Delirium Prevalence in Acute Care Hospitalized Patients

Linda Cason DNP, CNS, RN-BC, NE-BC, CNRN
Brittany Farmer MSN, CNS, ACCNS-AG, CCRN
Kim Salee MSN, RN, AGCNS-BC, CWOCN
Abby Schmitt MSN, RN-BC

Objectives

• Discuss the value of a nursing research consortium to mentor and facilitate research at a regional level
• Describe the impact of delirium on hospitalized patients
• Describe how a CNS facilitated a point prevalence study to identify delirium in 6 acute care hospitals
• Discuss results from a regional wide delirium prevalence study

Nursing Research Consortium
Nursing Research Consortium

Mission Statement:
We are a nurse-driven consortium from higher education and diverse clinical settings. We are dedicated to empower nurses to conduct and use research that leads to generating new knowledge aimed to improve health outcomes in our communities. We want: “To generate and disseminate interprofessional research.”

The Nursing Research Consortium is adopted within the structure of the Community Patient Safety Coalition of Southwestern Indiana/Kentucky, Inc. (CPSC). The Coalition provides a collaborative opportunity between hospitals, academic institutions, interdisciplinary health providers and community organizations. CPSC positions the Consortium for external funding under their 501c3 status. This innovative partnership and strategy to garner resources across hospitals to perform multi-centered collaborative research is imperative to have nursing research performed and disseminated by clinical nurses.

Hospital Induced Delirium...

…One of the largest health problems the public doesn’t know about

Definition

• Delirium is an acute state of confusion characterized by rapid onset, inattention, impaired cognition, psychomotor disturbances, and a waxing and waning course.

• Eubanks, KJ, & Covinsky, KE (2014)
Delirium = Brain Failure

- Delirium is basically inattention and confusion that represents the brain temporarily failing. A person who is delirious is unable to think clearly and can't make sense of what is going on around him.

- "It's an organ failing. This is the brain failing. There is so much human suffering. This is a massive, massive public health problem."

www.icudelirium.org

Background and significance

- Delirium is one of the most common hospital complications in the older adult population, affecting ~2.3 million patients annually
  - In 2012, 43.1 million people in the United States was >/= 65 years of age
  - In 2050, this population will increase to 83.7 million!

- The financial impact of delirium is staggering, with health care costs in the United States exceeding $164 billion annually
  - Daily costs were more than 2.5 times higher for patients with delirium than for those without it

- Delirium is responsible for an additional 17.5 million additional hospital days in the United States each year

- Delirium has been shown to be preventable in up to 40% of cases in some hospitalized older adult populations

- AGS Expert Panel (2014)

Background and significance

- How common is delirium?
  - Occurs in 14-24% of hospital admissions
  - Ranges from 6-56% among general hospital populations
  - Occurs in 15-53% of older patients postoperatively
  - Occurs in 70-87% of patients in the intensive care
  - Occurs in 60% of patients in nursing homes or post-acute care settings
  - Occurs in up to 83% of all patients at the end of life

Background and significance

• Research shows that delirium is associated with:
  • increased mortality
  • increased LOS
  • loss of baseline function
  • Hospital Acquired Conditions (Falls/Pressure Ulcers)
  • development of PTSD and long-term cognitive deficits

Background and significance

• Delirium results in more
  • nursing hours per patient
  • increased workload
  • Increased stress
  • caregiver burnout
  • compassion fatigue

Background and Significance

• Delirium is under-recognized by all healthcare providers
  • Clinical presentation varies from patient to patient
  • Causes are numerous and multifactorial
  • Screening for delirium is not universally performed
Purpose of the Study

• The purpose of this study is to determine the prevalence of delirium in 6 acute care hospitals at one point in time.

• Secondary Aim:
  • Identify clinical factors that contribute to positive delirium assessment

Study Procedures

• Prior to implementing the Delirium Prevalence Study, participants from each facility attended a 6 hour training session at the University of Southern Indiana
  • Overview of Delirium
  • Overview of the Delirium Assessment Tools (CAM-ICU and bCAM)
  • Overview of the data collection tools and research protocol
  • Case studies
  • Live scenarios with each participant performing delirium assessment (actors/ coaches) followed by a debriefing
  • Opportunity to ask questions

Delirium Training Day

Over 100 Nurses trained
Methods

• The Delirium study was modeled after the National Database of Nursing Quality Indicators (NDNQI) Pressure Injury Prevalence study.
• Units that met the NDNQI definition for medical, surgical, combined medical-surgical, step-down, and critical care were included in the study.
• Delirium Screening Team was divided into groups and placed on units that was not their “home unit”.

