Posttraumatic Stress Disorder and Mild Traumatic Brain Injury
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Learning Objectives
• Describe the interaction of PTSD and mild traumatic brain injury and its diagnostic presentation.
• Identify the clinical need to distinguish between these disorders.
• Detail strategies that can be used to evaluate these conditions.

Mild neurocognitive disorder due to traumatic brain injury
The criteria are met for mild neurocognitive disorder.
A. Evidence of a TBI—i.e., an impact to the head or other mechanisms of rapid movement or displacement of the brain within the skull, with 1+:
1. Loss of consciousness.
2. Posttraumatic amnesia.
3. Disorientation and confusion.
4. Neurological signs
B. Neurocognitive disorder presents immediately after the TBI (or immediately after recovery of consciousness) and persists past the acute post-injury period.

TBI Classification

<table>
<thead>
<tr>
<th>Severity</th>
<th>GCS</th>
<th>LOC</th>
<th>PTA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>13-15</td>
<td>&lt;30 mins</td>
<td>&lt;24 hours</td>
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<tr>
<td>Moderate</td>
<td>9-12</td>
<td>30 mins - 24 hours</td>
<td>24 hours – 7 days</td>
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</tbody>
</table>

GCS = Glasgow Coma Scale
LOC = Loss of consciousness
PTA = Posttraumatic amnesia

mTBI is prevalent
• The recent wars in Iraq and Afghanistan have led to increased attention towards mTBI (Vasterling et al., 2012)
• mTBI is the most frequent TBI among both civilians & OEF/OIF soldiers & veterans (Carlson et al., 2011)
• Possible causes of mTBI:
  • Combat
  • Blast
  • Motor vehicle accident
  • Sexual assault
  • Non-sexual assault
  • Domestic violence
  • Contact sports
  • Work injury

mTBI and PTSD are highly comorbid
• 37–44% of OEF/OIF veterans with mTBI have comorbid PTSD (Hoge et al., 2009; Tanielian & Jaycox, 2008)
• PTSD more likely to develop following injury resulting in mTBI vs. non-TBI (Heyman et al., 2009)
• mTBI as a risk factor for PTSD (Heyman et al., 2009)
• Both may result from the same event (Carlson et al., 2010; Vasterling et al., 2012)
Course of recovery from mTBI

- Immediately following injury = Symptoms most severe
- Days – weeks following injury = Substantial improvements
- Complete resolution expected by 3-months post-injury
- Not all who experience an mTBI will develop postconcussive syndrome or mild neurocognitive disorder
- BUT...A history of repeated mTBIs may result in more persistent symptoms

*Source: APA, 2013; Yavuz et al., 2012*

Differential Diagnosis

- Use careful questioning & structured diagnostic interviews
- Look for symptoms unique to each condition
- Consider symptom onset
- Difficult to disentangle symptoms when:
  - Both conditions are present
  - Onset coincides
  - Course is similar (e.g., delayed onset)
- Remember other co-occurring conditions are also prevalent
  - E.g., TBI increases risk of depression

*Source: Carlson et al., 2010; Stein & McAllister, 2009; Vasterling et al., 2012*

mTBI may interfere with treatment of PTSD

- Poor outcomes with structural brain abnormalities
- Cognitive deficits may exacerbate symptoms
- Greater symptom severity due to cumulative effect of overlapping symptoms
- Deficits in inhibition and flexibility may hinder cognitive interventions
- Targeting distorted thinking
- Inhibiting maladaptive thoughts
- Sufficient flexibility necessary to re-appraise

*Source: Carlson et al., 2010; Stein & McAllister, 2009; Vasterling et al., 2012*

PTSD may interfere with recovery from mTBI

- Post-concussive symptoms tend to become worse with co-occurring PTSD
- Stress hormones from PTSD may impede brain repair
- Longer course of recovery

*Source: Yavuz et al., 2012*

Complications for Assessment

- Diagnosis for neurocognitive disorder needs standardized assessments of cognitive function
- Not much help for differential diagnosis
- Neurological problems and psychological problems tend to show similar deficits
  - Attention/concentration
  - Working memory
  - Memory encoding
  - Executive functioning
  - Information processing speed
- Deficits are not etiologically specific

*Source: Yavuz et al., 2012; Yavuz et al., 2014*
Best use of assessment

- Neuropsychological testing may provide objective, performance-based indicators
- Ancillary measures of recovery
  - Formulating treatment plan
  - Monitoring progress
- Rule out other conditions

(Vasterling et al., 2012)

Treatment recommendations

- Multidisciplinary approach (Vasterling et al., 2012)
- Psychoeducation (Basso & Newman, 2000)
- Mneumonic tools to accommodate for cognitive difficulties (Basso & Newman, 2000)
- Research support for cognitive-behavioral interventions
  - Effectiveness for reducing symptoms and preventing onset of PTSD in patients with Acute Stress Disorder and mTBI (Bryant et al., 2003)
  - Cognitive Processing Therapy effective for PTSD in veteran sample with history of mTBI (Chard et al., 2011; Davis et al., 2013)

Conclusions

- Assessment and treatment of co-occurring PTSD and mTBI presents a variety of challenges to the clinician.
- The diagnostic presentation is complex due to considerable symptom overlap and interaction.
- Distinguishing between the two conditions is necessary for determining the best treatment approach.

Questions?

References


References (cont.)