Reviewer’s report

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

Version: 0 Date: 08 Jun 2017

Reviewer: Susanna Wallerstedt

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In this cohort study, the authors describe the effects of an intervention to reduce polypharmacy in hip fracture patients. The primary endpoint (death or a new fracture) was compared between intervention (n=32) and control (n=132) patients, 65 years or older with ≥5 drugs in the medication list.

I read the article with interest, and have some comments and suggestions to improve the manuscript:

1. Please provide figures in the abstract, for example regarding the number of deaths/fractures and the number of drugs in the comparison groups, that is, not only p-values and odds ratios.

2. The expression "inappropriate polypharmacy" is odd, and could be replaced. In fact, the number of drugs in the medication list is a quite good surrogate variable for the burden of disease (Fam Pract 2013; 30(2): 172-8), but a poor indicator for quality of drug treatment (Eur J Clin Pharmacol. 2015;71(3):363-8]) These aspects need to be discussed in the introduction and discussion, as well as made clear in the abstract. Further, most studies reporting prevalence of polypharmacy, focus on "potentially" inappropriate medications, which is not equal to inappropriate drug treatment. Indeed, drugs generally considered inappropriate can be appropriate at the individual level.

3. In the study, a cut-off of five medications was used for inclusion. Please describe the rationale for this cut-off. Further, the method to estimate the number of drugs needs to be clarified. Were the patients simply asked? Or is there a central electronic system for prescribed medications for each individual in Japan? And were both drugs used regularly and as needed counted?

4. In the present study, only potentially inappropriate drugs were targeted. It is important to acknowledge that undertreatment may also be a problem.

5. Who assessed that a medication was unnecessary? And on what basis? Indeed, the intervention could be further described.

7. In the present study, although not statistically significant, the odds ratio for death was >1 (like in several meta-analyses). This could be discussed. Indeed, on page 14, last line: this study does not support that the intervention can be performed safely.

8. Did the participants provide informed consent? Or was informed consent waived in the ethics approval? Eligible participants were approached by a pharmacist, and if the patient declined participation, he/she was included in the control group. Ethical consideration regarding this procedure could be discussed.

9. Please provide a flowchart of patients in the wards, including patients with <5 drugs and reasons for exclusions.

10. Pharmacists’ non-dispensing role is a matter of debate. Please describe the role of this profession in Japan. This information would facilitate the interpretation of the results for the reader. Indeed, although the American Geriatric Society may recommend a multidisciplinary team to perform medication reviews, other countries may have chosen other ways to achieve rational and safe use of medicines. Further, the conclusion that comprehensive geriatric care is needed to improve patients' clinical outcomes cannot be derived from the present study, and relevant references need to be cited to reflect the state of knowledge.

11. Why did the authors choose Beers criteria and how applicable are these in the Japanese setting?

12. Surprisingly many drugs were withdrawn at discharge, as the intervention patients had 9.2 drugs at admission and 4.5 at discharge. For example 10 intervention patients had a PPI at admission and 4 patients at discharge. Did the authors evaluate what happened after discharge, that is, was PPI represcribed? Or did gastro-intestinal bleedings or rebound symptoms occur? How often were other withdrawn drugs represcribed?

13. The authors state, as a limitation of the study, that the follow-up period was relatively short. Can an effect in the longer term be expected for a onetime polypharmacy intervention?

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.

Yes

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

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