Implementing an Integrative Pre and Post-Operative Educational Intervention for Elderly Patients Undergoing Total Hip and Knee Replacement

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Background
Total hip replacement (THR) and total knee replacement (TKR) are two of the most common elective surgeries in the United States, expected to reach approximately one million per year by the year 2015. Patients undergoing THR or TKR have a median age of 69 in the United States, yet patients over the age of 65 continue to be a minority group in research due to differences in drug metabolism and learning. Evidence suggests that a combination of pre-operative and post-operative education using self-management strategies decreases self-reported pain and increases self-efficacy. Research supports the use of multi-dose interventions and post-discharge calls to support the patient.

Purpose
Integrate the elder’s existing pre-operative education with a evidence-based pre-operative educational intervention. Evaluate for long-term feasibility of intervention at site.

Provide study participants with the tools to safely and effectively self-manage post-operative pain.

Evaluate pain scores and self-efficacy before and after implementation.

Compare pain scores between intervention group and retrospective comparison group.

Methods

- Participants were recruited at the pre-operative joint camp educational session. Consenting participants were administrated the Pain Self-Efficacy Scale (PSEQ) and received the Smith Pain Management (SPM) tool.
- The site was a 49 bed community hospital in West Michigan with a 20 bed inpatient medical surgical unit to which total joint replacement patients were admitted.
- The DNP student met with the patients on each inpatient day, evaluated pain and reviewed self-management techniques with the patient and available family members.
- Individual pain control needs were discussed with staff nurses, physical therapists, and the surgeon.
- Following discharge the patients received follow-up phone calls at 24 and 48 hours to answer any questions and administer the self-efficacy scale.

Tools

- Pain Self-Efficacy Scale (PSEQ)
- Smith Pain Management (SPM) tool
- Operative Educational Intervention for Elderly Patients

The PSEQ was modified with permission for use in the population.

- Example question:
  1. How certain are you that you can decrease your pain quite a bit?

  
<table>
<thead>
<tr>
<th>Very uncertain</th>
<th>Very certain</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

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- Following discharge the patients received follow-up phone calls at 24 and 48 hours to answer any questions and administer the self-efficacy scale.

Results

- Pain scores were compared between intervention and comparison groups using an independent samples t-test.

<table>
<thead>
<tr>
<th>M</th>
<th>Pain Score</th>
<th>SD</th>
<th>p</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.92</td>
<td>1.478</td>
<td>0.434</td>
<td>.8</td>
<td></td>
</tr>
<tr>
<td>Intervention</td>
<td>2.41</td>
<td>1.505</td>
<td>0.434</td>
<td>.8</td>
</tr>
</tbody>
</table>

- There was no statistically significant difference in pain scores between the two groups through pain scores were slightly lower overall in the intervention group.
- Self-efficacy was compared to pain scores at each time period using the Pearson correlation coefficient.

- Pain was significantly different between self-efficacy scores and pain scores; as self-efficacy scores increased, pain decreased.
- PSEQ scores were compared at each time period using the paired t-test.

Correlations Between Pain scores and PSEQ scores

<table>
<thead>
<tr>
<th>Pain</th>
<th>PSEQ</th>
<th>r</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-procedure</td>
<td>0.48</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>24 hours post discharge</td>
<td>0.47</td>
<td>&lt;0.05</td>
<td></td>
</tr>
<tr>
<td>48 hours post discharge</td>
<td>0.42</td>
<td>&lt;0.05</td>
<td></td>
</tr>
</tbody>
</table>

- A statistically significant difference was seen between the pre-intervention scores and the post-intervention PSEQ scores.
- Average length of time spent with each patient in inpatient education and in follow-up phone calls was evaluated for feasibility in future implementation.
- The average individual inpatient educational session was 15 minutes and the average post-operative phone call was eight minutes.

Feasibility

The intervention in this pilot project was conducted by the DNP student but was developed in such a way that it could be adapted for use with inpatient nursing staff.

The cost of the intervention was terminating the SPM tools for patient use at about three dollars per sheet.
- Further costs would be incurred were the intervention adapted for use with general nursing staff.

These costs would include the time of educating staff nurses and also evaluating the effects of the intervention.

Potential for institutional benefit

This intervention addresses nine out of 21 HCAHPS questions; in an institution this size, the survey score of one patient can make a difference in overall HCAHPS scores.

This intervention supports the triple aim by using a cost-effective strategy to improve the patient experience.

The intervention aligns with JCAHO standards for patient education in pain and symptom management.

Strengths

- This intervention was geared toward elderly participants through the use of multi-dose interventions and individualized sessions.
- Each patient was empowered to control his or her own pain.
- When appropriate, medication therapy was discussed with the surgeon to meet patient needs.

Limitations

- This was a small convenience sample from one community hospital.
- The comparison group did not receive the PSEQ.
- Pain scores that were documented as “no signs of pain” were averaged in a zero value and this may have affected average pain scores.

Implications for Future Research

- Larger sample sizes and multi-center studies would add stronger evidence in similar studies.
- Limitations are to include only the very old (older than 75).
- Further research in this area should continue to focus on empowering the patient to take control of his or her own outcomes.