Psychiatric Issues in Traumatic Brain Injury

Establishing a Differential Diagnosis and Identifying Effective Treatment for Individuals with TBI and Behavioral Health Problems

Rolf B. Gainer, PhD, Dip. ABDA

Neurologic Rehabilitation Institute, Brookhaven Hospital, Tulsa, OK
(800) 927-3974  www.brookhavenhospital.com
Objectives

- Explain the scope of problems experienced by traumatic brain injury (TBI) patients, including behavioral health issues
- Discuss effective strategies for diagnosing neurological impairment, psychiatric illness, and co-morbidity
- Review conditions created by TBI that can exacerbate underlying psychiatric conditions
Objectives

- Examine clinical presentation of persons with a dual diagnosis, which includes TBI
- Examine treatment/rehabilitation implications for individuals with dual diagnosis
Psychiatric Issues in Individuals with TBI

- Behavioral components of TBI which resemble psychiatric illness
- Effects of brain injury on individuals with pre-existing conditions
- Issues of co-morbidity
- Diagnostic skills
Facts About Brain Injury

- Every day nearly 6,000 Americans sustain a brain injury (www.biausa.org)
- 400,000 individuals with moderate and severe brain injuries in the USA are hospitalized each year
Causes of Brain Injury

- Motor Vehicle Accidents 50%
- Falls 21%
- Assaults 12%
- Sports/Recreation 10%
- Other 7%
Physical Effects of Brain Trauma in Closed Head Injuries

- Direct Impact
- Coup and Contra Coup Injuries
- Rotation and Shearing
- Swelling
- Bleeding
- Neurochemical Changes
- Secondary Effects
TBI Severity Distribution Injury

- Mild: 85%
- Moderate: 10%
- Severe: 5%
- Mortality Rate: 11%
Assumptions about TBI

- Physiological impairment
- Disruption of sensorium
- Disinhibition
- Arousal and attention problems
- Unstable mood states
- Problems in learning and organization
Behaviors in Early Recovery

- Disorientation
- Paranoid Ideation
- Depression
- Hypomania
- Confabulation
Behaviors in Early Recovery

- Restlessness
- Agitation
- Combativeness
- Emotional Lability
- Confusion
- Hallucinations
In the early phase of TBI recovery, some behaviors can resemble a psychiatric illness.
Biological Aspects of Injury
Further Psychological Problems

- Seizure disorder may include irritability and behavior dyscontrol
- Cognitive problems, especially memory, affect, emotional response
- Denial of deficits may affect capacity to receive help
- Previously effective medications may not work or may exacerbate injury-related problems
- Depression may prevent participation
The Basic Person Doesn’t Change

- The injury alters specific aspects of the person’s psychological, cognitive and emotional function
- Specific personality traits or style remain
TBI Affects All Aspects of Life

- Previously competent individuals may show symptoms of psychiatric disease
- Coping skills are stressed
- Behavioral controls are lost
TBI Affects All Aspects of Life

- Social skills and roles are affected
- Insight into TBI-related changes may be limited
- Previously self-managed symptoms may become out of control
- Relationships/support systems are stressed
Positive Predictors of Recovery Outcome

- Focal vs. Globalized injury
- Aggressive early intervention and trauma care
- Work history
Positive Pre-Injury Predictors

- Level of severity, coma duration
- Natural recovery and return of functions
- Medical/behavioral complications
- Pre-injury achievement level
- Learning, school and work history
- Extroverted personality
- Positive social history
Positive Pre-Injury Predictors

- Perseverance and motivation
- Strong social and family network and support
- Absence of pre-injury psychiatric symptoms
- Absence of substance abuse
- “Good character” and self control
- Strong-willed, determined personality
Negative Predictors

- Poor response to psychiatric medications
- Poor response to “talking” therapies
- Failure in behavioral programs requiring memory and problem-solving
- Social network failure: divorce, separation
Negative Predictors

- Failure at work
- Involvement in the criminal justice system
- Persistence of chronic pain and headache symptoms
- Lack of support system
Lateralization Issues of Behavior Deficits

- Right Hemisphere: unable to respond, flat affect
- Left Hemisphere: depression, agitation, anxiety
- Diffuse: attention, concentration, arousal, response
TBI and Psychiatric Disease

Traumatic Brain Injury can mimic psychiatric symptoms
Examples: memory problems, behavioral and emotional control problems, mood disorders
Biological Brain Changes can Mimic Psychiatric Disease

