Is it brain injury, trauma or exaggeration?
Exploring the boundaries of Neuropsychological Assessment, Diagnosis and Treatment

Presented by
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Common reasons for medico-legal referral
- Identifying the presence of an acquired brain injury
- Clarifying the functional consequences of the ABI, primarily treatment, employment and care.
- Assessment of capacity
- Identification of psychological trauma i.e. PTSD, depression and anxiety related conditions
- Assessment prior to the provision of a programme of neuropsychological rehabilitation and / or psychotherapy.
- Evaluating the effectiveness of a treatment programme / intervention

What can I expect from a Neuropsychological Assessment?
ABI Assessment (4-5 hours, possibly over 2 sessions)
1. Thorough review of history and other expert evidence with summary of main findings and areas of contention
2. Thorough clinical interview including assessment of
   1. Personal, educational, social, employment and medical history
   2. Treatment, rehabilitation and care post injury
   3. Detailed history of the index event with estimate of Post Traumatic Amnesia, GCS and injury severity
   4. Cognitive impairment (attention, speed of information processing, memory, language / communication/ executive function and implications for activities and participation)
   5. Activities of Daily Living (mobility, hygiene, housework, shopping, financial management etc)
   6. Mood (anxiety / panic, depression, PTSD, AD and any organically related mood symptom or adjustment factors)
   7. Relationships and sexual functioning
8. Other ‘organic’ factors such as epilepsy, sensory loss or alteration, balance and coordination, dementia etc.
9. Pain
10. Sleep disorders and Fatigue

3. Comprehensive neuropsychological assessment including
   1. Effort – new generation (TOMM & WMT inc discrepancy obs: perform)
   2. Pre-injury level of functioning (WTAR)
   3. Intellligence (WAIS-III)
   4. Attention, Speed & Accuracy of Thinking (AMPSR, D.KEFS, TEA)
   5. Memory (WMS III)
   6. Executive Function - Planning, initiation of activity, organisation, error correction, abstract thinking, behavioural and emotional control etc (D.KEFS, BADS, Hayling and Brixton, WCST)
   7. Language (TROG, SCOLP, Vocabulary)
   8. Mood (Beck scales of anxiety and depression, NFI, SCL-90R)
   9. Fatigue (VAS-F, BIFS)

10. May involve a functional assessment of capacity but unlikely to be comprehensive.

4. Summary of main finding:
   5. Curation of previous evidence and results of interview and assessment to provide:
      1. Estimation of injury severity and prognosis, if possible.
      2. Recommendations for treatment & rehabilitation (prognosis may have to wait until second assessment / examination)
      3. Recommendations for care / support. This will depend on the experience and background of neuropsychologist.
      4. Capacity for employment (same limitations as 2)

Assessment of Capacity
An assessment may be required to address specific matters in detail and should include a customised clinical interview, assessment of neurocognitive impairment as it relates to the specific question of capacity, a functional assessment of ability (write a cheque, understand a bank statement etc.), recommendations of support required to exercise capacity and the limitations on that capacity.

Assessment for treatment
- Time, expense and stress on the client will be saved if good records and assessments are sent before the initial evaluation, in chronological order if possible.
- The clearer the referee can be regarding the target for treatment the better.
- Agree source of funding prior to the programme being given and make sure the therapist / organization is properly trained and qualified to deliver the programme.
- If possible avoid direct payment from the client (conflict of interest)
- The report should clearly define:
  - Treatment goals and outcome measures
  - An anticipated time course or period for review, with written reports
  - Treatment options and associated risks
  - Model to be used and the evidence base to support its use in this case
  - What other agencies that need to be involved, either for the management of risk or to maintain any improvement ie CMHT, Case manager, support workers
Issues in Assessment

Purpose of the assessment: If there is an ABI, with or without psychological trauma, you will need a neuropsychologist.

1. Full practitioner members of the Division of Neuropsychology of the British Psychological Society will have a recognised standard of knowledge and expertise. [http://www.bps.org.uk](http://www.bps.org.uk)/[http://www.bps.org.uk/don/member-list.cfm]

2. Different neuropsychologists will have different expertise so try and match your clients' needs with the practitioner's expertise in epilepsy, neurorehabilitation, psychotherapy, children, and so on.

