Brain Injury Basics: Behaviors & Symptoms

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Alliance Mission:
To raise awareness and enhance the quality of life for all people affected by brain injury

Introductions and Preliminary Questions
Acquired Brain Injury

• An injury to the brain that is:
  • Not inherited
  • Not present at birth
  • Not caused by birth trauma
  • Is not degenerative/progressively worsening

-Brain Injury Association of America (n.d.)
Acquired Brain Injury

Traumatic (TBI)
- Falls
- Assault
- Motor Vehicle Accidents
- Incidental Contact

Non-Traumatic
- Oxygen deprivation
- Surgery
- Infectious Diseases
- Toxic Exposure
- Stroke

How do we talk about Brain Injury?

- What’s in a label?
  - Mild vs. Moderate vs. Severe

- Terminology matters. You may hear:
  - “I’ve never had a TBI, but I have....
    - ...gotten a concussion
    - ...had my bell rung
    - ...been knocked out
    - ...

Pediatric TBI

Unintentional injuries leading cause of death in children ages 0-14
- 475,000 sustain TBI each year
- 90% return home with mild injury

- Age/gender discrepancies:
  - Boys more likely than girls to undergo emergency consultation
  - Higher rate of death among children under 4

- Most brain maturation occurs from birth to age 5
Abusive Head Trauma

- **Generic term for any trauma to the head**
  - Includes primary injury as well as secondary injury, making it broader than diagnosis of shaken-baby syndrome
- **Incidence**
  - Estimated to occur in between 14 to 40 in 100,000 children aged less than 1 year
  - 75-80% of children affected by AHT will have long-term disability
  - Deficits may not appear until later in development
‘Once you have seen one TBI, you have seen one TBI’
Outline

- Introductory brain injury facts
- Possible post-injury changes
- Practice navigating symptoms
- Tools for professionals

Simplified brain structure/function

Frontal Lobe
- Initiation
- Problem-solving
- Flexibility
- Inhibits of behavior
- Planning/anticipate
- Self-monitoring
- Motor planning
- Personality/emotions
- Awareness of abilities/limitations
- Organization
- Attention/concentration
- Mental flexibility
- Speaking (expressive language)

Temporal Lobe
- Memory
- Hearing
- Understanding language (receptive language)
- Organization and sequencing

Parietal Lobe
- Sense of touch
- Differentiation: size, shape, color

Cerebellum
- Balance
- Coordination
- Skilled motor activity

Brain Stem
- Life-sustaining functions
- Arousal/consciousness
- Sleep/wake
- Attention/concentration

Occipital Lobe
- Vision

Limbic System
- Drives and survival
- Fight/flight/fear
- Sex
- Emotional perception
- Hippocampus/amygdala
- Memory

Changes to thinking

- Speed of processing information
- Language
Basketball is at 9:30am in the small gymnasium.
**Changes to thinking**

- Spatial reasoning
- Organization and sequencing
- Memory

**Changes to thinking: executive functions**

- Controlling and directing thought processes
- Checks and balances
  - emotion and behavior
- Beginning/energizing actions

**Changes to thinking: metacognition**

- Awareness of abilities
- Ability to “time travel”

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*How well can the individual connect the dots?*
Changes to thinking: Confabulation

- Unintentionally giving false information without awareness.

(Hebscher et al. 2016)

Emotional changes

- PTSD
- Depression
  - Biological and psychological factors
  - Comparison of pre vs post injury self
    - loss of self esteem
    (Caudal & Goutin, 2011)
- Anxiety
- Increased risk for suicidal thoughts or actions

(Mackelprang et al., 2014)

Physical/sensory changes

- Fatigue
- Pain
- Seizures
- Bladder/bowel
- Hormonal changes
- Sleep

- Physical movement
- Sense of touch
- Balance and coordination

(Caudal & Goutin, 2011)
**It’s Harder Than You Think**

1. Slightly lift your dominant foot off the floor
2. Begin circling that foot clockwise
3. With your dominant hand, write your whole name in cursive

