assessing and diagnosing PTSD after traumatic brain injury

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what’s the problem?

• many reported symptoms of PTSD and TBI are shared
• not always possible to determine what is brain or mind
• both disorders may co-exist
• health professionals tend to look for things they know about and miss things they don’t know about
• opportunities for effective treatment might be missed
Q1. what symptoms are common after war?
common post-conflict symptoms

- symptoms in 1,856 British servicemen with post-combat syndromes in order of frequency
- 1899 – 1991

1. Difficulty completing tasks
2. Fatigue or lethargy
3. Shortness of breath
4. Persistent anxiety
5. Weakness
6. Rapid or irregular heartbeat
7. Headaches
8. Difficulty sleeping
9. Tremor, shaking, or trembling
10. Dizziness or giddiness
11. Depression or low mood
12. Pains in joints
13. Changes in weight
14. Irritability
15. Forgetfulness or memory loss
16. Back pain
17. Poor concentration
18. Stomach cramps or abdominal pain
19. Heavy or persistent sweating
20. Changes in personality
21. Nightmares
22. Jumpiness or easily startled
23. Tenderness or soreness
24. Persistent cough
25. Diarrhoea
common post-conflict symptoms

**Neurological**
1. Difficulty completing tasks
2. Weakness
3. Headaches
4. Tremor, shaking, or trembling
5. Dizziness or giddiness
6. Forgetfulness or memory loss
7. Changes in personality

**Gastrointestinal**
8. Changes in weight
9. Stomach cramps or abdominal pain
10. Diarrhoea

**Rheumatic**
11. Pains in joints
12. Back pain
13. Tenderness or soreness

**Mood - fear**
4. Persistent anxiety
14. Irritability
19. Heavy or persistent sweating
21. Nightmares
22. Jumpiness or easily startled

**Mood - Depression**
8. Difficulty sleeping
11. Depression or low mood
17. Poor concentration

**Cardio-respiratory**
2. Fatigue or lethargy
3. Shortness of breath
6. Rapid or irregular heartbeat
24. Persistent cough
post-combat diagnostic trends

US Civil War (1861-1864) – heart/nerves
- soldier’s heart
- irritable heart
- nostalgia

Boer War (1899-1902) – heart/infection
- disordered action of the heart (DAH)
- valvular disease of the heart (VDH)
- simple common fever (SCF)

1st WW (1914-1918) – nerves/heart/rheumatism
- shellshock W & S
- DAH, VDH
- rheumatic fever

2nd WW (1939-1945) – gut/heart
- non-ulcer dyspepsia
- suspected duodenal ulcer
- ‘effort syndrome’
  (shellshock proscribed)

Vietnam (1961-1975) - psychological
- ‘post-Vietnam syndrome’
- ‘delayed stress disorder’
- post-traumatic stress disorder (1983)

Gulf War (1991) – immune system?
- Gulf War syndrome

Afghanistan/Iraq – neurological? psychological?
- TBI
Gulf War Syndrome

• fear:
  – chemical weapons
  – biological agents
  – depleted uranium
  – effects of burning oil wells
  – multiple vaccinations, pyridostygmine
  – infections – mycoplasma fermentans, leishmaniasis
  – Khamisaya arms dump explosion (sarin, cyclosarin nerve agents)

• persistent health concerns in military personnel complaining of unexplained symptoms similar to those of post-concussion syndrome (mild TBI)

• no evidence of any specific Gulf War Syndrome after substantial research
lesson 1

- trauma leads to multiple physical and psychological symptoms suggestive of many possible disorders

- traumatised people are frightened and vulnerable

- important not to increase fears by speculating about causes
the trauma landscape

• horrific events with multiple repercussions

• compensation – increases reports of complaints

• stigma – decreases reports of complaints

• media – quick to claim new disorders e.g. “shellshock”, “GWS”

• pathoplasticity
  – we fit our symptoms into patterns we understand or fear
  – health professionals look for what they expect to find
Q2. what symptoms are common after mild traumatic brain injury?
traumatic brain Injuries

- contusion
- laceration
- intracranial haematoma
- contrecoup injury
- shearing of nerve fibres
- intracranial hypertension
- hypoxia
- anaemia
- metabolic anomalies
- hydrocephalus
- subarachnoid haemorrhage.
# post-concussion syndrome

<table>
<thead>
<tr>
<th>ICD-10</th>
<th>DSM-IV</th>
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<tbody>
<tr>
<td>• headaches</td>
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</tr>
<tr>
<td>• dizziness</td>
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<tr>
<td>• general malaise</td>
<td>• fatigue</td>
</tr>
<tr>
<td>• fatigue</td>
<td>• sleep disturbance</td>
</tr>
<tr>
<td>• noise intolerance</td>
<td>• irritability</td>
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<tr>
<td>• irritability</td>
<td>• anxiety</td>
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<tr>
<td>• emotional lability</td>
<td>• depression,</td>
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<tr>
<td>• depression</td>
<td>• changes in personality</td>
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<tr>
<td>• anxiety</td>
<td>• apathy</td>
</tr>
<tr>
<td>• concentration problems</td>
<td>• reduced tolerance to alcohol</td>
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<tr>
<td>• memory difficulty</td>
<td>• preoccupation with symptoms</td>
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<tr>
<td>• sleep disturbance</td>
<td>• fear of permanent brain damage</td>
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* * seen post-conflict
post-concussion syndrome

• 72-79% healthy population report 3 symptoms of PCS
  14.6% meet DSM IV criteria for PCS
  12.6% meet ICD-10 criteria for PCS

• injured patients:
  mild TBI   40% report PCS   46.8%@ 3 months
  no TBI    50% report PCS   48.3%@ 3 months

• 50% of depressed patients meet symptom criteria for moderate/severe post-concussional syndrome
fear

