Brain Injury and Mental Illness: A Dangerous Intersection

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How Brain Injury and Mental Illness Overlap

Symptom Overlap: TBI Disrupts Thought Processes

- Attention problems (concentration, tracking, filtering)
- Memory impairment
- Conceptual disorganization
- Altered causal or logical reasoning
- Executive dysfunction (e.g., planning, organizing, prioritizing, staying on-task)

Symptom Overlap: TBI Can Lead to Personality and Affective Changes

- Mood changes, including depression, anger, mania, or decreased control of emotions/behavior
- Affective blunting or lability
- Paranoia, hallucinations
- Unusual beliefs or delusions (including misidentification syndromes)

Misidentification and Duplication Syndromes

- Typically viewed as neurological in origin
- Reduplicative paramnesia (illusion that one’s location is identical to another elsewhere)
- Capgras syndrome (loved ones as imposters)
- Fregoli syndrome (separate people viewed as same person in disguise)
- Cotard syndrome (belief that one is dead)

Characteristic Symptoms of Schizophrenia (from DSM-IV)

- Altered attention and perception
- Language and communication difficulty
- Reasoning
- Impaired behavioral monitoring
- Altered emotion, incapacity for pleasure
- Decreased drive and intention
Psychosis and TBI: What’s the Brain ‘Connection’?

- Frontal, temporal, and subcortical structures widely interconnected (McAllister & Ferrell, 2002).
- Widespread disconnection through Diffuse Axonal Injury (DAI) common after moderate to severe TBI.
- Decreased connectivity between cortical areas in schizophrenia (Frith, 1996).

Neural Overlap in Psychosis

<table>
<thead>
<tr>
<th>Brain Structure</th>
<th>Psychosis after TBI</th>
<th>“Neurological” Psychosis</th>
<th>“Psychiatric” Psychosis</th>
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<tbody>
<tr>
<td>Dorsolateral Prefrontal</td>
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<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Orbitofrontal</td>
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<td></td>
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<tr>
<td>Temporal Lobe/ Hippocampus</td>
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<td>Temporolimbic</td>
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<td>Subcortical White Matter</td>
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<tr>
<td>Basal G./Thalamus</td>
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<td>Yes</td>
<td></td>
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<tr>
<td>Brainstem</td>
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</tbody>
</table>

TBI Increases Vulnerability to Psychiatric Illness

- A study following TBI survivors for 30 years noted increased incidence of depression, delusional disorder, and personality disorder (Koponen et al., 2002).
- Observed incidence of schizophrenia-like psychosis after TBI ranges from 0.7% to 9.8%, two to three times the incidence in the general population (McAllister and Ferrell, 2002).

Davison and Bagley (1969): Risk Factors for Post-TBI Psychosis

- Left hemisphere and temporal lobe lesions.
- Closed head injury.
- Increased severity of injury with more diffuse axonal injury (DAI).
- Duration of coma > 24 hours.
- Possible propensity to mania after right frontotemporal and right or bilateral basal ganglia injury.
- Mania may also be associated with epileptiform abnormalities.

Psychiatric Problems Increase Risk of Brain Injury

- Depressed persons were at 2 ½ times greater risk of brain injury.
- Persons with anxiety and conduct disorders were at 60% greater risk of TBI.
Risk Factors for TBI and Genetic Risk for Schizophrenia Interact

- Malaspina et al. (2001) observed greater incidence of TBI in undiagnosed family members of schizophrenics than of bipolar individuals.
- In these families, TBI was associated with greater risk of subsequent schizophrenia.

Violence, Abuse and Neglect after TBI (Reichard et al, 2007)

- If this small (N=9) qualitative study is accurate, this is a significant problem.
- BI survivors vulnerable to violence and neglect for number of reasons.
- Reports of abuse by persons with brain injury often discounted.
- Participants suggested strategies for prevention: support systems, anger management skills, prevention of drug and alcohol abuse, public education regarding TBI.

Big Problem, Broad Impact

- Increased Medicaid expenditures for persons with both BI and mental illness (Wei et al. 2005).
- More than 40% of homeless hospital admissions with schizophrenia-like symptoms had history of TBI (Silver & McKinnon, 1993).
- Of 15 death row inmates, all had history of severe brain injury and 9 had recurrent psychoses preceding incarceration (Lewis et al. 1986).

Treatment Models and Approaches

Treatment Models

- Brain Injury: Rehabilitation through skills rebuilding and compensatory strategies
- Crisis (Band-aid)
- Mental Illness: Habilitation, skills building
- Alliance (It takes a village...) (100% Access)
- These models are not mutually exclusive

Treatment Strategies

- Physical crisis management skills needed for safety of clients and staff.
- Clubhouses, support groups and Uhlhorn.
- Challenging-client case conference: mine the expertise within and across agencies.
- Support the natural supports.
- An ounce of follow-up is worth a pound of crisis intervention. Sooner or later, the buck stops at the front door.
- Psychiatric consultation is a key component.
Importance of Psychiatric Consultation

- Understanding of brain injury critical.
- Diagnosis and determination of cause guides medical treatment.
- Potential causes:
  - Posttraumatic seizure.
  - Mood disorder (depression or mania).
  - Ongoing or past substance abuse.
  - Schizophrenia-like disorder.
- Medication management most effective in context of psychotherapeutic support and monitoring.
- Role of “atypical” antipsychotic medications

What Is Needed?

- We need specialists with skills in several areas: TBI, mental illness, substance abuse.
- It takes a village: structure, supports and ongoing follow-up.
- A village with resources does a better job than one without.
  - Political advocacy as part of the process.
  - A coalition of brain injury, substance abuse, and mental health advocates speaking in one voice.