

BRAIN INJURY RESEARCH UPDATE

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NIH Consensus Conference

- Result of TBI Act 1995
- Held at NIH 10/98
- Reviewed all existing literature
- Presentations by
 - Experts
 - Interested organizations
 - TBI injured individuals
 - Family members
- Key findings
 - Failure of medical model
 - May need supports over a lifetime
 - Families should be included as part of the support team
 - Special programs are needed to support individuals with Mild TBI
 - Specialized, interdisciplinary, and comprehensive treatment programs are necessary for needs of young and school age children

Further research needed:

- Innovative rehabilitation interventions for TBI
- Risk factors and incidence of TBI by gender, race, and age
- Epidemiology of mild TBI
- Duration, natural history, and long term consequences of mild, moderate, and severe TBI
- Evaluation of ETOH use/abuse
- \$ to train scientist and clinicians.

Results

- EVIDENCED BASED RESEARCH AND PRACTICE- ACRM, BIA
- TBI MODEL SYSTEMS (TBIMS)
 - 18 Centers
 - Established 1987, As of 10/02 collected information on 3,500 individuals
 - Who is incurring brain injuries
 - What is causing brain injuries
 - What treatments are being used and how much do they cost
 - What are the short and long term outcomes

TBIMS- Questions

- What diagnostic and treatment innovations can improve rehabilitation outcomes for person with TBI?
- Which methods of service delivery interventions after inpatient treatment rehabilitation discharge are most effective?
- Which interventions improve vocational outcomes and community integration?
- Can we predict long-term outcomes at hospital discharge and at long-term follow-up?
- What is the relationship between cost of care and outcomes? If we spend more money, do we obtain better results? ...on discharge are most effective?

TBIMS Research

- Medical Consequences, Physical Rehabilitation
- Caregiver, Family, Relationships
- Work, Financial, Relationships
- Cognitive, Neuropsychology, Substance Abuse
- Violence Related Traumatic Brain Injuries, Penetrating Wound Injuries

Agency for Health Care Policy and Research (AHCPR) 1999

- “Advances in medical technology and improvements in regional trauma services have increased the number of survivors of TBI, producing the social consequences and medical challenges of a growing pool of people with disabilities.”

TBIMS Research *some*

- Crashes-White male early 30's, working. No significant history drug, behavior, or psychological issues
- Tend to be more traumatic but tend to fare better than from other causes.
- Violence related-Male, non-white, less improvement in thinking skills
- Falls-Older white, married and retired
- Amantadine-Appears to increase recovery rate of thinking skills.
- Risk Factors for late posttraumatic seizures after moderate to severe injury.
- Agitation associated with poorer outcomes. Associated with lower cognition
- Increase in depression following traumatic brain injury. *Duh!*
- Symptoms reported- feeling exhausted, feeling frustrated, having difficulty concentrating
- Also- feeling bored and distractible, having difficulty making decisions and remembering, thinking about the same thing over and over, and slow physical movement.
- Violence and substance abuse. Almost 80% of persons with violence related TBI had a history of substance abuse.
- Domestic Violence related to mild TBI in woman.
- Significant others and individuals with TBI differ significantly on reports of neurobehavioral problems. *another duh*
- Study with 50 persons with TBI and caregivers found-TBI individuals were unaware of many of the deficits that were perceived by significant others

- Individuals with TBI suffered more emotional distress as they grew more aware of deficits.
- Circadian preference and cognitive functioning among rehabilitation inpatients. Persons with cognitive impairment disproportionate vulnerability to the effects of circadian preference and time of testing. Cognitive reserve possible explanation
- fMRI reveals large-scale network activation in minimally conscious patient.
- fMRI and cognitive rehabilitation for people with TBI. Found reliable differences in brain activity within several regions of the frontal cortex, partly consistent with neuropsychological and structural findings in TBI.
- Long-term medical care utilization and costs among TBI survivors. Motor disability & improvement during inpatient rehab were signif predictors of billings, initial severity was not post TBI.
- A trial of neuropsychologic rehabilitation in mild-spectrum TBI. Cognitive behavioral psychotherapy and cognitive remediation appear to diminish psychological distress and improve cognitive functioning among community-living persons with mild and moderate TBI.
- Return to work using supportive employment following TBI. Group of 41 needed 291 hours job coaching.
- What cues do nurses use to predict aggression in people with acquired brain injury. Predict aggression with patient cues, such as voice, facial expression, etc.
- The meaning of living with TBI in people with moderate or severe BI. Study showed folks had lost their way and struggled to find a new normalcy. Participants appeared to be quite alone in their suffering and needed more support from healthcare professionals.
- Mild TBI in psychiatric patients. Study indicated individuals with MTBI may differ in frequency and length of hospitalization from otherwise similar inpatients without MTBI.

Brain Research

- Cell Level research-UCLA studies David Hovda
- Rethink how we deal with injuries in the first 72 hours.

Neuroimaging

- fMRI
- Executive attention circuits
- Mental activity in young children
- MBI
- Computer use
- NIH and many other WWEB sites

Prevention

- Helmet use

- Sports injury/concussions
- Side air bags in autos

Neuropsychology

- More computer assessment studies.
- Applying neuroimaging with fMRI studies.

Rehabilitation

- Constraint induced therapy.
- Application of more evidence based practice in areas such as cognitive retraining.

BIAA

- Much more funding for evidence based research
- Excellent WEB sites covering everything.

Future Caveats

- Cost and Ethics
- Controversial research
- Medical care/insurance companies