3. Try and be clear with the issues you wish to have addressed, including therapy and capacity. This gives the psychologist the opportunity to see if their skill set matches the instructions.

4. Provide as much information as possible, particularly with regard to GP notes, medical history, severity of the index event and education, work records and personal background. This saves problems later if an opinion needs to be 'revisited'.

How do Brain Trauma and Distress relate to each other?

- You can experience a brain injury without any significant psychological trauma depending on:
  1. The severity of the original injury (PTA, GCS, LOC), fractured skull?
  2. The resilience, personality and coping style of the individual
  3. The degree of perceived threat and challenge to the self-identity of the individual
  4. The presence or absence of a previous injury

- You can experience a PTSD with a significant concussive ABI (and without). Secondary trauma ('Death in the room')

Range of Post-ABI Difficulty

Antonacci, Livneh, and Antonak (1993) identified eight specific reactions most commonly reported in the literature. Shock, anxiety, denial, depression, internalised anger, externalised hostility, acknowledgment and adjustment. Did not identify other areas of post-ABI adjustment such as:

- Substance misuse (Schmidt and Heinemann, 1999)
- Paranoia and psychosis (Lohman, 1987)
- Obsessive-compulsive disorder (Klonoff, Lage and Chiapello, 1993)
- Misdiagnosis with memory problems.
- Post traumatic stress disorder (McMillan, 2001) and
- Fatigue (La Chapelle and Finlayson, 1998) & poor sleep
- Hormonal difficulty about 25-59% (Mischel Rosinman et al 2007);
  (Schacter & Singer, 1995: misattribution)
### Prevalence of Anxiety & Depression

<table>
<thead>
<tr>
<th>Study</th>
<th>Prevalence</th>
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<tbody>
<tr>
<td>Powell et al (1996)</td>
<td>31% Anxiety &amp; Depression</td>
</tr>
<tr>
<td>Godfrey (1996) @ 6/12</td>
<td>Under-report Anx / Dep &amp; over-report social skills</td>
</tr>
<tr>
<td>Jorge et al (1994)</td>
<td>10% co-morbid GAD with major depression, 15% Major depression alone.</td>
</tr>
<tr>
<td>Raskin &amp; Stein (2000)</td>
<td>30% Report Depression after 1 yr</td>
</tr>
<tr>
<td>Varney et al (1998)</td>
<td>77% met diagnostic criteria for major depression vs 38% back trauma. Therefore can’t be trauma alone</td>
</tr>
<tr>
<td>Varney et al (1998)</td>
<td>Only 18% spontaneously reported depression</td>
</tr>
<tr>
<td>Varney et al (1998)</td>
<td>48% only reported depression after 6/12</td>
</tr>
<tr>
<td>Godfrey et al (2001) 10-20 years post injury</td>
<td>Anxiety = 43.8% (rels 35.3%) Depression = 45.3% (26.5%)</td>
</tr>
<tr>
<td>Holsinger et al (2002)</td>
<td>1718 WW2 vets for lifetime risk</td>
</tr>
<tr>
<td>Holsinger et al (2002)</td>
<td>With major ABI = 18.5%, without = 13.4% (trauma control)</td>
</tr>
<tr>
<td>• General population (10-25% women lifetime risk of MDD)</td>
<td></td>
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<tr>
<td>• 10-25% of patients with one episode of a pre-existing dysthymic episode go on to develop a major depressive disorder.</td>
<td></td>
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<tr>
<td>• 60% of these will go on to experience another major depressive disorder</td>
<td></td>
</tr>
<tr>
<td>• 70% of those will have a third MDD and 90% will have a fourth.</td>
<td></td>
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<tr>
<td>• MDD triggered by severe stressors eg bereavement, relationship breakdown, ABI, employment lost.</td>
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</table>

- A significant ABI carries with it an increased lifetime risk of anxiety and depression.

**Dewer and Gracey (2007)**

Loss of identity is emerging as a key theme following acquired brain injury (ABI).

Cognitive-behavioural therapy can be applied to construct a new model of the self in the context of behavioural, cognitive and social sequelae of the ABI, consideration of pre-illness identity.

