



Traumatic Brain Injury and Suicidality: Assessment & Prevention

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Objectives

- TBI 101
- Mechanisms of Injury
- TBI Sequelae
- TBI and Psychiatric Symptoms
- TBI and Suicidality
- Assessment & Prevention Strategies

TBI 101



Definitions

- **Head Injury**

Traumatic damage to any part of the head. The trauma may be extracranial or involve the cranium.

- **Traumatic Brain Injury**

Damage to the brain triggered by externally acting forces. (Direct penetration, dynamic forces, or sustained forces, etc.)

Traumatic Brain Injury

- A blow or jolt to the head or a penetrating head injury that disrupts the function of the brain. Not all blows or jolts to the head result in a TBI. The severity of such an injury may range from **“mild” (a brief change in mental status or consciousness)** to **“severe” (an extended period of unconsciousness or amnesia)** after the injury. A TBI can result in short- or long- term problems with independent function.

The Scope of the Problem



- 1.4 million injuries per year (approximately 200 per 100,000 persons per year)
 - Vast majority ~80%, are graded as mild, with 100% survival
 - ~10% are moderate, with 93% survival
 - ~10% are severe, with only 42% survival

Bimodal Distribution and Highest Risk Age

Ages: 15 - 24

Ages: 65 - 75

Elderly adults – higher
mortality rates



TBI and Gender

Traumatic brain injury is more than twice as likely in males than in females



Leading Causes of TBI

- Falls (28%)
- Motor Vehicle – Traffic Crashes (20%)
- Assaults (11%) Langolis et al. 2004
- Blasts are the leading cause of TBI for active duty military personnel in war zones DVBIC 2005



Risk Factors for Sustaining a TBI

- Alcohol/drugs
- Familial discord
- Low SES
- Unemployment
- Low educational status
- Psychiatric symptoms
- Antisocial/Aggressive behavior
- Previous **head injury (12%)**

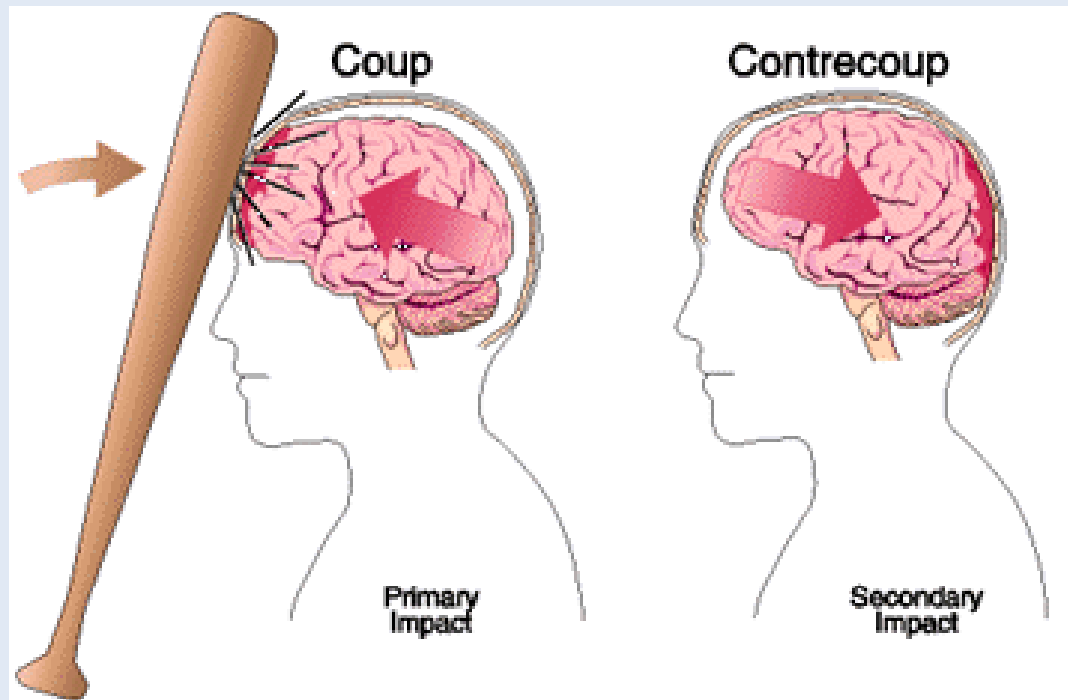
Traditional Mechanism

VS.

Blast



Mechanism of Injury (Traditional)



Thanks John Kirk, Ph.D.