Setting

• Participating Hospitals:
  • Deaconess Gateway (Newburgh, IN)
  • Deaconess Midtown (Evansville, IN)
  • Good Samaritan Hospital (Vincennes, IN)
  • Memorial Hospital (Jasper, IN)
  • Methodist Hospital (Henderson, KY)
  • St. Vincent Evansville (Evansville, IN)
• 37 eligible units:
  • 20 (Medical, Surgical, or combined MS)
  • 6 Step-down
  • 11 Critical Care

Sample

• 6 AM Census printed on all eligible units to identify potential patients included in the study
  • New admissions/ transfers were excluded if not present on AM census list
• Inclusion and exclusion criteria were defined by the team
Sample

### Inclusion Criteria
- Adult patient (≥18) on an eligible unit
- Ventilated patients as long as there are no exclusion criteria present

### Exclusion Criteria
- Patients less than 18 years of age
- Patient not housed on an eligible study unit
- Comatose patient (RASS score of -4 or -5)
- Receptive aphasic patient
- Physician order for comfort measures
- Patient off the unit at time of screening
- Patient or family refuses screening assessment
- Participation creates an unsafe environment

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Data Collection

- Data collection forms were created by the Delirium sub-team and Nurse Scientist
- The same variables were collected for all unit types
- The Delirium Screening Team was divided into Assessors and Auditors
  - Assessors were paired to promote accuracy of Delirium assessment at the bedside.
  - Assessors were responsible for data collected by observation (tubes, drains, sensory aides, restraints etc.) as well as 4 direct patient questions
  - Assessors were also responsible for looking for documentation of fluctuations in mental status prior to entering the patient's room
  - Auditors were responsible for collecting information from the Electronic Health Record (EHR)

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Sample

- 37 units included in the study
- AM census = 782 patients
- 630 patients screened (80.5%)
  - 108 patients met exclusion criteria (13.8%)
  - 30 patients refused (3.8%)
  - 14 patients had incomplete data collection forms resulting in exclusion (2.2%)
Delirium Assessment

- bCAM was selected for the following unit types
  - Medical
  - Surgical
  - Combined Medical Surgical
  - Step-down
  - 78% sensitive and 97% specific when performed by a nurse

- CAM-ICU was selected for all critical care units
  - 93-100% sensitive and 89-100% specific when performed by a nurse

Ely, EW, Inouye, SK, Bernard, GR et. al (2001)
Sessler, CN, Gosnell, MS, et. al (2002)
Han, JH, Wilson, A, Vasilevskis, EE et. al (2013)
Data Collection - Assessor

- LOC
- Mental Status
- Foley Catheter
- IV access (Peripheral, Central, Arterial)
- Ventilator
- Artificial airway
- Drains/tubes
- HOH (hearing aids)
- Glasses (Vision Problems)
- Restraints
- Sleep
- Nutrition
- Ambulation

Data Collection - Auditor

- Age
- # active meds
- Surgery this hospitalization
- Procedure requiring pre-med this hospitalization
- History of cancer
- History of alcoholism
- Chronic disease
- Opioid dose in past 24 hours
- Steroid dose in past 24 hours
- Benzodiazepine dose in past 24 hours
- Order for bedrest
- Documentation of ambulation in past 24 hours
- Bone fracture
- Diagnosis of dementia
- Current stroke (or history of CVA)
- Diagnosis of Parkinson's
Findings/Data

Prevalence of Delirium

<table>
<thead>
<tr>
<th></th>
<th>All Patients n=782</th>
<th>Critical Care n=126</th>
<th>Stepdown n=139</th>
<th>MedSurg n=517</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screened</td>
<td>630 (80.5%)</td>
<td>93 (74%)</td>
<td>125 (90%)</td>
<td>412 (79.7%)</td>
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<tr>
<td>Positive Screen</td>
<td>62</td>
<td>15</td>
<td>12</td>
<td>35</td>
</tr>
<tr>
<td>Negative Screen</td>
<td>568</td>
<td>78</td>
<td>113</td>
<td>377</td>
</tr>
<tr>
<td>Prevalence</td>
<td>9.84%</td>
<td>16.12%</td>
<td>9.6%</td>
<td>8.49%</td>
</tr>
</tbody>
</table>

