Brain Injury, Domestic Violence and Psychiatric Illness: At the Intersection of Intimate Partner Violence

Matthew Garlinghouse, PhD
Kate Higgins, PsyD
Objectives

- Participants will be able to identify common causes and symptoms of brain injury in victims of domestic violence.
- Participants will be able to describe the difference and overlap between symptoms of brain injury and mental illness in victims of domestic violence.
- Participants will gain an understanding of brain injury management techniques.
Disclosures

- I have no conflicts of interest to disclose
Overview

- Will talk about aggression
- National and Nebraska specific statistics
- Mechanisms of injury
- Ways to address injury during recovery
Overview Con’t:

We are talking about the effect of the environment (aggression) on the brain

- These events are **100% preventable**
- Persons benefit from early treatment / intervention
- We need better understanding of this intersection
The Human Brain – what is it?
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The human brain – what is it?
And what do we do with it?

While some of us choose to clog our brains with malted hops and bong resin....
And what do we do with it?

- These are all common across cultures
  - We make art
    - [https://www.youtube.com/watch?v=fDTm1lzQf-U](https://www.youtube.com/watch?v=fDTm1lzQf-U)
  - We build
  - We care for each other
  - And we act aggressively

- Not necessarily species specific
  - occurs in great apes to some extent
Why do chimps kill each other?

By Michael Balter  |  Sep. 17, 2014, 1:00 PM
Note on St. Telemachus
Good thing we don’t have gladiator games in this day and age….. Oh wait…..
So what? What’s the problem?

We have a closed space for protection

This works against us if the injury is bad enough
So what? What’s the problem?
What is a brain injury?

- **Traumatic Brain Injury (TBI)**
  An alteration in brain function, or other evidence of brain pathology, caused by an external force

- **Acquired Brain Injury**
  An injury to the brain, which is not hereditary, congenital, degenerative, or induced by birth trauma-an injury to the brain that has occurred after birth
  - [www.biausa.org](http://www.biausa.org)

The brain's purpose is to adapt to both external and internal environments; it is the ultimate work-around
Current (but challenged) grading of TBI

**Mild**
- LOC < 30 minutes
- GCS 13-15
- PTA < 1 day
- Temporary altered mental state
- Post concussion symptoms

**Moderate**
- LOC > 30 minutes - <24 hours
- GCS 9-12
- PTA 1-7 days
- Bruising/bleeding
- Signs on EEG, CT, MRI
- Some LT problems in one or more areas of life

**Severe**
- LOC 24+ hours
- GCS < 9
- PTA > 7 days
- Bruising/bleeding
- Signs on EEG, CT, MRI, LT
- Impairments in one or more areas of life
Symptom Clusters

Physiological
- Headache
- Noise/light sensitivity
- Nausea
- Fatigue

Cervical
- Neck pain
- Headache
- Numbness/tingling

Cognitive
- Slowness- “brain feels slow”
- Concentration
- Memory- “can’t remember”
  - Thinking clarity- “can’t think clearly”

Balance/Vestibular
- Dizziness
- Imbalance- “off balance”
- Clumsiness
- Motion discomfort

Emotional
- Irritability- “shorter fuse”
- Sadness
- Anxiety
  - Moodiness- “more emotional”

Sleep
- Falling asleep
- Staying asleep
- Sleeping more than usual
- Drowsiness- “tired”

“I don’t feel right...”
“Something feels off...”

These often go unrecognized
And culturally we tend to treat all persons playing sports in a similar manner.

Turns out you can’t treat this gentleman the same as........ (see next slide)
It is known that duration of play during the year, and age at which play begins does impact recovery from head injury and risk for multiple head injuries.
1. Women and girls sustain more concussions at a higher rate than their male counterparts in sports with similar rules.
Intimate / domestic partner violence

- There is also “off the field” violence
- We know a lot about sports concussions / head injuries
  - We know much less about IPV-related head injuries
- Violence behind closed doors
- Violence targeting all segments and genders in our society
How many persons are impacted by domestic violence in the USA?

- 23% of adult women and 14% of adult men report experiencing severe physical violence from an intimate partner during their lifetime
  - Kicked
  - Beaten
  - Choked
  - Burned
  - Had a weapon used against them
Nebraska reporting statistics

- Simple assault = assault without dangerous weapon, and where no “serious” injuries were noted
- Aggravated assault = generally assault with weapon with intent of causing “severe” bodily injury
- In 2016
  - 8,837 reported domestic assaults
  - Just over 5,000 arrests
- In past 10 years
  - 54,587 reports of domestic assaults
Nebraska reporting statistics

Assuming each of these cases is a different person (it isn’t), counting reported domestic cases from past 10-years we could fill half this stadium.

And IPV is under-reported.
Who are the survivors?

1. Younger
2. Less well educated
3. Limited family support
4. Risk for homelessness
5. Often have a child to care for

*Figure 4.5*
Age at Time of First IPV¹ Experience Among Women Who Experienced Rape, Physical Violence, and/or Stalking by an Intimate Partner — NISVS 2010

- 25-34 years: 21.1%
- 18-24 years: 47.1%
- 35-44 years: 6.8%
- 45+ years: 2.5%
- 11-17 years: 22.4%

¹IPV includes physical violence, all forms of sexual violence, stalking, psychological aggression, and control of reproductive or sexual health.

CENTER FOR DISEASE CONTROL AND PREVENTION/NATIONAL INTIMATE PARTNER AND SEXUAL VIOLENCE SURVEY
Effects of Brain Injury – based on mechanism of injury.
Mechanisms of Injury

- Literature search on Intimate Partner Violence
  - 10,000+ articles
  - Good!