**Physical/sensory changes**

- Sensitivity
  - Light
  - Sound
- Other changes to vision/hearing

**Outline**

- Introductory brain injury facts
- Possible post-injury changes
  - Practice navigating symptoms
- Tools for professionals
Visible behavior

Has emotional ‘melt down’ or becomes agitated

Does not follow directions

Possible Symptom of BI

Has emotional ‘melt down’ or becomes agitated

Sensory overload, emotional regulation, information overwhelm, frustrated by difficulties, fatigue

Low sensory break, simplification of task, scheduled rest periods

Try

Does not follow directions

Communication, vision, memory difficulty, attention, slow processing speed

Picture, slower communication, repetition, post rule, check for comprehension

Outline

- Introductory brain injury facts
- Possible post-injury changes
- Practice navigating symptoms
- Tools for professionals
“How do I know if someone has a TBI?”

- There is no “TBI detector”
- TBI is often invisible
- Can be hard to recognize in children

- Possible signs:
  - Reporting of significant crashes or hospitalizations
  - Discussion of being “knocked out”
  - Scars or hair line changes
  - Difficulties that get worse throughout the day or with fatigue

Screening for brain injury

- Ask about:
  - possible causes of injury in individual’s history
  + symptoms after the possible injury

- HELPS:
  - Acronym and tool for identifying brain injury:

De-escalation techniques

- Use individual’s name or introduce yourself
- Establish that your role is to understand so you can help
- Give the individual physical space
- Steady, calm communication
- Have a singular person speak
- Short sentences, simple vocabulary
- Repetition of information with time to process
- Show you’re listening: rephrase and clarify their statements
- Ask the individual what has worked for them in the past in these situations
**Communication**
- Slow it down
- Simple, direct, concrete statements
- Check for comprehension
- Alternative communication
- Ask if they’d like assistance with word finding
- Play “catchphrase” if needed

**Memory**
- Create check lists
- Ensure important info is written down in easily visible location
- Reminders
- Routine
- Repetition, repetition, repetition
- Facilitate PRACTICE of strategies

**Concentration**
- Minimize distractions
- Avoid multi-tasking
- Break down tasks, work sequentially
- Checklists
**Impulsivity**

- Encourage practice of Stop, think, act
- Nonverbal cue
- Deep-breathing techniques – learn and use during any sudden urges

  - Rao and Vaishnavi (2015): The Traumatized Brain

**Anger/agitation**

- Discuss consequences of aggression during later, calm time
  - Rao and Vaishnavi (2015): The Traumatized Brain
  - Provide a low-sensory break and try again later

**General “behaviors”**

- What’s the reason for the negative behavior?
- Look for triggers
- ABCs: Antecedents, behaviors, consequences
Antecedent: An event that happens before a challenging behavior

Behavior: How the offender reacts

Consequence: An event that immediately follows the challenging behavior

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<tr>
<th>A</th>
<th>B</th>
<th>C</th>
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<tbody>
<tr>
<td>Individual is in the dining area. Lights are bright and the area is noisy.</td>
<td>Individual becomes upset and verbally aggressive.</td>
<td>Individual is sent back to his cell alone.</td>
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Think an individual has a TBI?
- Be on the lookout for how symptoms may show up as day-to-day difficulties
- Try symptom navigation strategies
- Inform co-workers of possible symptoms/strategies
- Talk to transition team
Resources

- Strategies for navigating symptoms:
  - TBI A to Z
  - Ohio State University:
    - [http://ohiovalley.org/informationeducation/accommodatingtbi/accommodationpresentation/](http://ohiovalley.org/informationeducation/accommodatingtbi/accommodationpresentation/)
  - TBI model systems
    - [https://msktc.org/tbi/tbi-resources](https://msktc.org/tbi/tbi-resources)

Support

- Survivors, caregivers, professionals
- Case management, care coordination, Resource Facilitation

Education

- Workshops, conferences, trainings

Advocacy

- Personal, legislative

Resource Facilitation

- Phone based support program provides:
  - Education about brain injury and recovery
  - Personalized information
  - A listening ear for concerns
  - Assistance with solutions
  - Referrals to supportive services and people
Thank you for your time and attention!

Questions?
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