TRAUMATIC BRAIN INJURY: CHRONIC TRAUMATIC ENCEPHALOPATHY

Lasting Impacts of mTBI

Global EOD Symposium and Exposition 2018

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What we’ll discuss

• Who’s impacted?
• TBI
• CTE
• Signs & Symptoms
• Disease progression
• CTE and Alzheimer's
• What you can do?

Who’s impacted?
Traumatic Brain Injury --moving on from “concussion”

- mTBI
- Signature injury
- Invisible wound
- Silent epidemic
- Brain damage

Every 15 seconds an American suffers a TBI

Source: CDC, July 2018
CTE: what is it?

- mTBI
  - Result of repeated sub-concussive injuries
- Invisible wound
- Brain damage
  - Progressive
  - Irreversible
- Diagnosis
  - No clinical test available currently
  - Reliant on symptomology
- Prevalence
  - Unknown
  - Study cohorts are very small & biased
  - No diagnosed cases in women so far

Signs and Symptoms

- Difficulty thinking
- Impulsive behavior
- Depression or apathy
- Short-term memory loss
- Difficulty planning or carrying out tasks (executive function)
- Emotional instability
- Substance abuse
- Suicidal ideation

- 20 – 40 year olds
  - Rapid progression of symptoms
  - Primary symptoms include behavioral changes
- 50 – 70 year olds
  - Slow progression
  - Cognitive deficits and decline
  - Potential overlap with ALZ

https://www.dvidshub.net/image/3699700/eod-not-just-ieds

Source “CTE: What We Do and Don’t Know (from ‘Concussion 2018: Updates and Controversies Course’)", C. Dirk Keene, Hospital for Special Surgery
Stages of CTE

Signs & Symptoms by Stage

Stage 1
- ADHD
- Confusion/disorientation
- Dizziness
- Headaches

Stage 2
- Memory loss
- Social instability
- Impulsive behavior
- Poor judgment

Stage 3 & 4
- Progressive dementia
- Cognitive disorders
- Movement disorders
- Speech disorders
- Tremors
- Vertigo
- Deafness
- Depression
- Suicidal ideation

1. Photo credit: Ann McKee, MD, Boston University, VA Boston Healthcare
CTE vs Alzheimer’s Disease

CTE & ALZ
• Develop silently over time
• May *not* present during lifetime
• Differential diagnosis post-mortem
• May be co-morbid conditions

CTE
• Result of repetitive, sub-concussive head trauma
• Development of tau proteins in deep sulci, then expanding throughout brain
• Tau proteins cause functional changes in executive functions of brain

ALZ
• No association with trauma
• Beta amyloid plaques form between nerve cells
• Tangles of tau protein form inside cells
• Plaques and tangles destroy nerve cells causing dementia and memory loss

Source: Adapted with permission from Dr. Jorge Barrio et al., PNAS

Source: Alzheimer's Association, www.alz.org
What can you do?

• Engage leadership
• Be a peer – Ask!
• Refer to a reputable center with a team approach
• Partner with organizations
• Work with researchers

https://www.dvidshub.net/image/3480649/runners-al-udeid-run-5k-memory-fallen-eod-service-members
Who else is working on this?
Cigna’s approach
Thank you
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APPENDIX
Resources: Professional Help

Employee Assistance Program (EAP) / Military One Source

- Focus on assessment and referral
- Work /life services often available to assist with psychosocial and redeployment concerns
- Organization and manager support
- Crisis services often available
Resources: Professional Help

• Contact primary care doctor for assistance

• Connect with outpatient services, therapist or psychiatrist, through insurance or VA.

• Seek emergency room services as appropriate (i.e.: call 911)

• Contact crisis hotline:
  - National Suicide Prevention Hotline: 1-800-273-TALK
  - Cigna’s Veteran Support Line: 1.855.244.6211
  - Veterans Crisis Line: 1-800-273-8255
Resources: Other Supports

- Friends and family


- Community Support Groups – ie: National Alliance for Mental Illness (NAMI)
  - [www.nami.org](http://www.nami.org)

- EOD Warrior Foundation [www.eodwarriorfoundation.org](http://www.eodwarriorfoundation.org)

- National Center for PTSD [https://www.ptsd.va.gov/](https://www.ptsd.va.gov/)
Resources: Self Help

- Exercise regularly
- Abstain from alcohol and drugs
- Mindfulness/Relaxation
- Take time for enjoyable activities
- Focus on the basics (ie: sleep, healthy eating, etc.)
Resources: Organizational

Mental Health First Aid

An 8-hour course that gives people the skills to help someone who is developing a mental health problem or experiencing a mental health crisis. The evidence behind the program demonstrates that it does build mental health literacy, helping the public identify, understand, and respond to signs of mental illness.

https://www.mentalhealthfirstaid.org