- Literature search on Intimate Partner Violence and cognition
  - 112 articles
Mechanisms of Injury

- Multiple studies on effects of physical trauma (being hit) on the human brain.
- Survivors of IPV experience less frequently considered mechanisms of injury
  - Psychological / Emotional Abuse
  - Strangulation / anoxic brain injury
  - Combinations of physical trauma (being hit and strangled)
Mechanisms of Injury

- It is very important to remember that physical and emotional abuse cause functional AND structural changes in the brain.

- The distinction between emotional and physical abuse is somewhat artificial.
  - Both can lead to structural brain changes, and thereby impact brain function.
Mechanisms of Injury

- HOW?
The skull

- A protective covering
- Bony protuberances in the bottom of the skull can scrape the brain

This part of the brain can be involved in:

- Problem solving
- Spontaneity
- Memory
- Language
- Motivation
- Judgment
- Impulse control
- Social and sexual behavior
Mechanisms of Injury

Pay attention to regions where bleeding is most prominent

Brain bounces off forms in the skull
Mechanisms of Injury

“emotionally blunted, lack of spontaneity, lack of self awareness, lack of self control”

Partridge, 1950 p470
Mechanisms of Injury

Study the effects of injury with less invasive techniques such as MRI.
Mechanisms of Injury

Fig. 2

Valera & kuyci, 2017
Mechanisms of Injury

- How do environmental events impact our physical health?

- Hypothalamic-pituitary-adrenal axis (HPA)
  - How environmental factors impact physiological function
  - The simple model
Mechanisms of Injury

- System that responds to environmental stressors
  - Exposure to stressors changes how the HPA Axis functions
  - Prolonged stress hormone release throughout the day, as opposed to cyclic releases
  - Associated with changes in mood and sleep
    - Many anti-depressants target neurotransmitters that in part regulate the HPA
  - Prenatal or early life stressors may predispose people to have possibly life-long disruptions in HPA Axis function.
Mechanisms of Injury

- Elevated stress hormone levels have been shown to:
  - Be associated with smaller memory centers (hippocampus)
  - Changes in the shape of emotion processing centers (amygdala)

- These changes are shown to impact the function of these brain regions during f/MRI tasks that involve memory and emotion processing

Bremner, 2006
How to care for survivors?

- PTSD / Depression can also impact these functions:
  - Persons with severe symptoms show
    - Decreased motivation
    - Decreased energy (due to sleep disruption / nightmares)
    - Lack of interest / sense of mastery
      - I feel better when I clean the house / add a fridge to the “man cave”
      - Often those feelings that motivate behavior are diminished
  - Anxiety and panic change cognition
    - Think about giving a speech in front of several hundred strangers
    - Sometimes you say things you don’t mean, have word finding problems, lose your train of thought
Mechanisms of Injury

- Essentially, whether someone is physically attacked, or emotionally attacked, structural brain and functional brain changes are apparent.
  - Both types of aggression cause brain injury.
  - Both types of aggression contribute to symptoms that would not have otherwise been present.
  - If present at a young age – there is some evidence that people will experience life-long changes in brain function.
How to care for survivors?

- “Perfect Storm” of ways to diminish cognition / function in daily life!
How to care for survivors?

Several commonly occurring themes during recovery:
- I forgot I needed to make that appointment
- I forgot the paperwork on the table
- I wasn’t able to get a sitter to watch my child / children
- I didn’t have the phone number with me
- I missed the court deadline
How to care for survivors?

- Use the skills we were all taught in Kindergarten
  - Be patient
  - Don’t judge
  - Work together (look for ways to enter the conversation)
  - Assess for more obvious difficulties
Some adjustments for Learning and Memory

- Write things down
  - Provide way for individuals to record information
- Provide memory supports in the environment
  - Written and posted schedule/instructions; label cabinets/drawers/rooms
- Shorten instructions
  - Present in with words and pictures
- Model tasks
- Checklists for chores/tasks
- Check in for comprehension
Some adjustments for Processing Speed & Fluency

- Complete paperwork in quiet, distraction-free room
- Don’t put on the spot
- Provide cues for time sensitive tasks
- Create an environment that is conducive to asking for help and acknowledging any cognitive or emotional difficulties
Attention, Concentration, & Focus

- Simplify environment
- Control noise and light
- Provide clear visual prompts for environment
- Provide clear structure and predictable routine
- Remove any surprising/startling stimuli
- Check-in for comprehension

- Break larger tasks down
  - Make paperwork as simple as possible
    - Large font
    - Soft colored paper
- Give breaks
- Give few problems at one time
- Shorten instructions
- Provide quiet room to complete tasks
How to care for survivors?

- **Chaining appointments together**
  - Is easier to remember if you have several appointments on the same day, than if you spread the appointments out.
  - Call with reminders about upcoming appointments
  - Have they planned for the appointments (ride, child care, food)

- “getting going” can be difficult – and is not necessarily a motivational issue
  - This is not necessarily the college freshman with the morning class phenomenon
  - May want to schedule appointments later in the day
How to care for survivors?

- I don’t schedule appointments back to back when seeing patients with a brain injury
  - I keep my next slot open
  - May mean I see 1 more patient that day and I get home late
  - But more often than not I use that time to facilitate care

- We often work in our own silos
  - May be best to have discussions as a group of care providers at times
How to care for survivors?

- Examples from the audience?
- Thoughts from the audience?

- It was a pleasure to speak with all of you.