The Effects of TBI on the Aging Brain

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• More than 5.3 million Americans are living with TBI related disabilities

• Average Span of a person with TBI injured before age 30 is 78.6 years
Aging
- Mobility Problems
- Hearing and Vision Loss
- Health Issues
- Decreased Memory
- Depression
- Loss of peers/social withdrawal

TBI
- Mobility Problems
- Sensory Loss
- Health issues
- Memory & Cognitive Problems
- Depression
- Loss of peers/social; withdrawal
What Barriers Increase Over Time?

- Aging Caregivers
- Social Network & Support Failure
- Functional Capacities Decrease
- Loss of Life Activity Focus
- Higher rates of Psychological Problems
- Emergence of Additional Health Problems
Other Factors Affecting Health

- Economic and Social Status
- Limited Resources/Insurance
- Reduced Health Literacy
- Poor Health Practices due to Cognitive Problems
- Increased Rates of Obesity, Hypertension, Depression and Diabetes
Chronic Medical Issues

- Seizure Disorder
- Respiratory Problems
- Late Onset Swallowing Problems
- Diabetes
- Skin Integrity
- Circulatory Problems
- GI Problems
- Headaches
- Pain
Caregiver Issues

- Age
- Health
- Physical Capacity
- Finances
Accelerated Decline

- Early Onset of Physical and Cognitive Decline
- Psychological Response to Long Term Disability
- Gains Made in Rehab Erode
- Level of Independence Decreases
• Enhanced physical decline
  – Colantonio, Ratcliff, Chase, & Vernich, 2004
    • Increased incidence of arthritis among 35-44 y/o’s
    • Increased prevalence of visual and hearing impairments
    • Increased prevalence of epilepsy
    • Sleep problems

(Colantonio et al., 2004)
• Enhanced cognitive decline:
  – Corkin, Rosen, Sullican, & Clegg, 1989
    • Longitudinal study examining 314 veterans sustaining head injury
    • Results: found that head injury was associated with decline on tests of cognitive functioning
  – De Beaumont et al., 2009
    • Examined athletes sustaining their last concussion since years playing sports
    • Results: significant reductions in episodic memory, motor execution slowing, and decline with response inhibition 30 years post-injury

(De Beaumont et al., 2009; Corkin et al., 1989)
TBI Is A Chronic Disease

- Life Expectancy
- Endocrine Dysfunction
- Cognitive Decline
- Psychiatric Conditions
- Development of Neurodegenerative Conditions
Risk Factors for Increased Mortality

• Advanced Age at Time of Injury
• Seizures
• Employment Status
• Substance Abuse
• Psychiatric Disorder
• Physical Impairment
Causes of Death

• Seizures
• Pneumonia/Other Respiratory
• Sepsis
• Choking
• Suicide*
• Substance Abuse Related*
• Accidental Injury*

*mild tbi
Endocrine Dysfunction

• Growth hormone insufficiency

• Hypothyroidism

• Gonadotropin Decrease

• Hypopituitarism
TBI Facts

• Equal risk for men & women after age 65, before age 80

• More frequent hospitalization

• 70 + Most frequent causes
  – Falls (51%)
  – Motor Vehicle Accidents (10%)
The Greying of TBI

• 538/100,000

• 524/100,000

• Adults over 65 had the highest rates of TBI related hospitalization

• The number of older adults is rising
TBI In Older Adults

Falls

Risk Factors

• Increasing Age
• Cognitive Impairment
• Medication Side Effects
• Alcohol Intoxication
Pre-Existing Health Issues

- Cardiac
- Pulmonary
- MCI/Demential
Medical Complications

- Cerebrovascular
- Cardiac/Pulmonary
TBI Rehab in Older Adults

• Mobility & Balance

• Self care

• Secondary Prevention
Age at Injury & Outcomes

• Higher rates of severe disability, PVS, and death for >55

• Severe Disability, PVS and death rates for ages 15-25 was 50% of the rate for those >55
Age & Recovery

- Older brain has decrease ability to repair itself

- Greater likelihood of repeated insults to the brain based on age

- 40-50% increase in the odds of poor outcome for every 10 yrs of age
TBI & NeuroDegenerative Disorders

• Moderate to Severe TBI Associated with Alzheimer’s Disease Parkinsonism

• Increased risk in those
  – Age 55 with moderate to severe TBI
  – Age 65 with mild TBI
NeuroDegenerative Disorders

- Increased risk of brain atrophy
- Lack of neuronal reserve
- Breakdown of BBB
- Accumulation of protein
TBI & NeuroDegenerative Disorders

- Moderate to Severe TBI Associated with Alzheimer’s Disease Parkinsonism

- Mild TBI ??
Final Thoughts

• Increase in older adults living with effects of TBI

• Increased need for accurate identification of issues and resources

• Older adults benefit from rehabilitation
Thank you!


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