Reviewer’s report

Title: Fast track hip fracture care and mortality – an observational study of 2230 patients.

Version: 1 Date: 22 Mar 2019

Reviewer: Henrik L. Jorgensen

Reviewer's report:

This is a retrospective register study of the effect fast track hip fracture care versus conventional hip fracture care on a relatively large number of patients before and after the introduction of the fast track hip fracture care. A prospective, randomized study of the two different pathways would, of course, have been preferable but such a study would be almost impossible to conduct due to a number of practical and ethical problems. Thus, the design of the present study is probably one the best alternatives, having the advantage of presenting data from a routine, clinical setting into which the fast track program was implemented. Furthermore, the study is one of the largest studies to date on this subject.

The study is well designed and well written. The discussion of the weaknesses / strengths of the study and of the possible reasons for not finding a significant reduction in mortality in the fast track group is clear and thorough.

Specific comments

1) What kind of pain relief did you give the patients upon arrival in the A&E department? Reading the description of the fast track hip fracture care, it seems as if pain relief (apart from the prehospital treatment) is first initiated upon the return of the patient from the X-ray department to the orthopaedic ward.

2) Time to surgery has been shown in several studies to have a substantial influence on mortality after hip fracture. The reduction in time to surgery from a median of 25.7 hours in the conventional group to 23.6 hours in the fast track group is not very large which could be part of the explanation of the missing effect on mortality.
Looking at the description of the adjusted analyses, I do not see time to surgery included as a co-variate:

"In the adjusted analyses, age, male gender, cognitive impairment and increasing ASA score were independent predictors of increased mortality while surgeon's experience, type of fracture, type of operation, type of anaesthesia, operating time and municipality were not."

I suggest new analyses including this variable. In addition to its inclusion as a continuous variable, you could also try to include it as a dichotomous variable instead: Operated within 12 hours (0/1) or Operated within 24 hours (0/1).

3) A table should be made with the results of the logistic regression analyses showing the odds ratios of the individual, independent predictors of mortality.

4) You only analyze the effect of the fast track program on postoperative infections as a whole. Have you tried looking at individual infections (urinary tract infections, pneumonia etc.) separately?

5) In your discussion, you state "other recent approaches to improve hip fracture care, such as geriatric co-management, have also largely failed to decrease mortality [33-35]". I do not agree with this statement. Several studies have shown reductions in mortality after hip fracture with orthogeriatric care. You should include references to these studies as well and modify the text accordingly.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

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

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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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