Clinical Management of Confusion

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Assessment of PTCS

- Confusion Assessment Protocol
- Authors: Mark Sherer, Risa Nakase-Richardson, Stuart Yablon
- Type of scale: Behavioral rating, cognitive tests
- Target population: Responsive patients in early recovery from TBI
- Availability: http://www.tbims.org/combi/cap/index.html
Confusion Assessment Protocol

• Assesses 7 key signs of confusion commonly seen in patients in early recovery from TBI

• Provides diagnostic criteria for confused vs. not confused

• Includes performance measures in addition to behavioral ratings

• Variable time to administer, usually around 30 minutes
CAP Scales

- Disorientation – Galveston Orientation and Amnesia Test
- Cognitive impairment – items from Toronto Test of Acute Recovery from TBI, Cognitive Test of Delirium
- Fluctuation of presentation – Delirium Rating Scale – Revised (DRS-R)
- Restlessness – Agitated Behavior Scale
- Nighttime sleep disturbance – Adapted from DRS-R
- Decreased daytime arousal – Adapted from DRS-R
- Psychotic-type symptoms – DRS-R
CAP Interpretation

• Signs of confusion are scored as present or absent
• More signs = more severe confusion
• Persons with 4 signs are classified as confused
• Persons with 3 signs are classified as confused if one of the signs is disorientation
CAP Administration Tips

• Make sure the patient is awake
• Make sure you know triggers that cause agitation that can escalate to aggression
• For behavioral ratings, obtain information from nurses, therapists, and family/close others in addition to your own observations
• Assess at different times of the day with 3 or more assessments per week
CAP Development (Sherer et al., 2005)

- 98 consecutive rehabilitation admissions with moderate or severe TBI
- 6 excluded due to vegetative or minimally conscious
- 30 excluded due to incomplete data
Analysis

- Participant responses to each item from each scale were examined by 2 clinicians for clinical relevance and relationship to diagnosis of delirium
- Items that did not appear relevant were eliminated
- Items that appeared redundant were eliminated
- Based on this item analysis and previous research, 7 key symptoms of post-traumatic confusion were identified
- Items were selected to measure each symptom
- Scoring criteria were developed based on clinical judgment and discrimination of patients meeting DSM-IV criteria for delirium from patients not meeting criteria
Findings

• 44 participants met criteria for post-traumatic confusion

• 40 participants met criteria for delirium

• 38 of 44 (86%) of confused participants were in delirium

• 38 of 40 (95%) of delirious participants were confused
### Change in Confusion Severity Across Evaluations, Sherer et al., 2009

<table>
<thead>
<tr>
<th></th>
<th>CAP 1 to 2</th>
<th>CAP 2 to 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Severe:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improved</td>
<td>49%</td>
<td>50%</td>
</tr>
<tr>
<td>(n=41)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same</td>
<td>46%</td>
<td>38%</td>
</tr>
<tr>
<td>Worse</td>
<td>5%</td>
<td>12%</td>
</tr>
<tr>
<td><strong>Moderate:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improved</td>
<td>63%</td>
<td>56%</td>
</tr>
<tr>
<td>(n=28)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same</td>
<td>26%</td>
<td>36%</td>
</tr>
<tr>
<td>Worse</td>
<td>11%</td>
<td>8%</td>
</tr>
<tr>
<td><strong>Mild:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improved</td>
<td>50%</td>
<td>25%</td>
</tr>
<tr>
<td>(n=38)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same</td>
<td>36%</td>
<td>69%</td>
</tr>
<tr>
<td>Worse</td>
<td>14%</td>
<td>6%</td>
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</table>
Resolution of Symptoms of Confusion – Severe Confusion
### Confusion Severity and Productivity Outcome (n = 132)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Comparison</th>
<th>Odds Ratio</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>20.0, 43.9</td>
<td>0.39</td>
<td>0.02</td>
</tr>
<tr>
<td>Education</td>
<td>10.0, 13.0</td>
<td>1.65</td>
<td>0.09</td>
</tr>
<tr>
<td>GCS</td>
<td>5.0, 10.2</td>
<td>1.40</td>
<td>0.31</td>
</tr>
<tr>
<td>TFC</td>
<td>1.0, 11.5</td>
<td>0.71</td>
<td>0.18</td>
</tr>
<tr>
<td>CAPtotal</td>
<td>2.0, 5.0</td>
<td>0.50</td>
<td>0.03</td>
</tr>
</tbody>
</table>
## Confusion Symptoms Findings and Employment Outcome

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Contrast</th>
<th>Odds Ratio</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognition</td>
<td>No : Yes</td>
<td>4.54</td>
<td>0.001</td>
</tr>
<tr>
<td>Disorient</td>
<td>No : Yes</td>
<td>3.12</td>
<td>0.004</td>
</tr>
<tr>
<td>Agitation</td>
<td>No : Yes</td>
<td>3.12</td>
<td>0.004</td>
</tr>
<tr>
<td>Fluctuation</td>
<td>No : Yes</td>
<td>3.33</td>
<td>0.003</td>
</tr>
<tr>
<td>Sleep dist</td>
<td>No : Yes</td>
<td>--------</td>
<td>-------</td>
</tr>
<tr>
<td>Arouse</td>
<td>No : Yes</td>
<td>--------</td>
<td>-------</td>
</tr>
<tr>
<td>Psychotic</td>
<td>No : Yes</td>
<td>14.28</td>
<td>0.001</td>
</tr>
</tbody>
</table>
Management of Confused Patients

- Behavioral techniques
- Staff education
- Family education
- Environmental management
- Restraints
- Medications
Behavior Management

- Frequent reorientation
- Manage level of stimulation
- Move
- Redirection
- Comforting stimuli (pictures, music, etc.)
- Alternate tasks
- Time of day
- Positive stimuli
Staff Education

• Physical management
• Redirection
• Tone of voice
• Physical posture
• Confident demeanor
• It is not personal
Family Education

• Consistency with the rehab team
• Reorient
• Avoid frequent questions
• Avoid inadvertent reinforcement
• Avoid over-stimulation
• Reassurance – “This will get better.”
• “It is not his fault, this is just one phase of recovery.”
Environmental Management

- Quiet room
- One-on-one
- Video camera
- Bed alarm
- Secured unit
- Private room
- Low bed position
- Conceal tubes