Learning Objectives

- You will be able to explain the connection between brain injury and substance use disorder.
- You will learn how to identify if an individual has a brain injury and common signs/symptoms.
- You will learn strategies to work effectively with individuals living with co-occurring brain injury and substance use.

Audience Poll

- How many of you work with individuals with a substance use disorder?
- How many of you work with individuals with a brain injury?
- What do you think is the approximate amount of individuals who have a co-occurring substance use disorder and brain injury?
- How do you think these individuals sustained their brain injuries?

What is a Brain Injury?

- An acquired brain injury (ABI) is an injury to the brain that is not hereditary, congenital, degenerative, or induced by birth trauma. Essentially, this type of brain injury is one that has occurred after birth. The injury results in a change to the brain's neuronal activity, which affects the physical integrity, metabolic activity, or functional ability of nerve cells in the brain.
- Traumatic Brain Injury (TBI)
  - Defined as an alteration in brain function, or other evidence of brain pathology, caused by an external force. Traumatic impact injuries can be defined as closed (or non-penetrating) or open (penetrating).
- Non-traumatic Brain Injury (sometimes generalized as ABI)
  - Damage caused to the brain by internal factors, such as a lack of oxygen, exposure to toxins, pressure from a tumor, etc.

Brain Injury Causes

- Traumatic Brain Injury
  - Falls
  - Assaults
  - Motor vehicle accidents
  - Sports/recreation injuries
  - Abusive head trauma (shaken baby syndrome)
  - Gunshot wounds
  - Workplace injuries
  - Child abuse
  - Domestic violence
  - Military actions (blast injury)
- Non-Traumatic Brain Injury
  - Lack of oxygen (drowning, choking, drug overdose, other Hypoxic/Anoxic Injury)
  - Stroke (hemorrhagic, ischemic)
  - Infectious disease
  - Meningitis
  - Encephalitis
  - Seizure
  - Electric shock
  - Tumors
  - Metabolic disorders
  - Neurotoxic poisoning (carbon monoxide, lead exposure)
  - Aneurysm
Overdose

- An overdose is a biological response to too much of a substance or mix of substances
- There are different ways a body can become overwhelmed by substances, however, the most common cause of overdose and death during any chemical overdose is respiratory failure which may lead to a hypoxic-anoxic injury (HAI)
  - Anoxic brain injuries are caused by a complete lack of oxygen to the brain
  - Hypoxic brain injuries are brain injuries that form due to a restriction on the oxygen being supplied to the brain
- All overdoses have the potential to result in a brain injury

Overdose and Brain Injury Overview

Why is it important?

- What does it have to do with brain injury?

- Substance use has created a silent epidemic of hypoxic and anoxic brain injuries
- Increasing number of survivors needing extended medical treatment, rehabilitation, and lifelong supports
- 90% of all overdose patients suffer some level of brain trauma
- Critically, there is a lack of public awareness about the connection between substance use and brain injury

Substance Use Disorder (SUD) & Brain Injury: How are they Related?

- Evidence suggests that having one or more brain injuries, especially those with loss of consciousness, put individuals at greater risk for developing SUD and other mental health disorders such as depression anxiety, and PTSD
- History of BI is associated with substance use that began earlier in life, persisted longer, and is more severe
- Substance use is a risk factor for sustaining a brain injury
  - Between 23 and 51% of adolescents and adults sustaining a TBI were intoxicated when the injury occurred
  - Approximately one-quarter of people hospitalized for TBI have a history of substance use disorder

Brain Injuries Related to Substance Use

- Opioid overdose (or any other overdose causing respiratory failure)
- Long-term, chronic alcohol or drug use
  - "Wet brain", or Wernicke-Korsakoff syndrome
  - Seizures
- Traumatic brain injuries related to use
  - Falling while intoxicated/under the influence
  - Motor vehicle accidents
  - Other accidents (fights, etc.)