- Biological changes can exacerbate a pre-existing psychiatric disease
- Executive Syndrome can resemble a thought disorder
- Behavioral features can resemble other conditions
TBI and Psychiatric Disease

TBI can mask psychiatric symptoms

Example: Frontal system damage can produce expressive aposody/blunting, which may reduce the person’s ability to express sadness
Risk Factors Associated with Psychiatric Diagnosis (Lishman, 1988)

- Organic factors
- Psychosocial factors (socio-economics, pre-morbid personality)
- Past history of psychiatric illness
- Family history of psychiatric illness
- Male
- Emergence of problems one year post-injury
Research Highlights

- Localization of injury (Fann, 1995)
- Noradrenergic and serotonergic projections are sites of contusion (Rosenthal, 1998)
- Individuals with depression and anxiety perceive themselves as more ill (Fann, 1995)
Research Highlights

- Reaction to failure (Alexander, 1975, 1992)
- Right hemisphere damage (Silver, 1992)
- Pre-morbid factors and social adjustment (Robinson & Jorge, 1993)
- Biochemical response (Robinson & Jorge, 1993)
The level of severity of the person’s brain injury relates to the potential for the emergence of psychiatric disorders in the first 24 months post-injury.
Personality Disturbances After Brain Injury

- Anxiety or “catastrophic reaction”
- Emotional lability/disinhibition
- Paranoia and psychomotor agitation
- Denial
- Depression
- Social withdrawal
- Amotivation/abulia
Distinguishing Brain Injury from Psychiatric Problems

- Physical injury to the brain
- Cognitive and behavioral deficits
- Emotional and personality change
- Attention, concentration, arousal, filtering
- Memory problems
- Seizure problems
- Self regulation
Psychological Syndromes can Co-occur or Predate Injury

- When did the symptoms emerge, before or after the TBI?
- What were persons like before injury?
- What were their coping styles?
- How have they adjusted to disability?
- What new symptoms/behaviors have developed?
Problems in Diagnosing Psychiatric Illness in TBI

- Timing between injury and emergence of symptoms
- In mild cases lack of documentation of extent/severity of injury
- Pre-morbid personality traits
- Pre-injury issues
Rate of Psychiatric Illness One Year Post Brain Injury

- 21.7% of individuals with TBI had ICD-9 diagnosis vs 16.4% of general population (1998)
- Past studies focused on individuals with TBI who were seen in psychiatric hospitals
Psychiatric Diagnosis Distribution Following TBI

- Male - 21.6%
- Female – 11.3%
- Mild brain injury – 17.2%
- Moderate and severe brain injury – 23.3%
Psychiatric Diagnosis Features

Relationship of psychiatric diagnosis to:
- Younger age
- Glasgow outcome scale score
- History of pre-injury ETOH use/abuse
- History of psychiatric illness
- Lower Mini Mental State score
- Fewer years of education (Deb, 1999)
- Not working before injury (Bowen, 1998)
Psychiatric Issues in TBI Cases

- Male/female 70%/30% more likely to develop psychiatric symptoms
- Elevated risk for bi-polar affective disorder
- Seizures noted in 50% of cases with mania (Shukla, 1987)
- Limbic system lesions in 75% of manic cases (Starkstein, 1987)
- Family history of mood disorders
Diagnostic Issues in BI Group

- Depressive episode 13.9% vs. 2.1%
- Panic Disorder 9.0% vs. 0.8%
- Generalized anxiety 2.5% vs. 3.1%
- Phobic disorder 0.8% vs. 1.1%
- Obsessive compulsive 1.6% vs. 1.2%
- Schizophrenia 0.8% vs. 0.4%
- ETOH dependence 4.9% vs. 4.7%
Brain Injury and Depression

Depression following brain injury occurs at a rate of 44.3% vs. 5.9% in non-brain injured population.
Differential Diagnosis Issues

How can the clinician determine the role of injury and pre/post injury psychiatric factors that contribute to behavioral dysfunction?
Pre-existing Psychiatric Disorders Related to TBI

- Dementia due to head injury
- Cognitive disorder
- Bipolar disorder (manic or depressive types)
- Mood disorders (depression, mania)
- Sleep disorder
- Anxiety disorders
- Intermittent explosive disorder
Pre-existing Conditions can Affect Recovery from TBI

