Educational and Medical Interventions for Students with Traumatic Brain Injuries

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October 24, 2005
Individuals with Disabilities Education Act (IDEA) defines traumatic brain injury as...

“...an acquired injury to the brain caused by an external physical force, resulting in total or partial functional disability or psychosocial impairment, or both, that adversely affects a child’s educational performance. The term applies to open or closed head injuries resulting in impairments in one or more areas, such as cognition; language; memory; attention; reasoning; abstract thinking; judgment; problem-solving; sensory, perceptual, and motor abilities; psycho-social behavior; physical functions; information processing; and speech. The term does not apply to brain injuries that are congenital or degenerative, or to brain injuries induced by birth trauma.”

[34 Code of Federal Regulations §300.7(c)(12)]
Acquired Brain Injury (ABI)

Injury to the brain which is not hereditary, congenital or degenerative that has occurred after birth. ABI includes TBI and internally caused brain injuries such as:

Anoxia
Aneurysms
Infections to the brain
Stroke
TBI
A Few Statistics

• An estimated 5.3 million Americans (more than 2% of the population) live with disabilities resulting from TBI

• Every 21 seconds, one person in the U.S. sustains a TBI

• Brain injury is the leading cause of death and disability in children and young adults in the United States.

• The highest incidence of TBI is for youth and young adults ages 15-24

• The second highest incidence of TBI is for young children ages birth-three

• The schools are the single largest provider of services to students with brain injury
Severity of TBI

• Mild - brief or no loss of consciousness - concussion
• Moderate - coma or LOC less than 24 hours
• Severe - coma or LOC more than 24 hours

Severity of injury does not necessarily reflect the severity of the effects of a brain injury.
The Thinking Brain - Cerebral Cortex

- Frontal Lobe
- Parietal Lobe
- Occipital Lobe
- Temporal Lobe
- Cerebellum
- Brain Stem
The Feeling Brain -
Limbic System
Neuronal Transmission
Blood Flow to the Brain

[Diagram of blood flow to the brain with color coding for different arteries]
Impairments Resulting From Brain Injury

**Physical**
- Mobility
- Coordination/balance
- Skilled motor activity
- Vision/hearing
Impairments Resulting From Brain Injury

**Perceptual-Motor**

• Visual neglect/field cuts
• Motor apraxia/sequencing
• Motor speed
Impairments Resulting From Brain Injury

**Cognitive**

- Attention
- Memory/New learning
- Conceptual skills/abstraction
- Problem-solving/ Decision-making
- Initiation
- Self-Monitoring
Impairments Resulting From Brain Injury

**Communication**

- Articulation
- Tangential speech
- Word-finding
- Perseveration/ hyperveral
- Confabulation
- Reading comprehension
- Writing
Behavior

- Impulsivity/disinhibition
- Poor judgment
- Poor motivation/apathy/lethargy
- Emotional lability/angry outbursts/depression
- Poor goal-setting and planning
Impairments Resulting From Brain Injury

**Social**

- Withdrawal
- Inability to learn from social interactions
- Argumentative
- Lack of empathy
- Irresponsibility and lack of dependability
Differences Between TBI and Other Disability Categories

- May be dramatic changes in the student from pre-injury
- The psychological trauma and PTSD
- Neurological basis for behavioral problems
- Recovery and constant change
- Family impact (fear, role shifts, financial, uncertainty, etc)
- Ongoing medical and rehabilitation needs
- Lack of information, awareness, and professional training
- Uneven cognitive profile and “Swiss cheese” memory
- Behavior management strategies used for other students may not be effective
- Standardized assessment may be inappropriate for the student with TBI
Educational Considerations

- The Family
- Assessment
- IEP Process
- Interaction between brain, injury and development
- Transition
- Compensatory Strategies
An Excellent Resource:

Brain Injury and the Schools: A Guide for Educators

Brain Injury Association of Virginia
www.biav.net

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