Cognitive/Emotional Symptoms of Brain Injuries

- Short-term memory loss and decline in the ability to form new memories
- Decreased focus and attention
- Difficulty with words (aphasia)
- Impaired social functioning/recognizing social cues
- Task initiation and follow-through
- Apraxia: inability to execute a familiar sequence of physical movements
- Behavioral/emotional dysregulation
  - Mood and personality changes
  - Anger
  - Impulsivity

Physical Symptoms of Brain Injuries

- Ataxia: lack of balance coordination
- Quadriplegia/hemiparesis: weakness of the arms and/or legs
- Speech deficits
- Visual disturbances
- Pain
- Fatigue
- Seizure disorders
- Sensitivity to light and sound
Common Neurocognitive Challenges

- Zoning out/not paying attention
- Appearing bored or disinterested
- Difficulty keeping a conversation
- Appearing unmotivated or “lazy”
- Difficulty learning new information/recalling past information
- Lack of follow through on assignments or inconsistent performance
- Difficulty initiating a task or needing prompting to complete a task
- Difficulty following directions
- Impulsive behavior – dominating conversation/interrupting, doing or saying things without thinking (including inappropriate language, statements, interactions with others)
- Arriving late, not showing at all, or missing important deadlines
- Giving up easily on tasks or trouble knowing when to stop
- Rigid thought process, difficulty seeing other perspectives
- Underestimating problems or overstating abilities

If you are concerned that someone you are working with has an undiagnosed brain injury, refer the individual to seek further medical consultation from their primary care physician or neurologist.

A neuropsychological evaluation can be helpful to understand an individual’s specific cognitive challenges.

How does this Affect SUD Treatment?

- Can disrupt an individual’s ability to benefit from treatment
- Difficulty processing the information, keeping up with the presentation of the information and the ability to retain the information
- Difficulty following through with assignments, recalling appointments, etc.
- Challenges inhibiting behavior – impulsivity
- Perseveration

How to Work More Effectively with Individuals with Brain Injuries

- Recognition of brain injury symptoms or formal screening process
- Incorporation of compensatory strategies
- Focus on overall wellness

The Truth Is..

- Many individuals enrolled in substance use treatment have brain injuries that are not formally diagnosed/recognized
  - An estimated 50% of individuals with a brain injury will seek treatment for substance use disorder
  - Modifications to existing programs or practices can be done seamlessly, and with little to no cost
  - These modifications can enhance the overall programs or practices and benefit most individuals, even those without a brain injury

Treatment Consequences

- Individual challenges/behaviors are often attributed to motivation, willingness to participate in treatment, and/or psychiatric disorder
- Individuals may falsely be accused of having a setback or recurrence of use
- Premature termination of treatment
- Lack of accommodations leading to inability to achieve therapeutic goals or program requirements
- Belief that many treatment failures are due to brain injury and its consequences
How to Know if the Individual you are Working With has a Brain Injury

- A large number of individuals who have overdosed or had multiple overdoses may experience some degree of brain injury symptoms, especially if these events are recent.
- Asking someone “do you have a brain injury?” or asking for a list of medical diagnoses are not always the best ways to determine this information. Many individuals may not even be aware they have a brain injury or may feel ashamed to report it.
- Brain injury symptoms often mimic signs of active use or post-acute withdrawal so it is important to try to tease out the root cause of the symptoms reported.

(continued)

- You can ask if the individual has noticed changes since the overdose(s) happened – such as if they have noticed difficulty focusing, memory impairment, mood swings, word-finding issues, or impulsive behavior.
- “Have you ever been knocked out?” “Have you ever hit your head so hard you saw stars?” “Have you ever passed out for a period of time when using, including overdoses?” “Have you ever fallen and hit your head when intoxicated?”
- Ask open-ended questions or try to obtain this info organically within conversation.
- Incorporate screening tools or try to obtain this info organically within conversation.
- In incorporate screening tools or protocols within an initial assessment or review previous medical documentation (for example – a neuropsychological evaluation).

Ohio State University Traumatic Brain Injury Identification Method (OSU-TBI-ID)

You may not be able to use the entire screening tool as intended, but the questions in step one are a good place to start.

