Impact of Pharmacist Involvement on Polypharmacy and use of Potentially Inappropriate Medications in Elderly Hip Fracture Patients (IMPROVE-Hip)

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Introduction

Hip fractures in the elderly represent a significant burden to the healthcare system.

The Impact of Hip Fractures

- In 2011/12, 3885 patients were admitted to hospitals across BC with hip fracture, this number is projected to increase by 2% annually.
- 30% of patients with a hip fracture will die in the year following their fracture.
- 50% of patients will lose one level of mobility and independence, leading to increased care costs.

The BC Hip Fracture Redesign Project

- A project formed in 2013 to implement evidence-based clinical practices with the goal of improving clinical outcomes in hip fracture patients.
- In 2015, Pharmacy Services at Royal Jubilee Hospital (RJH), in collaboration with the BC Hip Fracture Redesign Project, began ensuring that new hip fracture patients receive formalized intensive clinical pharmacist involvement in an effort to determine if this could lead to an improvement in patient outcomes.

Uniqueness/Relevancy of Research

- The positive correlation between polypharmacy and fall/hip fracture risk has been well studied.
- In-hospital medication prescribing and optimization by a clinical pharmacist could potentially improve outcomes in new hip fracture patients.
- A thorough literature review failed to elicit evidence of any trials investigating intensive pharmacist intervention in recent hip fracture patients.

Study Objective

Objective: to evaluate the potential benefits of intensive clinical pharmacist intervention in hip fracture patients within 48 hours of hospital admission.

Primary Outcomes:

- Number of Medications prior to admission versus at time of discharge and at 30, 60, and 90 days post-discharge
- Number of Potentially Inappropriate Medications (PIMs) prior to admission versus at time of discharge and at 30, 60 and 90 days post-discharge

Secondary Outcomes:

- Length of stay in-hospital
- 90-day hospital readmission rate (at any Island Health hospital)
- In-hospital mortality rate
- Proportion of patients discharged to an alternate level of care (ALC) from admission
- Perceived benefits of pharmacist interventions (via ward staff survey)

Intensive Clinical Pharmacist Intervention

Pharmacist involvement within 48 hours of admission, standardized to include:

- Obtaining a best possible medication history (BPMH)
- Performing admission medication reconciliation
- Performing a medication review focusing on polypharmacy and PIM reduction
- PIMs: any medication appearing on the "Drugs and the Risk of Falling: Guidance Document" from the BC Falls and Injury Prevention Coalition
- When the patient is discharged, producing a best possible discharge medication list (BPDML)

Results (Survey)

Participants:

- Response rate: 44/88 possible participants (50% response rate)
- 43/44 respondents had treated hip fracture patients within the past year

Question (check all that apply)

Which functions or roles of a pharmacist on the orthopedic unit do you feel are of (or would be) the most benefit to:

<table>
<thead>
<tr>
<th>You</th>
<th>Your Patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward Staff</td>
<td>Surgeons (5)</td>
</tr>
<tr>
<td>Attending interdisciplinary rounds</td>
<td>33</td>
</tr>
<tr>
<td>Med reconciliation</td>
<td>34</td>
</tr>
<tr>
<td>Med reviews</td>
<td>32</td>
</tr>
<tr>
<td>Assisting with reserving home meds</td>
<td>37</td>
</tr>
<tr>
<td>Performing consults to reduce polypharmacy</td>
<td>28</td>
</tr>
<tr>
<td>Performing consults to reduce falls risk</td>
<td>24</td>
</tr>
<tr>
<td>Assisting with optimal drug dosing</td>
<td>31</td>
</tr>
<tr>
<td>Monitoring drug therapy</td>
<td>36</td>
</tr>
</tbody>
</table>

Discussion

- With the exception of attending interdisciplinary rounds, the majority of orthopedic ward staff and surgeons believed that all of our stated pharmacist interventions were beneficial to both themselves and their patients.
- Due to the unavailability of data, we were unable to assess the number of medications and potentially inappropriate medications on admission, and at 30, 60 and 90 days post-discharge. We were also unable to assess the proportion of patients discharged to an alternate level of care (ALC) from admission.
- In our post-intervention group we observed non-statistically significant reductions in length of stay (0.9 days) and in-hospital mortality rates (RRR 59%).
- In our post-intervention group we observed a non-statistically significant increase in hospital re-admission rate (RRR 8%)