Assessment of the Brain Injured Client: Neuropsychological, Psychiatric and Adjustment Issues

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Objectives

1. Brief review cognitive, behavioral, social impact of brain injury
2. Discuss neuropsychological assessment (includes demonstration!)
3. Describe psychological/personality assessment
4. Review assessment of: risk behavior, malingering, pre-morbid functioning through comprehensive neuropsychological assessment
Demographics

• 1.5 million Americans sustain a TBI each year.
• 80,000 - long-term disability following a TBI
• Individuals who have had one TBI are at greater risk to sustain a second TBI
• Additionally: Stroke, Tumors, Encephalopathy, other neurological conditions
Areas of Function Affected

• Cognitive
• Medical (seizures, sleep apnea)
• Sensory/perceptual
• Mobility, functional skills
• Social-emotional
• Vocational
SYMPTOMS

- Slowed information processing
- Memory problems
- Decreased attention/concentration
- Impaired new learning
- Poor planning
- Decreased judgment

- Physical/mental fatigue
- Vestibular/dizziness
- Sensitive to light, noise, crowds, busy environment
- Decreased initiation
SYMPTOMS

- Changes in vision, taste, smell
- Tinnitus
- Sleep problems
- Word finding problems
- Communication issues
- Motor problems
- Sexual problems
- Inflexibility
- Increased fears/anxiety
- Depression
- Alcohol intolerance
- Mood swings
- Irritability
- Decreased emotional control (laugh, cry)
Neuropsychological Testing

- Samples various areas of functioning
- Up to 8 hours
- Assesses attention/concentration
  - memory
  - executive functions (planning, reasoning)
  - visual-spatial skills
  - personality
  - motivation
A TEST IS A SAMPLE OF BEHAVIOR
Experience for Yourself

Administration of Trails A and B
Part of Halstead Reitan Neuropsychological Test Battery

WHAT WAS YOUR REACTION?
WHAT IS THIS ASSESSING?
Neuropsychological Evaluations

- Study of brain-behavior relationships
- Existence and severity of deficits
- Differential diagnosis
- Recovery potential
- Treatment interventions
- Identifies functional deficits even in cases where MRI may not be sensitive enough to identify damage.

Mild TBI: 85%-90% normal MRI
Sensitivity of Measurement

(Umile, Sandel, Alavi, Terry, Plotkin, 1997)

20 Persistent Post Concussion Symptom Clients

75% had normal CT and normal MRI

Neuropsychological testing abnormal: 95%
Dynamic Imaging abnormal: 90%
Abnormal temporal lobe PET and SPECT: 75%
Abnormal frontal lobe PET and SPECT: 30%
Components of a Neuropsychological Evaluation

• Specific Referral Questions!
• Record Review
• Clinical Interview: consistencies, motivation
• Standardized Testing: comparisons based on age, sex, education level
• Recommendations
Specific Referral Questions

CASE MANAGERS CAN INFLUENCE the value of the comprehensive neuropsychological evaluation by providing focused referral questions.

• how does performance relate to pre-injury functioning?
• are emotional factors affecting outcome?
• can he return to his job as xxxxx?
• is the client putting forth good effort?
Specific Referral Questions

- What are his/her deficits?
- Has the patient improved?
- Has the patient deteriorated?
- What treatment interventions are indicated?
- Identify emotional or behavioral issues which are influencing status and which would benefit from treatment.
Record Review and Clinical Interview

- Record Review: diagnoses and treatment, discrepancies, follow through, quotes
- Trust/rapport
- Pre-morbid functioning (psych)
- Previous TBI/MTBI or learning disability
- History of current injury, its MEANING
- Current symptoms and changes
- Family input may be helpful
NEUROPSYCHOLOGICAL IMPAIRMENT SCALE

(Handout demo)

Allows for comparison of self report vs. family report (magnify, minimize)

Allows for comparison of self report vs. test performance

Assesses attention, concentration, memory, defensiveness, consistency, academic skills, frustration tolerance
Clinical Interview

“Everyone at my job is dying”

“ I planned to retire in two years”

“This work was dangerous. I knew something would happen”

“If I can’t be an architect anymore, I have nothing”
Referral Suggestions

At least three months post injury: allow time to clear neurologically

Tests are valid if administered in six month intervals; if more frequent, practice effect

Annual re-evaluations up to a point: specific referral question

Functional need for neuropsychological eval?
Neuropsychological Testing

- Importance of Norms
- Standardized
- Intra and inter scatter (consistency)
- Sample functions under various circumstances
- “Hold” tests to estimate pre-morbid functioning
- Timed vs. Untimed
- Assessment of effort: behaviorally and tested
Neuropsychological Testing