- Limited coping skills
- Impaired ability to manage symptoms
- Cognitive problems limit capacity to manage disability and pre-existing condition
- Advent of new behaviors
- Prior medications may increase cognitive problems
Effect of TBI on Underlying Psychiatric Disease

- Reduced capacity to self-manage symptoms
- Diminished impulse control leads to enhanced interpersonal problems
- Psychological defenses and coping skills fail to function
- Denial of deficits prevents person from responding to injury-related deficits
Effect of TBI on Underlying Psychiatric Disease

- Interpersonal relationships change
- Social role is altered
- Seizures and dyscontrol event are misinterpreted
- Enhanced dependent needs affect psychological status
Adjustment Difficulty due to Emotional & Behavioral Issues

- Emotional change
- Impaired perception of social interaction
- Impaired self control
- Increase dependency
- Behavioral rigidity
Most Frequent Problems Cited by Family Members

- Slowness
- Irritability
- Impatience
- Depression
- Memory
Co-Morbidity: PTSD & TBI
(Aronon, 1998)

- 32% of motor vehicle accident victims meet diagnostic criteria for PTSD one year post-injury
- Those with PTSD have higher rates of pre-morbid/co-morbid psychopathology (anxiety and affective disorders)
- Immediacy of PTSD symptoms is a better predictor of later PTSD than injury severity
Role of Prior Learning or Attentional Problems in Occurrence of Psychiatric Diagnosis

- Prior learning and attentional problems are enhanced
- Diminished filtering and stimuli selection
- Altered coping skills produce dysfunctional responses
Psychiatric Issue or Brain Injury?

- Mania vs. Arousal problems
- Anxiety
- Denial
- Confusion
- Depression
- Cognitive problems
- Personality changes
- Intellectual changes
- Thought disorder vs. Thinking problem
Psychiatric Features of TBI

- Mania - Agitation
- Anxiety - *Catastrophic Reaction* (Goldstein)
- Denial - Inability to accept deficits
- Confusion - Disorientation and memory problems
- Depression – Withdrawal, abulia
Neurologic and Neuropsychiatric Features

- Atypical seizure disorders
- Intermittent explosive disorder (Yudofsky)
- Neurologic rage or limbic-psychotic aggressive syndrome (Dorothy Lewis)
Neurologic Rage Identifiers

- Sudden loss of behavioral control, “out of the blue”
- Inability to stop the behavior
- Seizure-like quality, unawareness of the individual to the event
- Deficient memory of the event (Dorothy Lewis)
Factors Leading to Behavioral Problems in TBI

- Primary and secondary aspects of the physical injury
- Development of emotional problems
- Development of cognitive problems
Two Type of Behavioral Problems

- Behavioral excess – *too much*
- Behavioral deficit – *too little*
Neurobehavioral Issues

- Hyper/hypo arousal
- Level of response to external events/filtering
- Stimulus control vs. *stimulus bound*
- Denial
- Judgment
- Impulsivity vs. self-regulation
- Irritability and seizure-like events
Neurobehavioral Features

- Impulsivity (lack of self-regulation)
- Level of motor agitation/restlessness
- Aggressivity and assaultiveness
- Apathy, abulia, lack of motivation
- Irritability, impatience
Interpersonal/Psycho-Social Factors of Behavioral Problems

- Impaired self-perception
- Emotional changes
- Egocentric thinking
- Impaired perception of social issues
- Increased dependency
- Behavioral rigidity
Interpersonal/Psycho-Social Factors of Behavioral Problems

- Irritability
- Anger control problems
- Mood instability
- Hypo/hyper sexuality
- Diminished drive/motivation
- Cognitive deficits
Factors of Cognitive Problems in TBI

- Level of arousal
- Sensorium disruption
- Concentration and focus
- Filtering, stimuli control
Factors of Cognitive Problems

- Orientation and confusion
- Memory, information retrieval
- Problem-solving and decision-making
- Language and communication
Cognitive Problems Can Look Like Behavioral Problems

- Attention and filtering problems
- Over/under arousal
- Concentration
- Memory
- Task learning
- Novel learning (old to new)
The first step in making a diagnosis is to think of it.

