Older Adults and Veterans
TBI and Neurocognitive Disorders
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Our Objectives
1) Discuss DSM 5 Neurocognitive Disorders
to include TBI and substance-induced neurocognitive
disorders
2) Assess our understanding of the structure and
function of neurocognitive disorders

Disclosure
The presenter DOES NOT have an interest in selling a technology,
program, product, and/ or service to CME/ CE professionals.
www.aoaam.org
www.biausa.org
www.dvbic.org
www.ptsd.va.gov
www.NeuroRestorative.com

This lecture supports the
www.whitehouse.gov/joiningforces
initiative.
The neurocognitive disorders referred to in the DSM IV as “Dementia, Delirium, Amnestic, and other Cognitive Disorders begin with delirium”.

Delirium is defined as a temporary confusion caused by underlying medical problems, drug toxicity or environmental factors.

Delirium does not involve structural brain damage.

Individuals may completely improve from delirium if the medical problem is identified and treated.

Dementia is a progressive decline in memory and at least one other cognitive area in an alert person. In order to make a diagnosis of dementia, delirium must be ruled out.

ASAM Definition of Addiction

“Addiction is a primary, chronic disease of brain reward, motivation, memory and related circuitry. Dysfunction in these circuits leads to characteristic biological, psychological, social and spiritual manifestations. This is reflected in the individual pursuing reward and/or relief by substance use and other behaviors”.

“Addiction is characterized by impairment in behavioral control, craving, inability to consistently abstain, and diminished recognition of significant problems with one’s behaviors and interpersonal relationships”.

Major and Mild Neurocognitive Disorders

Diagnostic Criteria:

A. Cognitive decline from a previous level of performance in one or more cognitive domains (complex attention, executive function, learning and memory, language, perceptual-motor, or social cognition)

B. Cognitive deficits +/- interfere with independence in everyday activities

C. Cognitive deficits do not occur exclusively in the context of a delirium
Neurocognitive Domains

1) Complex Attention
   a) Sustained Attention
   b) Selective Attention
   c) Divided Attention

2) Executive Function
   a) Planning
   b) Decision Making
   c) Working Memory
   d) Feedback/ Error Utilization
   e) Overriding Habits/ Inhibition
   f) Mental/ Cognitive Flexibility

Brain Power = Energy\( \times \) Time

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3) Learning and Memory
   a) Immediate Memory
   b) Recent Memory

4) Language
   a) Expressive Language
   b) Grammar and Syntax
   c) Receptive Language

P = I \times V

P = I \times V

Neurocognitive Domains

5) Perceptual-Motor
   a) Visual Perception
   b) Visuoconstructional
   c) Perceptual-Motor
   d) Praxis
   e) Gnosis

6) Social Cognition
   a) Recognition of Emotions
   b) Theory of Mind

V = I \times R

BP = CO \times TPR

BP = CO \times TPR

MOI
LOCAVPU

Primary Survey
ABCDE

Secondary Survey

Severity Rating for TBI

<table>
<thead>
<tr>
<th>Severity</th>
<th>GCS</th>
<th>AOC</th>
<th>LOC</th>
<th>PTA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>13-15</td>
<td>≤24 hrs</td>
<td>0-30 min</td>
<td>≤24 hrs</td>
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<tr>
<td>Moderate</td>
<td>9-12</td>
<td>&gt;24 hrs</td>
<td>&gt;30 min</td>
<td>&gt;24 hrs</td>
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<tr>
<td>Severe</td>
<td>3-8</td>
<td>&gt;24 hrs</td>
<td>≥24 hrs</td>
<td>≥7 days</td>
</tr>
</tbody>
</table>

GCS- Glasgow Coma Scale
LOC- Loss of consciousness
AOC- Alteration in consciousness
PTA- Post-traumatic amnesia

www.dvbic.org

Glasgow Coma Scale

<table>
<thead>
<tr>
<th>Eye opening</th>
<th>Verbal response</th>
<th>Motor response</th>
</tr>
</thead>
<tbody>
<tr>
<td>spontaneous</td>
<td>alert and oriented</td>
<td>follows commands</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>disoriented conversation</td>
<td>localizes pain</td>
</tr>
<tr>
<td>2</td>
<td>speaking but nonsensical</td>
<td>withdraws from pain</td>
</tr>
<tr>
<td>1</td>
<td>unintelligible sounds</td>
<td>decompensate flexion</td>
</tr>
<tr>
<td>no response</td>
<td>no response</td>
<td>decompensate extension</td>
</tr>
</tbody>
</table>

Primary Survey
ABCDE

Secondary Survey

Source: Hessgard HWG and Biloz PMH (see suggested reading)
TBI: Etiology
Civilian population
50% vehicular
20% falls
20% assaults/violence
10% sports

Differential Diagnosis of Closed Head Injury
- Epidural hematoma
- Subdural hematoma
- Intracerebral hematoma
- Intracerebral contusion
- Subarachnoid hemorrhage
- Cerebral concussion
- Malignant brain edema syndrome
- Second-impact syndrome
- Cervical spine injury

Treating the Head Injured Substance Abuser
Alcohol’s Effects
- Lower level of consciousness
- Longer coma
- Longer stay in hospital
- Longer period of agitation in coma, which slows recovery process
- Lower cognitive status at discharge
- Increased likelihood of high number of memory defects

Addiction
“a chronic, relapsing brain disease that is characterized by compulsive drug seeking and use, despite harmful consequences. It is considered a brain disease because drugs change the brain— they change its structure and how it works. These brain changes can be long lasting, and can lead to the harmful behaviors seen in people who abuse drugs”.
-National Institute on Drug Abuse

Risk
Benefit
Cannabis Use Disorder DSM-5

Diagnosis Criteria

A. A problematic pattern of cannabis use leading to clinically significant impairment or distress, as manifested by at least two of the following, occurring within a 12-month period:
1. Cannabis is often taken in larger amounts or over a longer period than was intended.
2. There is a persistent desire or unsuccessful efforts to cut down or control cannabis use.
3. A great deal of time is spent in activities necessary to obtain cannabis, use cannabis, or recover from its effects.
4. Craving, or a strong desire or urge to use cannabis.

5. Recurrent cannabis use resulting in a failure to fulfill major role obligations at work, school, or home.
6. Continued cannabis use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of cannabis.
7. Important social, occupational, or recreational activities are given up or reduced because of cannabis use.
8. Recurrent cannabis use in situations in which it is physically hazardous.

9. Cannabis use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by cannabis.

10. Tolerance, as defined by either of the following:
   a. A need for markedly increased amounts of cannabis to achieve intoxication or desired effect.
   b. Markedly diminished effect with continued use of the same amount of cannabis.

11. Withdrawal, as manifested by either of the following:
   a. The characteristic withdrawal syndrome for cannabis.
   b. Cannabis (or a closely related substance) is taken to relieve or avoid withdrawal symptoms.

www.seekingsafety.org
Concluding Dialogue:

Is there value in exploring structure and function in the differential diagnosis of Neurocognitive Disorders?