Findings/ Data

<table>
<thead>
<tr>
<th></th>
<th>Average # of Active Meds</th>
<th>Average Age</th>
<th>Average LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Care</td>
<td>19.42</td>
<td>65.08</td>
<td>5.98</td>
</tr>
<tr>
<td>Medical</td>
<td>16.88</td>
<td>67.83</td>
<td>3.42</td>
</tr>
<tr>
<td>MedSurg</td>
<td>17.01</td>
<td>66.70</td>
<td>4.33</td>
</tr>
<tr>
<td>Step-down</td>
<td>14.97</td>
<td>60.28</td>
<td>3.66</td>
</tr>
<tr>
<td>Surgery</td>
<td>16.08</td>
<td>61.38</td>
<td>3.81</td>
</tr>
<tr>
<td>Grand Total</td>
<td>16.93</td>
<td>66.34</td>
<td>4.28</td>
</tr>
</tbody>
</table>

Findings/Data

- Did the data tell us anything?
- Are there clinical variables that increase the likelihood of positive delirium screen?
  - Binary logistics regression
    - Med Surg
    - Critical Care
Medical Surgical – Predicting the likelihood of having a positive delirium screen

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE</th>
<th>Wald</th>
<th>df</th>
<th>p</th>
<th>Variance explained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>.039</td>
<td>.013</td>
<td>8.7</td>
<td>1</td>
<td>.003</td>
<td>1.04</td>
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<tr>
<td>LOS</td>
<td>.029</td>
<td>.041</td>
<td>.52</td>
<td>1</td>
<td>.469</td>
<td>1.04</td>
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<tr>
<td>No ambulation</td>
<td>2.07</td>
<td>.555</td>
<td>20.8</td>
<td>1</td>
<td>.000</td>
<td>7.9</td>
</tr>
<tr>
<td>Alcoholism hx</td>
<td>.401</td>
<td>.675</td>
<td>.353</td>
<td>1</td>
<td>.552</td>
<td>1.4</td>
</tr>
</tbody>
</table>

Critical Care – Predicting the likelihood of having a positive delirium screen

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE</th>
<th>Wald</th>
<th>df</th>
<th>p</th>
<th>Odds Ratio</th>
<th>Variance explained</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOS</td>
<td>.059</td>
<td>.07</td>
<td>.583</td>
<td>1</td>
<td>.445</td>
<td>1.06</td>
<td>23-40%</td>
</tr>
<tr>
<td>No ambulation</td>
<td>1.13</td>
<td>1.2</td>
<td>.947</td>
<td>1</td>
<td>.330</td>
<td>1.06</td>
<td>23-40%</td>
</tr>
<tr>
<td>Urinary Catheter</td>
<td>1.36</td>
<td>.82</td>
<td>2.7</td>
<td>1</td>
<td>.095</td>
<td>1.06</td>
<td>23-40%</td>
</tr>
<tr>
<td>Assisted ventilation</td>
<td>1.16</td>
<td>.82</td>
<td>1.9</td>
<td>1</td>
<td>.158</td>
<td>1.06</td>
<td>23-40%</td>
</tr>
<tr>
<td>Drains</td>
<td>.237</td>
<td>.78</td>
<td>.093</td>
<td>1</td>
<td>.761</td>
<td>1.06</td>
<td>23-40%</td>
</tr>
<tr>
<td>Restraints</td>
<td>1.29</td>
<td>1.06</td>
<td>2.1</td>
<td>1</td>
<td>.142</td>
<td>1.06</td>
<td>23-40%</td>
</tr>
</tbody>
</table>

Findings/Data

- Data analysis
  - Is there a bundle of risk factors that coincide with positive delirium screen?
  - When most patients are at risk what elements are immediate triggers in nursing assessment?
- Can we use this information for future research?
- Can we help nurses improve recognition of delirium?
Lessons Learned

• Our prevalence was lower than what is reported in the literature
• It is hard to determine baseline mental status when you are not the bedside clinician
• Data collection forms need to be simple and error proof
  • There were elements that could have been eliminated
  • There were elements that were not clearly defined
• Nurses do not routinely assess for delirium
• Delirium assessment is a little awkward- Is this why nurses don’t do it?

Next Steps

• Publish
• Build electronic report to track delirium prevalence/ duration
• Education/ Screening in all hospitals involved in study
• Incorporate education into school curriculum
• Incorporate ongoing education plan in the hospital setting
  • Nurse Residency programs
  • Orientation
• Delirium Symposium?
• Intervention Study
  • Where do we focus our efforts?
  • What does data analysis show us?

References

• Eduard K & Combes E (2016). Delirium severity in the hospitalized patient: Time to pay attention. Annals of Internal Medicine, 165(7) 57-67
• Sessler CN, Gosnell MS, Grap MJ, et al. (2002). The Richmond Agitation-Sedation Scale: validity and reliability in adult intensive care unit patients. Anesthesia and Analgesia, 95(6), 1581-1588.
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