Traumatic Brain Injury and the Criminal Justice System

Wednesday January 20th, 2016

Heather Lumley, South West Regional HSJCC
HSJCC Webinar

• We will have a Q&A period at the end of our webinar. To ask a question, please type your question in the chat box.

• Power-point presentation will be emailed to you following the webinar.

• Please complete the brief evaluation survey following the webinar.
Presenters

• Flora Matheson Research Scientist at the Centre for Research on Inner City Health, St. Michael's Hospital

• Kathryn McIsaac, Social Epidemiologist & Postdoctoral Fellow at the Centre for Research on Inner City Health, St. Michael's Hospital

• Kate Moore, Manager of Toronto-West Clinical Services at COTA
Defining Traumatic Brain Injury (TBI)

A disruption in the normal function of the brain caused by a blow or jolt to the head or a penetrating head injury.

Although blows and jolts to the head don't always result in TBI, brain injury can range in severity from mild — marked by a change in mental status — to severe, which may include an extended period of unconsciousness or amnesia after injury.

Roozenbeek, B. et al. (2013) Changing patterns in the epidemiology of traumatic brain injury
Nat. Rev. Neurol. doi:10.1038/nrneurol.2013.22
Cost of the Problem

Direct Costs

- $32,132 for average TBI care in the first year after injury
- $120.7 million in Ontario (2008-2009)

Indirect Costs

- $1 billion in Ontario and $3 billion in Canada per year

Chen et al. *BMC Neurology* 2012; 12:76
Risk Factors for TBI

Socio-demographic

- Age: Young children (<15); young adults (15-24); seniors 65+
- Sex: Male
- Race/Ethnicity: Aboriginal
- Place: Rural

Health related

- Substance use
- Mental Illness
Prevalence of TBI in persons with history of criminal justice involvement

<table>
<thead>
<tr>
<th>Author, year</th>
<th>Population</th>
<th>N</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shiroma, 2010</td>
<td>Adults</td>
<td>20</td>
<td>60.2</td>
</tr>
<tr>
<td>Farrer, 2011</td>
<td>Youth + Adults</td>
<td>26</td>
<td>41.4</td>
</tr>
<tr>
<td>Farrer, 2013</td>
<td>Youth</td>
<td>9</td>
<td>30.6</td>
</tr>
<tr>
<td>Colantonio, 2014</td>
<td>Adults</td>
<td>270</td>
<td>41.2</td>
</tr>
</tbody>
</table>
TBI and risk of incarceration

- People with TBI were more likely to be involved in the criminal justice system than those without TBI (Risk: 1.5 to 3 times greater)

Timonen et al 2002; Fazel et al 2011; Schofield et al 2015; McKinley et al 2015

TBI and impacts while incarcerated

- Men with TBI had 1.9 times higher risk of behavioural infraction

- Women with TBI had a 2.4 times higher risk of behavioural infraction

TBI co-exists with other concerns:

**Men with TBI who are Incarcerated**
- More likely to be involved with drugs/alcohol at an early age
- More likely to report family history of substance abuse

**Women with TBI who are Incarcerated**
- More likely to report history of physical abuse
- More likely to report history of sexual abuse

Awareness of TBI

Persons incarcerated

Many have not sought medical attention for TBI

- 16-18% Canada and 60% in USA

Research community

Underdeveloped area of research

- 3 studies on TBI in prison in Canada

Awareness of TBI

Correctional health care staff

- Underestimate extent of TBI in prisons
- Have misconceptions of TBI and its symptoms
- Do not feel adequately trained to work with TBI

Diamond et al. *J Head Trauma Rehabil* 2007; 33: 330-338
Awareness of TBI

Screening for TBI in correctional institutions

In the **United States**: some routine screening
- South Carolina (Ohio State)
- Minnesota (TBI-questionnaire)

In **Canada**:
- (CSC) screens for TBI using a single question
TBI in the Justice System: Screening and Support
Outline:

1. Signs and symptoms of TBI
2. Strategies to work with individuals with TBI
3. Introduction to a TBI Screener
4. Case scenarios for small group discussion
5. Review of group findings and summary
TBI Changes Individuals

- TBI can result in significant cognitive, behavioural, physical and emotional changes to an individual.

- TBI is often referred to as an “invisible” disability because there may be no obvious/outward signs of the disability, and the symptoms may be seen as other illnesses or character traits.
• Memory is one of the most common cognitive deficits where the brain takes in, stores, recalls and uses information. A brain injury can affect any of these areas of memory.

