Incidence of Urinary Retention in Post-Operative Orthopedic and Trauma Patients

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Introduction
The purpose of this project was to implement the nurse-driven CAUTI protocol to measure whether discontinuation of an indwelling catheter at midnight or 8 hours post-operatively resulted in decreased or increased incidence of urinary retention in orthopedic and trauma patients.

Background & Significance
- “Each year over 300,000 older people—those 65 and older—are hospitalized for hip fractures” (Center for Disease Control and Prevention, 2016)
- Up to 25% of all hospital patients undergo urinary catheterization to accurately monitor urine output following surgery and to treat urinary retention (Pamaiaghari, 2019)
- The current population at highest risk of urinary retention and catheter-associated urinary tract infections are post-operative orthopedic and trauma patients (Stefanik et al., 2015)
- Patients who develop post-operative urinary retention are at increased risk of urinary tract infection and increased length of stay (Kott et al., 2018)
- Urinary tract infections associated with catheter use increase patient length of stay (2-4 days), increase health care cost ($340-450 million/year), mortality, and decrease patient satisfaction (Agency for Healthcare Research and Quality, 2015)
- Because the Centers for Medicare and Medicaid will not reimburse costs associated with hospital-acquired catheter-associated urinary tract infections, there is financial incentive to decrease catheter use because it is associated with $1,300-1,600 additional cost per patient, not adjusted for inflation (Agency for Healthcare Research and Quality, 2015)

Opportunities
- Nursing Autonomy
- Implementation of a Hospital-Approved Protocol

Limitations
- Small Sample Size
- Stakeholder Non-Compliance-14.3%

Results
- Participants were mainly female gender (85.7%) with a mean age of 80.6 years old; 40% of participants were 89 years or older
- The most frequent type of surgery was the IM Nailing/Pinning for surgical fixation including 17 participants
- The average bladder scan volume was >400 ml in the intervention group and is congruent with the standard margin for intervention
- The mean voiding trial was 7.86 hours with a normal distribution and SD of 3.637
- The 8-hour voiding trial had the highest frequency (8 participants=38.1%) between both groups and may be accepted as an appropriate standard of practice
- The mean length of stay was 5.52 days with an SD: 3.696 between both groups; the highest frequency was 4 days (52.4%)
- There were no other significant correlations between age, hours given for voiding trial, bladder scan volume, length of stay, mobility, or cognitive status

Discussion
- The findings may suggest that early removal of indwelling urinary catheters in post-operative patients increases the incidence of urinary retention. However, due to the small sample size and inconsistent use of bladder scan assessment, this finding may not be generalizable

Group Statistics

<table>
<thead>
<tr>
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<th>Intervention Group</th>
<th>Control Group</th>
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<tbody>
<tr>
<td>N</td>
<td>3</td>
<td>18</td>
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<tr>
<td>Mean</td>
<td>1.33</td>
<td>0.06</td>
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<tr>
<td>Std. Deviation</td>
<td>1.155</td>
<td>2.236</td>
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<tr>
<td>Std. Error Mean</td>
<td>667</td>
<td>0.655</td>
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Independent Samples t-test

Lever's Test for Equal of Variances

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<th></th>
<th>F</th>
<th>Sig.</th>
<th>df</th>
<th>t</th>
<th>df</th>
<th>Sig. 2-tailed</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>95% Confidence Interval of the Difference</th>
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<tr>
<td>Bladder Scan Volume</td>
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<td>&lt;.001</td>
<td>19</td>
<td>19</td>
<td>.001</td>
<td>1.278</td>
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<td>Hours given for Voiding</td>
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<td>19</td>
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<td>2.391</td>
<td>344</td>
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