Comparing Current Post-Cardiac Surgery Delirium Management Practices to the National Institute for Health and Clinical Excellence (NICE) 2010 Clinical Guideline on Delirium: Diagnosis, Prevention, and Management

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Background
- Between 3 to 47% of cardiac surgery patients develop postoperative delirium.
- Delirium, an acute, multifactorial, confusional state causes a temporary global deficit in cognition and is deemed a major complication as it is known to increase mortality and morbidity as well as increase length of stay, decrease quality of life (palliative care needs and caregiver burden), and potentiate the need for a new admission to long-term care.
- Recommendations on delirium risk factors, evaluation tools and treatment options were released by the National Institute for Health and Clinical Excellence (NICE) in 2010.
- The post-cardiac surgery delirium rate in 2010/2011 at the Royal Columbian Hospital (RCH) was 2.3% (21/964).
- Prevention of the multiple contributors to delirium are addressed in Reimer-Kent’s Postoperative Wellness Model (Developed in 1996 by Jocelyn Reimer-Kent, RN, MN, Cardiac Surgery, Clinical Nurse Specialist).
- This model supports rapid surgical recovery and has been foundational to the cardiac surgery program at RCH since 1996.

Purpose
- Examine how closely the current delirium practices in the RCH Cardiac Surgery Program adhere to the NICE recommendations for the diagnosis, prevention and management of delirium.

Method
- Reviewed the NICE Clinical Guideline on Delirium.
- Developed a data collection tool based on the NICE Clinical Guideline on Delirium.
- Conducted chart audits of 21 cardiac surgery patients who had documented delirium in 2010/2011.
- Compared the RCH Cardiac Surgery Program delirium practices to the recommendation in the NICE Clinical Guideline on Delirium.
- Recommended changes to practices.

Delirium Interventions

Pharmacological

<table>
<thead>
<tr>
<th>Postoperative Medications</th>
<th># of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaminophen</td>
<td>21 (100%)</td>
</tr>
<tr>
<td>Antipatelet</td>
<td>21 (100%)</td>
</tr>
<tr>
<td>Anticoagulants</td>
<td>21 (100%)</td>
</tr>
<tr>
<td>Sleeping Medications</td>
<td>18 (85.7%)</td>
</tr>
<tr>
<td>Haloperidol</td>
<td>10 (47.6%)</td>
</tr>
<tr>
<td>Lorazepam</td>
<td>6 (28.6%)</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>4 (4.8%)</td>
</tr>
<tr>
<td>Opioids</td>
<td>9 (42.9%)</td>
</tr>
<tr>
<td>During the delirium episode: 76.2% and 42.9% continued to receive acetaminophen and opioids, respectively.</td>
<td></td>
</tr>
</tbody>
</table>

Co-existing Postoperative Complications

- Pleural Effusion: 4.8%
- Thrombocytopenia: 4.8%
- Infection: 14.3%
- Deep Wound: 14.3%
- Stroke/TIA: 19.0%
- Pneumonia: 19.0%
- 42.9% Renal Failure
- Non-pharmacological

Risk Factors for Postoperative Delirium
- 71.4% Male: 28.6% Female
- 40.1% had a history of cognitive impairment.
- Non-smokers and non-alcohol consumers required higher surgery status and acquired postoperative delirium.

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Postoperative Progress

- Mobility*: 1-21
- Off Oxygen**: 2-6
- Initial Deliration: 3-21
- Urinary Catheter Removal: 3-20
- First Mau: 1-21

Activities

Expected POD Average POD N

- Mobility*: 1-21
- Off Oxygen**: 2-6
- Initial Deliration: 3-21
- Urinary Catheter Removal: 3-20
- First Mau: 1-21

Risk Factor Assessment and Management
- NICE Clinical Guideline on Delirium recommends that patients at risk of delirium (e.g., age >65, preoperative cognitive impairment, and/or severe illness) be assessed by a trained health professional to determine the probability of delirium and be managed by a multidisciplinary team as necessary.

- The Reimer-Kent Postoperative Wellness Model addresses these clinical factors in a preventative manner.

- Clinical factors: cognitive impairment/decline, dehydration, hypokalemia, hypoglycemia, hypernatremia, immobility, limited mobility, infection, pain, multiple medications, poor nutrition, sensory impairments, and sleep disturbances.

- According to the RCH cardiac surgery delirium management plan, all postoperative patients are to be assessed for delirium every shift and PRN and managed by a multidisciplinary team including support from the department of Psychiatry.
- There was evidence that Psychiatry was involved in 78.2% of patients with delirium.
- Recommendations - continue this practice.

Documentation of Diagnostic Tool Use
- NICE Clinical Guideline on Delirium recommends using a tool such as the Confusion Assessment Method Instrument (CAM) to diagnose delirium.
- According to the RCH cardiac surgery delirium management plan, the CAM is to be used to assess for the presence of delirium every shift and PRN.
- There was evidence that the CAM assessment results were poorly documented (only in 1 chart).
- Recommendations - improve documentation of CAM use/results.

Pharmacological Intervention

Postoperative Delirium Management
- Haloperidol
  - NICE Clinical Guideline on Delirium recommends the administration of Haloperidol to treat delirium.
  - According to the RCH cardiac surgery delirium management plan, if a patient meets the criteria for haloperidol, they are to receive RCH protocol for this medication which is embedded in pre-printed orders so nurses can start treatment at the first signs of delirium.

- There was evidence that identifying delirium did not lead to treatment.
- Recommendations - determine the rationale for withholding Haloperidol and explore what strategies are needed to ensure its immediate use once delirium is identified.

Postoperative Pain Management
- Non-opioids and Opioids
  - NICE Clinical Guideline on Delirium states that opioids such as morphine are not contraindicated in moderate quality evidence to show no significant effect of morphine on the incidence of delirium and should not be withheld in delirium patients with acute pain, as ineffective postoperative pain relief is a major contributor to delirium as opposed to a low dose opioid.
  - According to the RCH cardiac surgery pain management plan patients are to receive around-the-clock non-opioids (acetaminophen +/- a non-steroidal anti-inflammatory drug (NSAID)) and an immediate release opioid (morphine 1 to 4 mg IV or 5 to 10 mg PO) for pain that is more than mild. It also stipulates that the outlined pain management should be continued during episodes of delirium.
  - There was evidence that only 42.9% of patients continued to receive an opioid during an episode of delirium.

- There was evidence that with delirium qualified for a NSAID, yet not all patients received this non-opioid.
- Recommendations - determine the rationale for withholding NSAIDs and explore what strategies are needed to ensure its appropriate use both as a potential preventive measure for delirium and for ongoing pain prevention once delirium is identified.

- There was evidence that 76.2% of patients with delirium received acetaminophen.

- Recommendations - continue this practice.

- Only 4 (19.5%) patients received Psychiatrist, CT head scan and Surveillance as delirium interventions.

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