• Signs of a possible memory impairment:
  - Difficulty recalling information
  - Having to repeat important information to the person
  - Lack of memory of important events
  - Difficulty following instructions
Strategies for Memory Impairment

Some strategies for an individual with memory impairment include:

- Written or verbal reminders
- Setting alarms for important tasks (e.g. Meds)
- Blister packs
- Developing routines
- Repetition and practice of important activities or tasks
- Use of a calendar, planner or smart phone to track important appointments
Signs of Attention Deficits:

- Problems with staying on task
- Lack of retention of information
- Easily distracted
- Confusion

Attention Deficits can be confused with the following issues:

- Memory problems
- Defiance or stubborn behaviour
Strategies for Attention Deficits

- Decrease external distractions
- Avoid fatigue, as it worsens attention problems
- Have individual repeat back important information to check for understanding and retention
Behavioural Changes

- People with TBI are likely to experience changes in their behaviour. Family members report that the individual “isn’t the same person” they once were.
- The following behavioural challenges can occur after TBI:
  - Lack of empathy
  - Rigid and inflexible
  - Lack of initiative or motivation, apathy
  - Poor judgement and disinhibition
  - Impulsive behaviour
  - Aggressive behaviours
Aggressive Behaviours

- Aggressive behaviour is more likely to occur after a brain injury due to frontal lobe damage that can affect a person’s ability to control their behaviour and emotions.

- Their reactions may be more intense through verbal and/or physical outbursts.
Strategies for Aggressive Behaviour

Strategies to support someone with aggressive behaviours due to TBI:

• Immediately- give the person space to calm down, if possible

• Once the person is calm -
  ✓ Offer feedback after the event
  ✓ Help them identify possible triggers
  ✓ Help identify signs of anger and develop plans for how to manage that anger
  ✓ Support groups/behaviour therapy
Impulsive Behaviour and Disinhibition

• A person with TBI may engage in impulsive behaviour or experience disinhibition, reacting quickly without stopping to think about the consequences and saying exactly what they are thinking without “filtering” their thoughts.

• **Strategies to assist someone with these problems:**
  - Give feedback about the behaviour immediately in the moment
  - Problem-solve and talk through potential problems
  - Involve a Behaviour Therapist in treatment of these behaviours.
TBI Screener

Traumatic Brain Injury Identification Method
A Tool for Health Care and Social Service Professionals

Ohio Valley Center for Brain Injury Prevention and Rehabilitation
Department of Physical Medicine and Rehabilitation
The Ohio State University

brainline.org Presentation produced in partnership with BrainLine, a project of WETA
Screening for TBI

Why is screening important?

• The effects of TBI can significantly impact the individual’s responsiveness to your services/treatment
• Some people don’t know they’ve had a TBI and there may be no documentation of it in their medical records
• You can use a person’s head injury history to assess their current presentation (cognitive, behavioural and emotional)
Case Scenario
Jane Doe

• 59 year old female - Homeless in community moving between different women’s shelters and on the streets. Charged with theft and on probation

• You are her probation officer

• Client is panhandling, getting into fights and often barred from drop-ins and shelters.

• Missing her appointments with PO on a regular basis. Losing temper in meetings with PO and walking out before it’s over, yelling and swearing. Verbally abusive to office staff and does not want to wait. Often intoxicated from alcohol use.
Answers to questions on screener

• In asking the question on the screener you find out that the client had the following incidents in her life
  • a fall off of her bike when she was 12 years old where she was left dazed but did not lose consciousness
  • a fall down a flight of stairs at 25 where she lost consciousness for more than 30 minutes and was hospitalized
  • had been in several fights between 45 and 50 yrs old where she was left dazed.
### Ohio State University TBI Identification Method — Interview Form

#### Step 1
Ask questions 1-5 below. Record the cause of each reported injury and any details provided spontaneously in the chart at the bottom of this page. You do not need to ask further about loss of consciousness or other injury details during this step.

1. In your lifetime, have you ever been hospitalized or treated in an emergency room following an injury to your head or neck? Think about any childhood injuries you remember or were told about.
   - [ ] No  [ ] Yes — Record cause in chart

2. In your lifetime, have you ever injured your head or neck in a car accident or from crashing some other moving vehicle like a bicycle, motorcycle or ATV?
   - [ ] No  [ ] Yes — Record cause in chart

3. In your lifetime, have you ever injured your head or neck in a fall or from being hit by something (for example, falling from a bike or horse, rollerblading, falling on ice, being hit by a rock)? Have you ever injured your head or neck playing sports or on the playground?
   - [ ] No  [ ] Yes — Record cause in chart

4. In your lifetime, have you ever injured your head or neck in a fight, from being hit by someone, or from being shaken violently? Have you ever been shot in the head?
   - [ ] No  [ ] Yes — Record cause in chart

5. In your lifetime, have you ever been nearby when an explosion or a blast occurred? If you served in the military, think about any combat- or training-related incidents.
   - [ ] No  [ ] Yes — Record cause in chart

**Interviewer Instruction:**
If the answers to any of the above questions are “yes,” go to Step 2. If the answers to all of the above questions are “no,” then proceed to Step 3.