THE IMPORTANCE OF NORMS
Experience for Yourself

- **Paragraph Recall:** Memory for information presented in context

- **Wechsler Memory Scale-IV**
Neuropsychological Testing

- Validity: effort, standardized malingering measures
- Attention
- Speed of processing
- Learning and Memory
- Verbal and non-verbal skills
- Visuo-spatial skills
- Executive Functions
- Emotional status
- Overwhelm and fatigue
- Interpersonal skills
Experience for Yourself

The Rey-Osterrieth Complex Figure Test (ROCF) is a neuropsychological assessment in which examinees are asked to reproduce a complicated line drawing. ....permits the evaluation of different functions, such as visuospatial abilities, memory, attention, planning, and working memory (executive functions).
Neuropsychological Testing

- Common tests administered
- Halstead-Reitan Neuropsychological Test Battery (Booklet Category Test, Trails A and B, Sensory Perceptual Exam, Seashore Rhythm, Tactual Perception Test)
- Wechsler Adult Intelligence Scale-IV (WAIS-IV)
- Wechsler Memory Scale-IV (WMS-IV)
- Wide Range Achievement Test-3 (WRAT-4)
Neuropsychological Testing

Common Tests Administered:

- California Verbal Learning Test-II (CVLT-II)
- Frontal Systems Behavior Scale (FrSBe)
- Neuropsychological Impairment Scale (NIS)
- Wisconsin Card Sorting Test (WCST)
- Beck Anxiety Inventory (BAI)
- Beck Depression Inventory-II (BDI-II)
- Minnesota Multiphasic Personality Inventory-2 (MMPI-2)
**Reasoning**

**ABSTRACT REASONING:**
ability to think flexibly, shift “set,”
problem solving, reasoning, judgment

*e.g. Category Test (Halstead)*

*Wisconsin Card Sort Test*

*Comprehension, Vocabulary*
Neuropsychological evaluation addresses

- best circumstances of learning
- ability to perform consistently
- social collaboration skills
- environmental modifications
- fatigue factors
- self monitoring abilities
- consistency of effort, magnification of symptoms
- personality and adjustment
Experience for yourself

Paced Serial Addition Test (PASAT)

Complex addition and concentration task

Useful for Mild Traumatic Brain Injury
Validity

1. Look within tests for consistency
2. Look across tests for discrepancies
3. Compare to prior testing
4. Compare to functional performance
5. Evaluate behaviors
6. Standardized measures are available to evaluate malingering or symptom magnification
Assessing Validity

• **TOMM:** *Test of Memory Malingering*
  50 item visual recognition test
  “while sensitive to malingering, the TOMM is insensitive to a wide range of neurological impairments, making it ideal for detecting exaggerated or deliberately faked memory impairment”
Assessing Validity

Rey Fifteen Item Memory Test (FIT): recall of meaningful symbols

Victoria Symptom Validity Test: computerized, study a card with 5 digits, see a card with the same 5 digits and another 5 digits. Select one previously seen.
Social/Emotional Sequelae

- Depression
- Anxiety
- Shattered identity
- Family conflict
- Short fuse
- Impulsivity
- Egocentrism
- Loss of control
- Irritability
- Sleep difficulties
- Sexual dysfunction
- Isolation
- OCD
- Loss, Loss, Loss
Emotional and Behavioral Control

• Decreased emotional control
• Irritable, short fuse, uncharacteristically aggressive or violent
• Depression independent of situation
• Cognitive losses: inflexible
• “A different person”, egocentric, reduced capacity for intimacy, isolation
PATIENT HAS TO RESOLVE REVISED IDENTITY ISSUES
Behavior/Emotions

• Organic factors:
  Frontal lobe dyscontrol issues including irritability, impulsiveness, anger control

• Reactive components:
  Depression, anxiety, social withdrawal
Experience for Yourself

Depression symptoms:

- 0-9  normal
- 10-18 mild/moderate
- 19-29 moderate/severe
- 30-63 extreme
Cognitive Influence on Emotions

Cognitive factors influence emotional response

• Cognitive inflexibility: unable to develop alternatives
• Stimulus bound: > self focus
• Perseveration: emotionally stuck, precludes acceptance and revised identity
Emotional Influence on Cognition

**Depression:**
- Slowed motor responses
- Decreased initiative/effort
- Decreased initial learning

**Anxiety:**
- Impairs concentration
Psychiatric Symptoms
*(Hoofien, Gilboa, Vakil, Donovick, 2001)*

Symptom Check List – 90 *(Derogatis)*

76 severe TBI clients

14 years post injury

- Hostility: 52%
- Psychoticism: 36%
- Depression: 45%
- OCD: 30%
- Anxiety: 44%
- Phobic: 28%
- Paranoid: 8%
Personality Assessment

