The Brain Bundle: An Interprofessional Initiative to Optimize Pain, Sedation and Delirium Assessment in the ICU

The CrCU Delirium Team, Critical Care Unit, North York General Hospital, Toronto, Canada

Critical Care Delirium Team
- An interprofessional team made up of:
  - Intensivists
  - Psychiatrists
  - Registered Nurses
  - Physiotherapists
  - Physiotherapy Assistants
  - Registered Respiratory Therapists
  - Pharmacists
  - Dietitians

Team Goals and Objectives
- Optimize pain control and sedation management
- Implement the Intensive Care Delirium Screening Checklist (ICDSC) as standard nursing assessment
- Promote early mobilization
- Incorporate pharmacological and non-pharmacological strategies to prevent and manage delirium

Delirium
- Syndrome characterized by acutely changing or fluctuating mental status, disorganized thinking, inattention, and/or altered level of consciousness
- The prevalence of delirium reported as 20% to 80% in medical and surgical ICUs
- Delirium increases the risk of longer duration of hospitalization, higher cost of care, risk of death, and long-term cognitive impairment

Early Mobilization
- Shown to be safe and feasible in critically ill patients
- Decreases duration of delirium, duration of mechanical ventilation and ICU and hospital length of stay

Non-pharmacological Strategies
- Appropriate light/darkness for day and night
- Noise reduction strategies
- Family involvement encouraged
- Reduce transfers between rooms
- Promote sleep at night
- Use of communication/hearing and/or visual aids
- Frequent re-orientation as required

Introduction
- The brain bundle utilizes the ABCDE approach to incorporate best practices around ventilator weaning delirium monitoring and early mobility

Education Plan
- Reinforce goals and objectives during daily rounds
- Incorporate Critical Care Pain Observation Tool (CPOT) and Ventilator Adjusted Motor Assessment Score (VAMAAS) into routine assessment
- Promote awareness around appropriate use of restraints
- Introduce the ICDSC tool for early identification of delirium
- Focus group education sessions
- Team planning to facilitate early mobilization

Future Goals
- Creation of pamphlets for patients and their families
- Creation of a CrCU Delirium Order-Set
- Partner with Clinical Informatics to improve documentation around brain bundle components
- Development of the Pain, Sedation and Delirium Guideline for ventilated patients

Pain, Sedation and Delirium

Team Goals and Objectives
- Assess for pain (i.e. CPOT)
- Assess for delirium (i.e. ICDSC)
- Assess sedation level (i.e. VAMAAS)

1. No pain present
2. Pain present
3. Mild to severe
   - Consider pain medication: Acetaminophen ATC or PRN
   - Fentanyl IV PRN or Hydromorphone IV PRN or Morphine IV PRN
   - Consider fentanyl infusion if patient requires frequent boluses

1. ICDSC <4
2. ICDSC ≥ 4

Non-pharmacological prevention/management:
- Early mobility
- Re-orientation
- Avoid physical restraints
- Stimulate (e.g. newspaper, TV)
- Stimulation
- Provide sensory aids in place
- Involve family
- Familiar objects

Consider pharmacological management (e.g. haloperidol, quetiapine, olanzapine, clonidine)

<table>
<thead>
<tr>
<th>Non-pharmacological prevention/management</th>
<th>Pharmacological prevention/management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early mobility</td>
<td>Haloperidol</td>
</tr>
<tr>
<td>Re-orientation</td>
<td>Quetiapine</td>
</tr>
<tr>
<td>Avoid physical restraints</td>
<td>Olanzapine</td>
</tr>
<tr>
<td>Stimulate (e.g. newspaper, TV)</td>
<td>Clonidine</td>
</tr>
<tr>
<td>Provide sensory aids in place</td>
<td></td>
</tr>
<tr>
<td>Involve family</td>
<td></td>
</tr>
<tr>
<td>Familiar objects</td>
<td></td>
</tr>
</tbody>
</table>