

Posttraumatic Amnesia

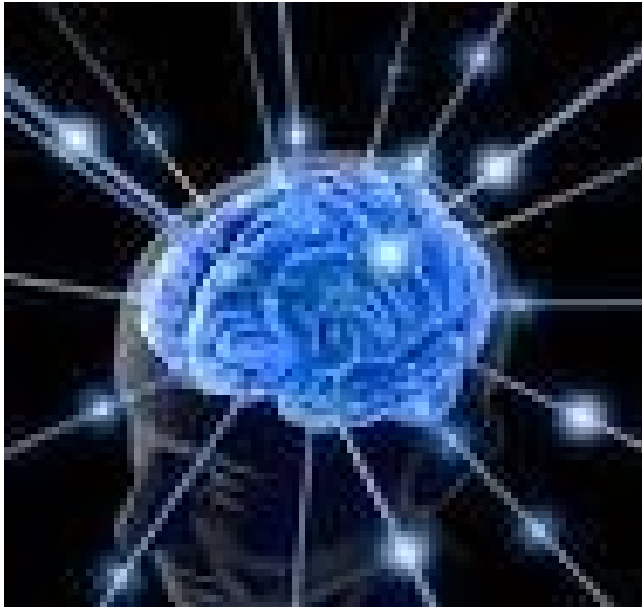
Long term implications from a Neuropsychologist's perspective

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Overview



- Traumatic Brain Injury
- Assessment
- Estimating Severity
- Outcomes
- PTA
- Mild TBI
- How Documentation Helps Assessment



TBI – True/False Quiz

- Five quick questions



TBI – True/False Quiz

1. Even after several weeks in a coma, when people wake up, most recognise and speak to others right away.
2. How quickly a person recovers from a head injury depends mainly on how hard they work at recovering.
3. Sometimes a second blow to the head can help a person remember things that were forgotten.



TBI – True/False Quiz

4. A little brain damage does not matter since people only use a small portion of their brains anyway.
5. After a head injury, people can forget who they are and not recognise others but be perfect in every other way



TBI – True/False Answers

1. Even after several weeks in a coma, when people wake up, most recognise and speak to others right away.

FALSE

40% of respondents thought this was true



TBI – True/False Answers

2. How quickly a person recovers from a head injury depends mainly on how hard they work at recovering.

FALSE

62% thought this was true



TBI – True/False Answers

3. Sometimes a second blow to the head can help a person remember things that were forgotten

FALSE

42% thought this was true



TBI – True/False Answers

4. A little brain damage does not matter since people only use a small portion of their brains anyway.

FALSE

17% thought this was true

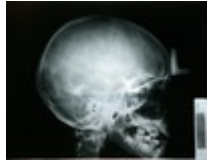


TBI – True/False Answers

5. After a head injury, people can forget who they are and not recognise others but be perfect in every other way

FALSE

75% thought this was true



Traumatic Brain Injury

“In Punch and Judy puppet shows, the various characters are beaten about the head by Mr Punch, lose consciousness for a time, and then recover fully almost instantaneously”

(Robertson, 1988, pp . 398)





Traumatic Brain Injury

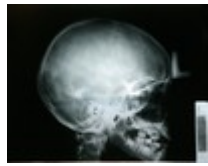
“TBI is an acute brain injury resulting from mechanical injury to the head from external physical forces”. (NZ Guidelines Group, 2006)

- Operational criteria include (one or more):
- Confusion or disorientation
- Loss of consciousness
- Post traumatic amnesia
- Focal neurological signs, seizure &/or intracranial lesions



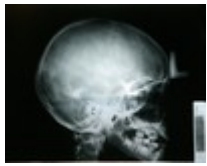
Prevalence

- 2,400 Moderate to Severe TBI per year
- 24,000 Mild TBI per year
- 80% injuries within mild range
- Underestimate of true rates
- 2:1 males to females
- Mechanisms: MVA's, falls, assaults, sports
- Peaks: under 5's, 15-24 years, over 70 years



Neuropsychological Assessment

- Brain behaviour relationship
- Cognitive Screen (weeks - after mildTBI)
- Full Neuropsychological Assessment (if further information required – 6 months after injury)
- Battery of tests (e.g., speed, attention, memory)
- Cognitive function and behavioural outcome



Neuropsychological Assessment

- Aim to provide information about:
 - Severity of injury (mechanisms, severity indicators)
 - Baseline of cognitive functioning
 - Planning of treatment
 - Review improvement or deterioration
 - Assess genuineness of symptoms
 - Long term prognosis



Estimating Severity

- Glasgow Coma Scale (GCS) score
- Common measure
- Good predictor of outcome but not entirely reliable
- Less useful for mildTBI

GSC Score	Severity
13-15	Mild
9-12	Moderate
3-8	Severe



Estimating Severity

- **Coma / LOC**
- Variability in literature
- Poor predictor of outcome in mild cases

Coma Period	Severity
Less than 20mins	Mild
No longer than 6 hours	Moderate
Greater than 6 hours	Severe

From Neuropsychological Assessment (p.160) by M.D.Lezak (2004).



