Reviewer’s report

Title: Intervention to improve the appropriate use of polypharmacy for older patients with hip fractures: an observational study.

Version: 0 Date: 02 May 2017

Reviewer: Andrea Gruneir

Reviewer's report:

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In this manuscript, the authors report on an retrospective observational study in which older adults with hip fracture who underwent a medication review were compared against those who did not undergo review on subsequent outcomes including death or new fracture (primary outcome). The authors took advantage of an in-hospital intervention designed to reduce inappropriate medication use among older adults. Of the 164 individuals who met their inclusion criteria, 32 agreed to the medication review (with potential for medication change) and the remainder were treated as a comparison group who did not undergo the intervention medication review. Beers Criteria (2015) were used to guide the selection of potentially inappropriate medications (PIM). The authors found that although the intervention group did experience a decrease in PIM use, there was no difference between groups on outcomes.

There are a number of places where it would be helpful for the authors to provide more details in order to assess this study. Here are some comments for the authors to consider:

1. What was the follow-up period and how were outcome measures collected? I could not find this information in the manuscript but think this is important for interpreting the findings. In particular, were outcome measures collected only from the single hospital or directly from the patients included in the study (or through some other means)? This information is needed to assess to what extent all of the outcomes were captured. I also wonder if the length of follow-up was long enough for outcomes to accrue.

2. I think that it would be helpful for some of the variables in Table 1, such as number of medications and number of PIMS, to be presented in categories (rather than with means/SD). I think this would make it easier for readers to see the frequency of use and some of the differences across groups.
3. What was usual care? It looked like a number of patients in this group also experienced a decrease in PIMs. It would be helpful to know more about what happened to this group - and if possible, why so many refused the intervention.

4. Can the authors provide any insight on why so many PIMs were still in use on discharge among the intervention group?

5. I wonder if there are sufficient numbers for this analysis. Several of the confidence intervals are very wide, including on the primary outcome. I think that this issue may need some attention.

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

No

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

Unable to assess

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

**Quality of written English**
Please indicate the quality of language in the manuscript:

Acceptable

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