Carer burden, family stress and adjustment is a CRITICAL and substantially unseen and untreated post injury issue.
“...Although the problem is complex, a more concerted effort is needed to separate the truly distressed from those few that are malingering.....”

Dikmen, Temkin and Armsden (1989)

Effort and Motivation

Motivation refers to the initiation, direction, intensity and persistence of human behavior (Green)

Many theories of motivation, probably the most familiar is Maslow’s hierarchy of needs - from basic to most complex:

- Psychological
- Security
- Love
- Esteem
- Self Actualization

Awareness and Denial

(Karen Langer, 1999)

Denial as a defence mechanism

Anosognosia = Unawareness of deficit after neurological insult. Modality specific (awareness of one deficit may exist in the absence of another)

Prigatano “...denial is an attempt by the organism to cope, anosognosia represents a failure to recognize the need to cope.”

Understanding of any tests of ‘effort’ must take these factors into account.

Comparison of effort testing (pass and fail) and Goal Attainment

- Pre
- Post
- Total

Pass
Fail
Is there a significant difference between effort testing and goal attainment?

**Goal attainment**

|                | PRE effort testing | 0.49 | POST effort testing | 0.82 | TOTAL effort testing | 0.46 |

Not significant – this supports the null hypothesis that there is no significant difference between pass or fail on effort testing and goal attainment achieved in rehabilitation.

Comparison of effort testing (pass and fail) and GSI score (distress)

<table>
<thead>
<tr>
<th></th>
<th>PRE GSI</th>
<th>POST GSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre effort testing</td>
<td>0.51</td>
<td>0.60</td>
</tr>
<tr>
<td>Post effort testing</td>
<td>0.56</td>
<td>0.23</td>
</tr>
<tr>
<td>Total effort testing</td>
<td>0.94</td>
<td>0.32</td>
</tr>
</tbody>
</table>

Not significant – this supports the research and the null hypothesis that there is no significant difference between pass or fail on effort testing and mood (GSI).
Comparison of effort testing (pass and fail) and Beck Depression Inventory (BDI)

Kruskal-Wallis Test
Is there a significant difference between effort testing and mood (BDI)?

<table>
<thead>
<tr>
<th>PRE BDI</th>
<th>POST BDI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre effort testing</td>
<td>0.65</td>
</tr>
<tr>
<td>Post effort testing</td>
<td>0.46</td>
</tr>
<tr>
<td>Total effort testing</td>
<td>0.87</td>
</tr>
<tr>
<td>Pre effort testing</td>
<td>0.72</td>
</tr>
<tr>
<td>Post effort testing</td>
<td>0.78</td>
</tr>
<tr>
<td>Total effort testing</td>
<td>0.66</td>
</tr>
</tbody>
</table>

Not significant – this supports the research and the null hypothesis that there is no significant difference between pass or fail on effort testing and mood (BDI).

Spearman’s Rho Test
Is there a significant relationship between mood and goal attainment?

<table>
<thead>
<tr>
<th>PRE BDI</th>
<th>POST BDI</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE GSI</td>
<td>0.37</td>
</tr>
<tr>
<td>POST GSI</td>
<td>0.49</td>
</tr>
</tbody>
</table>

Not significant – this does not support the experimental hypothesis that there is a significant relationship between goal attainment and mood.
The Rehabilitation Maze

- Referral to Services
- Disengaging
- Catastrophe
- Engaged/Limited
- Stuck
- Shock
- Integrated Lifestyle

**Crisis**
- Limited compensations
- Support breaking down
- Loss of control & hope
- Increased depression & anxiety

**Disengaging**
- Unaware
- Realization
- Catastrophe

**Engaged/Limited**
- Increased awareness of disabilities
- Some motivation to change
- Adjustment work

**Stuck**
- Passive Engagement
  - Still pre-self concept/idealization/denial

**Who I Am Not Who I Was**
- Developing new self-concept
- Positive growth
- Change in lifestyle
- Realistic goals/expectations
- Integrated adaptation
- Not realistic/longing/unfinished grieving

**Engaged/Limited**
- Integrated Lifestyle

**Shock**
- Breaking bad news