Estimating Severity

- **Post-traumatic Amnesia**
- Disturbance of memory post-injury
- Ends when person has continuous memory for events
- Can occur in the absence of LOC
- Measurement is of significant benefit in determining severity and prognosis following TBI



Estimating Severity

- Posttraumatic Amnesia (PTA)

PTA Duration	Severity
<5 minutes	Very mild
5-60 minutes	Mild
1-24 hours	Moderate
1-7 days	Severe
1-4 weeks	Very Severe
More than 4 weeks	Extremely Severe

From Neuropsychological Assessment (p.160) by M.D.Lezak (2004).



Estimating Severity

- GCS = 13 (mild)
- LOC = Less than 20 minutes (mild)
- PTA = 7 hours (moderate)
- Injury classified within the “Moderate” range



Mild TBI

- 80% of injuries within mild range
- Symptoms include:
 - headaches, fatigue, phono- and photo-sensitivity
 - concentration and memory difficulties
 - mood changes e.g., irritability, low mood, anxiety
- Recovery within first few weeks
- Complicated recovery = Post-concussion syndrome



Mild TBI

- PTA common after mild TBI

	NCAA Concussion Study	Concussion Prevention Initiative	Project Sideline	Total
No. of players	4251	9094	3279	16624
No. of mTBI's	196	375	87	658
LOC	6.8%	9.3%	17.9%	9.7%
PTA	19.1%	21.9%	37.3%	22.9%
RA	7.4%	17.3%	29.9%	15.6%
No LOC, PTA or RA	78.1%	64.5%	49.4%	66.5%

From McCrea (2008)



Mild TBI

- Assessment of PTA in mild TBI is beneficial
- Potential to miss valuable information without it.
- E.g., mild TBI with GCS 15 and no LOC



Outcomes Following TBI

- TBI is complex and no two injuries alike
- Effects in physical, cognitive, behaviour and mood domains post-injury.
- Degree of impairment usually dependent on injury severity.
- Always exceptions and surprises



Outcomes Following TBI

- Case Example – Severe TBI
- 54 year old Emergency Services Worker
- Cyclist hit by motorist - GCS 3/15; PTA 3 weeks
- 4 years post injury continues to have:
- Impaired mobility (dizziness, ataxia)
- Sensory changes (phono- and photo-sensitive)
- Concentration and memory difficulties
- Significant anxiety due to change in physical capabilities
- Able to return to voluntary work role on reduced hours



Outcomes following TBI

- **Case Example – Moderate TBI**
- 20 year old male – MVA
- Brief LOC (minutes); GCS 12 at scene and 14 at ED;
- PTA not recorded
- Multiple orthopedic injuries - no obvious head trauma
- Attempted return to University but struggled with headaches, fatigue, and concentration difficulties.
- TBI not recognised for several months
- Retrospective review – PTA 2-3 days



Prognosis

- Recovery is influenced by a range of factors
- Area of trauma (CT/MRI)
- Demographic factors
 - Learning difficulties
 - Low IQ
 - Unemployment
 - Substance use
 - Psychiatric Illness



Prognosis

- Post injury factors
 - e.g., extent of cognitive impairment
 - social supports lacking
 - individual coping mechanisms (adaptive or maladaptive)
- Injury severity indicators (e.g., PTA, GCS, LOC).



Posttraumatic Amnesia

- Good indicator of injury severity and long term effects
- More useful than GCS and LOC in predicting long term outcome
- Longer PTA = More severe impairment
- Reduced capacity to work
- Reduced capacity for social participation



Posttraumatic Amnesia

- Poorer quality of life
- Family dissatisfaction
- Psychological distress
- Long term effects are enduring
- Brain atrophy



Documentation

- Very helpful for assessors
- Injury mechanism and circumstances
- GCS
- LOC
- PTA
- Helps to make sense of cognitive profile



Documentation

- Assists with prognosis
- Reduces chances of misclassification
- Especially important to have PTA measure in mild cases (e.g., if GCS is 15).
- Reduces difficulties in retrospective rating



Documentation

- Assists with advising referrer (ACC) about long term effects and rehabilitation required.
- Helps patient and family to understand injury and long term effects.



THANK YOU