Blast Injury

- Blast injuries are injuries that result from the complex pressure wave generated by an explosion.
 - The explosion causes an instantaneous rise in pressure over atmospheric pressure that creates a blast overpressurization wave
- Air-filled organs such as the ear, lung, and gastrointestinal tract and organs surrounded by fluid-filled cavities such as the brain and spinal are especially susceptible to primary blast injury

Blast Injury Continued

- Primary – Barotrauma
- Secondary – Objects being put into motion
- Tertiary – Individuals being put into motion



Injury Severity

| Mild | Moderate | Severe |
|---|---|---|
| Altered or LOC<30 minutes with normal CT and/or MRI | LOC<6 hours with abnormal CT and/or MRI | LOC>6 hours with abnormal CT and/or MRI |
| GCS 13-15 | GCS 9-12 | GCS<9 |
| PTA<24 hours | PTA<7 days | PTA>7days |

Mild TBI

Short- and Long-Term Effects

Common Symptoms

- Headache
- Poor concentration
- Memory difficulty
- Irritability
- Fatigue
- Depression
- Anxiety
- Dizziness
- Light sensitivity
- Sound sensitivity

Immediately post-injury 80% to 100% describe one or more symptoms

Levin et al., 1987

Most individuals
return to baseline
functioning within
3 months to 1 year

7% to 33% have
persistent symptoms

TBI Sequelae

Motor and Sensory Deficits

- Slowed motor response (often due to processing delay vs. motor deficit)
- Paralysis, disturbed balance and coordination, ataxia, tremors, parkinsonism, bradykinesia, and weakness
- Distorted pain, touch, temperature and positional information

Common Neuropsychological Complaints

- ❖ Disordered consciousness
- ❖ Disorientation
- ❖ Memory deficits
- ❖ Decreased abstraction
- ❖ Decreased learning ability
- ❖ Language/communication deficits
- ❖ Poor judgment
- ❖ Poor quality control
- ❖ Inability to make decisions
- ❖ Poor initiative
- ❖ Poor depth perception
- ❖ Dizziness
- ❖ General intellectual deficits
- ❖ Deficits in processing/sequencing information
- ❖ Illogical thoughts
- ❖ Perseveration
- ❖ Confabulation
- ❖ Difficulty with generalization
- ❖ Poor attention
- ❖ Fatigue
- ❖ Reduced motor speed/poor hand eye coordination
- ❖ Visual neglect

Common Behavioral Complaints

- Restlessness
- Agitation
- Combativeness
- Emotional Lability
- Confusion
- Hallucinations
- Disorientation
- Paranoid Ideation
- Hypomania
- Confabulation
- Irritability
- Impulsivity
- Egocentricity

Common Behavioral Complaints Continued

- Impaired Judgment
- Impatience
- Depression
- Hypersexuality
- Hyposexuality
- Dependency
- Silliness
- Aggressiveness
- Apathy
- Immaturity
- Disinhibition
- Loss of interest
- Anxiety

TBI and Psychiatric Symptoms

100 Patients S/P TBI - Mood

| Axis I Disorder | Before TBI | Post TBI | Base Rate |
|------------------|------------|----------|-----------|
| Major Depression | 17% | 61% | 6% |
| Dysthymia | 1% | 3% | 3% |
| Bipolar Disorder | 0% | 2% | 1% |

Depression

- Frequency of Depressive Disorder – **6% to 77%** Robinson and Jorge 2005
- 1 month s/p TBI (mostly moderate TBI sample)
 - **26%** of patients developed major depression
 - **3%** minor depression Jorge et al. 1993
- After 1 year s/p TBI (mostly moderate TBI sample)
 - **25%** rate of depression with some patients recovering and others developing delayed onset Jorge et al. 1993

20% - 40% of individuals affected at any point in time during the first year, and about **50%** of people experiencing depression at some stage

Fleminger et al. 2003

TBI Specific Suicide Risk Factors

1-800-273-TALK (8255)
Press 1 for Veterans

www.suicidepreventionlifeline.org



Role of Pre-injury vs. Post-Injury Risk Factors

Post-injury psychosocial factors, in particular the presence of **post injury emotional/psychiatric disturbance** (E/PD) had far greater significance than pre-injury vulnerabilities or injury variables, in predicting elevated levels of suicidality post injury.

Higher levels of hopelessness were the strongest predictor of suicidal ideation, and high levels of SI, in association E/PD was the strongest predictor of post-injury attempts.

Risk Factors: Continued

❖ Work

❖ Finances

❖ Marital Relationships

TBI and Suicide Attempts

- Silver et al. (2001) In a community sample, those with TBI reported higher frequency of suicide attempts than those without TBI (8.1% vs. 1.9%).
 - Even after adjusting for sociodemographic factors, quality of life variables, and presence of co-existing psychiatric disorder.

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How long do you need to keep assessing for suicidal behavior?

Median time from injury to suicide **3 to 3.5 years** for all three groups.

Cases were followed - up to **15 years** and no particular period of “greater risk” was identified.

Teasdale and Engberg 2001

Mean period of **5 years** for post-injury suicide attempts.

Simpson and Tate 2002

FOREVER

Inclusive Assessment & Prevention Strategies

Can be used with everyone!

1-800-273-TALK (8255)
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- Maintain an evenly paced dialogue
- Maintain a neutral and supportive disposition
- Use the patient's language
- Take short breaks to prevent overwhelm
- Write things down/draw things out (Including ABCs, Timelines, Sequence of Events)
- Utilize visual cues (Including posting safety plans, pictures representing protective factors, inspirational quotes in easy to see/highly used areas)

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- Incorporate supports proactively
(regular/scheduled check-ins, appointments, etc)
- Ask patient to provide summaries regarding assessment of self & planning strategies
- Role-Play engaging in coping strategies and safety planning
- Utilize patient identified coping strategies and work collaboratively to design implementation

Thank You

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<http://www.mirecc.va.gov/visn19.asp>