• produces many physical and psychological symptoms

- poor attention and concentration
- rapid heart beat
- memory problems
- hyperventilation
- irritability
- muscle pains
- anxiety
- diarrhoea
- low mood
- abdominal pain
- anger
- tremor
- sleep disorder
- sweating
- suicide
- fatigue
- noise intolerance
- headaches
easily startled
dizziness
symptoms of stress reactions & TBI

- emotional numbing
- dissociative states
- daze, stupor
- amnesia
- withdrawal
- depression
- anxiety
- anger
- emotional numbing
- dissociative states
- reduced awareness
- amnesia
- withdrawal
- depression
- anxiety
- anger
• symptoms reported after mild TBI and symptoms produced by fear are very difficult to distinguish

• many of the reported subjective symptoms reported after TBI may be fear-based
PTSD criteria

A – traumatic event

B – distressing memories

C – avoidance behaviours

D – stress symptoms

E – duration

F – impairment of functioning
Q2. can TBI and PTSD occur together?

- TBI is often associated with memory loss
- a core feature of PTSD is intrusive, distressing memories
- so does TBI protect against developing PTSD?
TBI and PTSD together? (Bryant et al)

- 228 RTA patients:
  - fewer memories of the crash, less PTSD

- 1167 hospital patients:
  - 459 TBI, 708 no TBI
  - TBI pts 1.86x less likely to develop PTSD
TBI and PTSD together? (Hoge et al; Fann et al)

• combat troops:
  – bodily injury 16% PTSD
  – mild TBI 44% PTSD

• 939 injured health plan patients
  – mild TBI patients 2.8x more PTSD
memories when unconscious?!!

• memories post-trauma – e.g. of being cut out of car

• memories post-trauma whilst in a high state of fear – e.g. in hospital

• memories from photos, newspapers, accounts
  (NB: Bisson)
TBI and PTSD together?

• what’s going on?

• likely explanation:
  – mild TBI – memories of the event induce fear and increase likelihood of PTSD

  – moderate/severe TBI – memories are absent or poorly formed and reduce likelihood of PTSD
lesson 3

• PTSD is more likely to develop in people who have suffered mild TBI

• PTSD is much less likely to develop in people who have suffered moderate to severe TBI
assessment after TBI

• history

• mental state examination

• questionnaires

• what to expect

• diagnosing PTSD
assessment after TBI - history

• full history
  - pre-morbid mental health and level of functioning
    • adaptive or maladaptive coping strategies
    • degree of vulnerability or resilience
    • previous psychiatric disorders
  
  - injury/trauma event
    • memories of it
    • feelings at the time (“I’m going to be killed”)
    • degree of responsibility (“it was all my fault”)
assessment after TBI - history

- assessment of wider effects and psychological sequelae
  - bereavement/grief
  - guilt
  - physical disability
  - employability

- development of psychological symptoms over time (phases)
  - early phase (bewilderment, helplessness, fear)
  - mid-phase (anger, worry, grief)
  - late-phase (depression, hopelessness, guilt, suicide risk – Falklands)
assessment after TBI - history

• mental state examination
  – mood:
    • emotions (anger, anxiety, depression, elation – hostages)
    • repetitive behaviours (sleeping, eating, sex drive, engagement in hobbies and interests)
    • energy levels (agitated, lethargic)

  – check for OCD, delusions, hallucinations
  – check cognitive state – orientation, attention/concentration, short term and long term memory
assessment after TBI - questionnaires

• questionnaires?
  – unreliable for diagnosis
  – useful for tracking progress
  – there are many!
assessment after TBI – what to expect

• what to expect:
  general symptoms (related to adjustment)
    • anxiety, depression/sadness, anger, guilt, elation(!)

  specific symptoms (related to psychiatric disorder)
    • precipitation of previous psychological disorders
    • exacerbation of current psychological disorders

  new symptoms (specific to trauma – PTSD)
man knocked out at work, fractured his heel, can’t work, can’t pay debts, has recall “what was the worst thing about it?”

talks about memories of accident patient relaxed and comfortable emotions well contained

dreams at night of “bad things”, “entity coming to get me”

may ruminate on memories or consequences during the day

mother concussed when run over in B&Q car park by red car, has recall “what was the worst thing about it?”

“I don’t want to talk about it”
tense, distressed, tearful during recall

vivid nightmares of the trauma event
describes clear, intrusive, distressing memories and occasional flashbacks (‘daymares’) of event
diagnosing PTSD after TBI – avoidance

man knocked out at work, fractures his heel, can’t work, can’t pay debts, has recall

avoids opening post
avoids answering telephone
does not go out socialising
does not want to talk about it
can’t look wife or children in the eye
won’t talk about it

mother concussed when run over in B&Q car park by red car, has recall

avoids B&Q
avoids car parks, feels frightened in one
looks away if children running near cars
pushes memories out of her mind
won’t talk about accident
avoids anything that might remind her of accident - TV news, films, newspapers
diagnosing PTSD after TBI - hyperarousal

man knocked out at work, fractures his heel, can’t work, can’t pay debts, has recall

irritable, gets angry
first episode of domestic mild violence
on edge, feels “stressed”
sleep problems
drinking much heavier since out of work

mother concussed when run over in B&Q car park by red car, has recall

wary, constant sense of danger
tense, anxious, sweaty, fast heart beat (especially in car parks)
easily startled, on edge
irritable
sleep problems, uses hypnotics
• PTSD co-exists with mild TBI more frequently than after other physical injuries

• moderate to severe TBI may protect against PTSD, **BUT** general stress symptoms can be expected to follow during adjustment to implications or consequences

• where psychological symptoms exist, treat as for psychological disorder - attributing them to TBI denies a patient the possibility of effective intervention