-- Thibault, 1992
Evaluate and Separate Post-Injury from Pre-Injury Problems
Diagnostic Approaches

- Interview with individual
- Comprehensive medical and psychiatric history
- Developmental and school history
- Neurological evaluation
- Neuropsychological assessment
- Medical file review
Pre-Morbid Issues

- Presence of known psychiatric condition
- Level of adjustment, degree of attainment (school, work, family)
- History of learning, behavior and conduct problems
- History of substance problems
- Medical history
- School and vocational history
Post-Injury Effect on Coping Skills and Personality

- Response to disabling condition(s)
- Cognitive deficits
- Neurobehavioral deficits
- External support system
- Motivation/initiative
- Substance use/abuse
- Engagement in meaningful activities
Persistent Problems of Recovery and Rehabilitation

- Irritability
- Impulsivity
- Egocentricity
- Lability
- Judgment deficits
- Impatience
- Tension/Anxiety
- Depression
Implications for Rehabilitation:
Why Patients “Fail”
Persistent Problems of Recovery and Rehabilitation

- Hypersexuality
- Hypososexuality
- Dependency
- Silliness/Euphoria
- Aggressivity
- Apathy
- Childishness
- Disinhibition
Why Patients “Fail”

Strategy:
- Individual and Group Psychotherapy

Why?
- Can’t identify problems as shared by others
- Difficulty maintaining behavioral alternatives
Why Patients “Fail”

Strategy:

- Insight-Oriented Approaches

Why?

- Can’t identify problem with self
- Problems with generalization
Why Patients “Fail”

Strategy:
- Didactic Approaches

Why?
- Memory problems prevent use of previous learning
Why Patients “Fail”

Strategy:
- Milieu Treatment

Why?
- Social deficits inhibit positive peer group membership
Why Patients “Fail”

Strategy:
- Cognitive-Behavioral Therapy

Why?
- Memory problems and difficulty with generalizations
Why Patients “Fail”

Strategy:
- Behavior Modification

Why?
- Problems with impulse control
- Memory problems prevent reinforcement strategy from being effective
Why Patients “Fail”

Strategy:
- Medication Management

Why?
- Some medications further cognitive problems or cause disinhibited behavior
Why Patients “Fail”

Strategy:
- Addictive Treatment/Self-Help Groups

Why?
- Cognitive problems prevent identification with the speaker/group process
- Individual cannot apply information to self
Why Patients “Fail”

- Person cannot process “talking therapies”
- Limited insight
- New behaviors (e.g. impulsivity) are related to the brain injury
- Increased dependence
- Unable to relate to previously effective support groups (e.g. AA, NA)
Support System Stresses Increase Psychological Issues

- High incidence of divorce or loss of primary relationship (50% in first two years post-injury)
- Adult children return to aging parents for physical assistance
- Loss of friends and work
- High potential for substance use/abuse
- Loss of social role with family, friends and community
- Cultural factors influence recovery
Social Network Issues Complicate Rehabilitation

- Social network failure seen 24-months post injury (Burke and Weslowski. 1989)
- Psychological effect of withdrawal or loss of supports
Social Network Issues Complicate Rehabilitation

- Changing social role post-injury affects self-image and self-worth
- Individual response to loss of functions and social changes
- Recidivism and emergence of psychiatric symptoms commonly seen 12-24 months post-injury
Increasing Success in Rehabilitation and Treatment: What Works!
What Works?

- Early identification of problems
- Highly structured, social learning environment
- Repetitive “teaching” of behavioral alternatives
- External controls managed by staff, gradually transferred to the individual
- Neurological approach to medication management
- Integrated rehab program, including psychiatric and substance abuse treatment
What Works?

- Emphasis on learning and relearning of social role
- Teaching “scripts” for social interaction
- Guided/supported attendance at AA/NA/self-help groups
- Use of “failures” within treatment to address denial and limited insight
What Works?

- Focus on social role re-entry and response of family, friends, co-workers, peers, and others to the person
- Staff understanding of TBI-related behavioral, cognitive, emotional and psychological issues
- Understanding of adjustment to disability
- Teaching individual about consequences of TBI
- Promoting return to work, avocational and recreational activities
What Works?

- Consistent response from staff throughout the environment
- Use of behavioral analysis to understand brain/behavior issues
- Avoidance of negative consequences for behavior problems
- Focus on discharge engineering to assure that the individual moves to a supportive placement with the solid transfer of information and management techniques
Neurological Rehabilitation Institute (NRI) at BROOKHAVEN
Tulsa’s Specialty Hospital

800-927-3974
www.brookhavenhospital.com