most of what they are able to do) and improve their overall recovery.

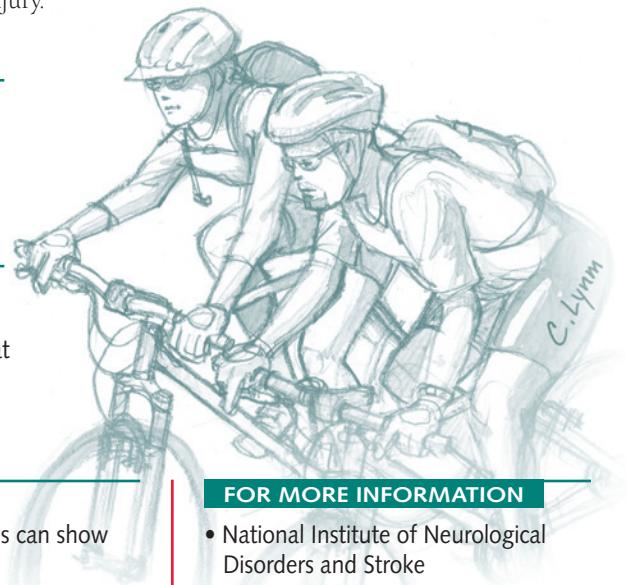
Sources: National Institute of Neurological Disorders and Stroke, Brain Injury Association of America, Brain Trauma Foundation

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FOR MORE INFORMATION

- National Institute of Neurological Disorders and Stroke
www.ninds.nih.gov
- Brain Injury Association of America
800/444-6443
www.biausa.org
- Brain Trauma Foundation
212/772-0608
www.braintrauma.org

INFORM YOURSELF

To find this and previous JAMA Patient Pages, go to the Patient Page link on JAMA's Web site at www.jama.com. Many are available in English and Spanish. A Patient Page on preventing head injury was published in the September 8, 1999, issue.