• Depression: Beck Depression Inventory-II

• Anxiety: Beck Anxiety Inventory

• Personality Functioning:
  MMPI-2: 10 scales, patterns
  Validity scales
MMPI-2

Validity scales: ? omitted

Lie, socially acceptable

Frequency/fake bad

K ego strength; correction
MMPI-2

• Clinical Scales: *Interpreted in patterns*

Hypochondriasis    Paranoia
Depression          Anxiety
Hysteria            Schizophrenia
Psychopathy         Mania
Masc/femn           Social Introversion
MMPI-2

- Chronicity of depression
- “Acting out” potential
- Social isolation
- Extent of “thought disorder”
- Paranoid ideation
- Overall pathology
- Level of self awareness
Profile and Case Summary

The Minnesota Multiphasic Personality Inventory
Starke R. Hathaway and J. Charnley McKinley

Scorer's Initials

Name
Address
Occupation
Education
Marital Status
Notes

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Personality Assessment

• Reactive depression; suicide risk
• Anxiety further complicating recovery
• Aggressive /acting out potential
• Egocentrism
• Overall psychological distress; medication management suggestions
Importance of Context

1. Environmental exacerbation: structure, stability, work performance/relationships
2. Secondary gain: what was happening assessing losses
3. Pre-morbid status:
   prior medical/neurological substance abuse history coping and defenses family dynamics
In addition to their cognitive deficits, an individual’s adjustment and coping will greatly influence outcomes, thus influencing costs of managing the case!
Neuropsychological Evaluation - Recommendations

- FUNCTIONAL
- SPECIFIC COGNITIVE STRATEGIES
- JUDGMENT AND SAFETY
- COPING AND MOOD
- ACTIVITY PATTERN
- THERAPY REFERRALS
- PSYCHIATRY/MEDICATION MANAGEMENT
Case Example

• 40 year old divorced mother
• High school education; worked in clerical tasks
• Two consecutive falls: no litigation
• Diagnosed in ER’s with concussions
• CT findings: subdural hematoma with compression of left lateral ventricle
Case Example

• Reported barriers: forgetting words, decreased attention span, increased irritability, decreased frustration tolerance, short term memory problems, balance problems

• Experiencing significant stress related to her injuries, symptoms and difficult life/family events
Case Example

• One month after onset: “Foreign Accent Syndrome” an extremely rare condition
• British accent or Southern belle; sometimes American
• Mild cognitive deficits on neuropsych eval (Expected)
MMPI

- Significant psychological distress
- Supports diagnosis of conversion disorder along with post concussion syndrome
Case Example

Woman in her 40’s
High level sales position

History of Concussion, ADHD, Depression/Anxiety, Sobriety, Eating Disorder

“inability to stay on track with tasks, longer response time to questions, short term memory problems.”

Work position at risk.
Case Example

Behaviors
Outgoing, expansive
Believes she does not work to her potential
Suspicious of motives of employer
Very talkative, dramatic
# Case Example

## Neuropsychological Assessment

<table>
<thead>
<tr>
<th>Test</th>
<th>Score</th>
<th>Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Scale IQ</td>
<td>103</td>
<td>Average</td>
</tr>
<tr>
<td>Verbal Comprehension</td>
<td>108</td>
<td>Average</td>
</tr>
<tr>
<td>Perceptual Reasoning</td>
<td>92</td>
<td>Average</td>
</tr>
<tr>
<td>Working Memory</td>
<td>100</td>
<td>Average</td>
</tr>
<tr>
<td>Processing Speed</td>
<td>111</td>
<td>High Average</td>
</tr>
</tbody>
</table>
Case Example

• Inter-test scatter: Low End of Average to Superior
• VOCABULARY: Superior (“hold test”)
• Memory: Average to High Average
• Visual Reasoning and
  Nonverbal Reasoning: Low Average
• Conceptual Reasoning and
  Problem Solving: Low Average
• PASAT: overwhelmed, crying
  test of divided attention, concentration
  moderate impairment
The highest and lowest T scores possible on each scale are indicated by a "--".

Recommendations

2. Job coaching to support organization, communication, responses in work environment. Evaluate work setting and process.
3. Ongoing psychotherapy related to anger, emotionality.
Neuropsychological Evaluation – Recommendations

• STRENGTHS/BARRIERS
• FUNCTIONAL
• SPECIFIC COGNITIVE STRATEGIES
• JUDGMENT AND SAFETY
• COPING AND MOOD
• ACTIVITY PATTERN
• THERAPY REFERRALS
• PSYCHIATRY/MEDICATION MANAGEMENT
Comments & Questions