#### Step 2
**Interviewer Instructions:** If the answer is “yes” to any of the questions in Step 1 ask the following additional questions about each reported injury and add details to the chart below.

<table>
<thead>
<tr>
<th>Cause</th>
<th>Loss of consciousness (LOC)/knocked out</th>
<th>Dazed/Mem Gap</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No LOC</td>
<td>&lt; 30 min</td>
<td>30 min-24 hrs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**If more Injuries with LOC:** How many?________ Longest knocked out?________ How many ≥ 30 mins.?________ Youngest age?________

#### Step 3
Interviewer Instruction: Ask the following questions to help identify a history that they include multiple mild TBIs and complete the chart below.

- Have you ever had a period of time in which you experienced multiple, repeated impacts to your head (e.g. history of abuse, contact sports, military duty)?
  - If yes, what was the typical or usual effect — were you knocked out (Loss of Consciousness - LOC)?
  - If no, were you dazed or did you have a gap in your memory from the injury?
- What was the most severe effect from one of the times you had an impact to the head?
- How old were you when these repeated injuries began? Ended?

**Step 3 Chart:**

<table>
<thead>
<tr>
<th>Cause of repeated injury</th>
<th>Typical Effect</th>
<th>Most Severe Effect</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dazed/Mem Gap, no LOC</td>
<td>LOC</td>
<td>Dazed/Mem Gap, no LOC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Step 1: Record the Cause of Each Injury

5 Questions:

The goal of these questions is to help recall injuries to the head or neck by reminding the respondent about hospital visits and probing for common causes of TBI.

Don’t be concerned about whether a TBI occurred, only if it was possible.
Step 2: Determine if TBI Occurred

In Step 2, you’ll ask the following questions to explore details about each injury identified in Step 1:

1. “Were you knocked out or did you lose consciousness (LOC)?”
   - If yes: “How long?”
   - If no: “Were you dazed or did you have a gap in your memory from the injury?”

2. “How old were you?”
Step 3: Determine if History of Multiple Blows to Head

In Step 3, you’ll ask about any period of time when they may have sustained multiple blows to the head:

1. “Have you ever had a period of time in which you experienced multiple, repeated impacts to your head (e.g., history of abuse, contact sports, military duty)? If yes:
   • “What was the typical or usual effect—were you knocked out (LOC)?”
   • If no LOC, “Were you dazed or did you have a gap in your memory from the injury?”

2. “What was the most severe effect?”

3. “How old were you?”

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Step 4: Interpreting the Results

A person may be more likely to have ongoing problems if they have ANY of the following:

- **Worst** – one moderate or severe TBI
- **First** – TBI with loss of consciousness before age 15
- **Multiple** – 2 or more TBIs close together, including period of time when they experienced multiple blows to head
- **Recent** – A mild TBI in recent weeks or a more severe TBI in recent months
- **Other sources** – Any TBI combined with another way that their brain has been impaired (e.g., stroke)
5 Scenario Questions and answers

Questions

1. Do you think the individual is likely to have a TBI with ongoing problems related to his/her injuries? Although this is not a diagnostic tool it does give us an idea that she may have a brain injury due to the fall down the stairs, the bike accident and the fights that resulted in blows the head.

2. What symptoms or signs of TBI might he/she be presenting? Memory impairment. Aggressive behaviour. Impulsivity. Impaired sustained attention.
3. For every sign or symptom listed above what can the worker do to support this client to be more successful in their environment?

Memory- teach use of memory aid, reminder calls

Aggressive behaviour- Space (in the moment) – feedback after calm, help identify triggers.

Impulsivity- problem solve before she becomes impatient offering choices.

Attention- make meeting time shorter or give breaks throughout.
5 Scenario Questions and Answers

4. What aspects of their environment might make their possible symptoms worse?
- multiple distractions of a busy office, stress of topic of meetings, having to wait for an appointment, etc.

5. Without use of the screener how might these symptoms be interpreted?
- Individuals with these types of impairments can be interpreted as being purposely difficult, being angry and dangerous, frustrated and frustrating to work with.
TBI Resources

Information:
• Brainline - TBI info online  www.brainline.org
• Ontario Brain Injury Association  www.obia.ca

Referrals:
• In Toronto - Toronto ABI Network at  www.abinetwork.ca  (e.g., day programs, case management, housing, Behaviour Therapy and specialists)
• Outside Toronto visit  www.obia.ca for a directory of local ABI services
• Brain Injury Society of Toronto (BIST)  www.bist.ca  (support groups and social activities for people with brain injuries)

TBI Screener:
• Template is available at:
• Screener tutorial -  http://ohiovalley.org/tbi-id-method/
Questions? Comments?

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Kathryn McIsaac: kathryn.mcisaac@alum.utoronto.ca
Thank you for listening!

For more information about the Provincial HSJCC and to join the mailing list, visit: www.hsjcc.on.ca