Online Brain Injury Screening and Support System (OBISSS)

- Online version of the OSU-TBI as well as the Symptoms Questionnaire for Brain Injury (SQBI).
- Helps to identify history of traumatic and non-traumatic brain injuries and how these have impacted everyday life.
- If screened positive, the individual will receive a list of resources as well as “Tips Sheets” from the SQBI.
- Provider can also receive information from the SQBI on how to tailor service delivery.

H.E.L.P.S

Have you Ever:

- H – Hit your head or have been Hit on the head?
- E – Visited the Emergency room, hospital, or a doctor for injury to the head?
- L – Lost consciousness or experienced periods of being dazed and confused because of injury to the head?
- P – Experienced Problems in your daily life since you hit your head?
- S – Had any significant Sicknesses?
**Strategies for Working with this Population**

- Use concrete examples and visual aids (handouts, agendas)
- Introduce new concepts or information slowly and one idea at a time, focusing on critical points
- Break concepts or tasks down into simple, manageable steps
- Repeat key concepts or directions and ask individuals to repeat what they have learned in their own words
- Encourage individuals to take notes or use other aids (calendars, phone reminders or alarms, other organizational systems)
- Keep sessions structured
- Set clear limits, expectations, and consequences

**Things to Consider**

- Will you be providing written information or require written documentation from the individual (homework, journal keeping, etc.)?
  - Ensure the individual entering treatment is able to read and write or provide an accommodation.
  - Some individuals may not be able to comprehend written or oral information, or may prefer a certain method.
  - How long are your sessions? Provide adequate break times or allow for the individual to step out if needed.
  - If a group setting, what is the average group size? Individuals with brain injuries may have difficulty with overstimulation if a group is too large.
  - Does the individual have any physical challenges needing accommodation – such as poor vision or hearing loss?

**Focus on Overall Wellness**

- Physical health
- Individual mental health treatment
- Yoga or other exercise
- Meditation and mindfulness
- Nutrition
- Healthy sleep hygiene
- Family support
- Anger management

**St. Joseph Hospital Pilot Project**

- Funded by a grant from the Foundation for Healthy Communities
- Partnership between St. Joseph Hospital and the Brain Injury Association of New Hampshire
- Embedded “neuro-resource facilitator” (NRF) within the St. Joseph Hospital Emergency Department
- Protocol for “screening in” patients who meet criteria
- Ongoing follow up provided by NRF
- Expansion to other areas of the hospital and outpatient practices
BDAS Grant

- Grant for brain injury and substance use disorder support
- Trainings and presentations for various audiences
  - Justice system, recovery centers, public health networks, treatment providers, hospitals, etc.
- Resource center on BIANH website and monthly blog series
- Written materials to be distributed to professionals, survivors, and teens/educators

Overdose and Brain Injury

Do You Know:

- Overdose is a leading cause of death among people of all ages and affects many different parts of the brain.
- Overdose is the leading cause of death in the United States.
- Brain injury and overdose are closely linked.
- Nearly 50% of people receiving treatment for substance misuse have a history of at least one brain injury.

Screening and Treatment for Brain Injury Can Provide Favorable Outcomes

- Physical and mental resources for brain injury survivors can help prevent future substance misuse.
- Early intervention can reduce the risk of future overdose.
- Best practices for working with individuals with substance use disorder (SUD) and brain injury.
- Accommodate for cognitive and affective needs.
- Cross federal/state/county support during and after treatment.

Resources:

- Treating Substance Use Disorders in Brain Injury Survivors
- Ohio State University Traumatic Brain Injury (TBI) Identification Method
- Accommodating the Symptoms of TBI - Ohio Valley Center for Brain Injury Prevention and Rehabilitation
- Governor’s Commission Action Plan Dashboard
- Brain Injury Association of America
- Traumatic Brain Injury and Substance Use Disorders: Making the Connections

For more information on this presentation, to schedule a training, or for any other brain injury related questions please contact BIANH:
603-225-8400
Toll Free: 1-800-444-6443
Toll Free Family Helpline: 1-800-773-8400

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Questions and Discussion