Author’s response to reviews

Title: Mortality and comorbidity after non-operatively managed, low-energy, pelvic fracture in patients over age 70: a comparison with an age-matched femoral neck fracture cohort and general population

Authors:

Aleksi Reito (aleksi@reito.fi)
Mari Kuoppala (Mari.Kuoppala@student.oulu.fi)
Hanna Pajulammi (hanna.pajulammi@ksshp.fi)
Lasse Hokkinen (hokkinen@gmail.com)
Kati Kyrölä (kati.kyrola@ksshp.fi)
Juha Paloneva (juha.paloneva@ksshp.fi)

Version: 1 Date: 07 Aug 2019

Author’s response to reviews:

Authors’ responses (AR):

Editor Comments:

Results section of abstract

Please restructure as the follow is not clear: “The femoral neck fracture patients did not differ by gender from the pelvic fracture patients in 90-day mortality risk” Instead you need to give the results that address the primary aim of comparing the pelvic fracture mortality with femoral neck fracture mortality

AR: This has been restructured as: “We could not observe a difference in the risk of 90-day mortality between the femoral neck fracture patients and patients with a pelvic fracture.” (Line 41-42)

Within 30 days, 28 (12.8%) patients were readmitted for in-patient care in our hospital – please clarify that it is the patients with pelvic fracture you are referring to

AR: This was also restructured as: “Within 30 days, 28 (12.8%) pelvic fracture patients were readmitted for in-patient care in our hospital.” (Line 43-44).
Figures

Please significantly improve the presentation of figure quality as these form the key results. In particular clarity, including editing to only show the survival curves and to clearly label what each curve is in terms of patient cohort as the solid lines which are all on top of each other at the top of the curves are not clear to be interpreted by the reader. Additionally what are the lines below the survival lines that commence just above the 60% mark it’s unclear if they are legend lines or data. What is 1v and so on at the bottom of the curve? – Please convert to standard time

AR: It seems there was a conversion issue from vector graphs to PDF. We heavily edited the figures. The axis labels has been also corrected.

General comment: Please clearly state the need for this study in the introduction

AR: The following is added to end of the third chapter to more clearly state the need for this study: “This information can be used to allocate resources more appropriately and to get insight for more focused interventions.” (Line 74-75)

BMC Geriatrics operates a policy of open peer review, which means that you will be able to see the names of the reviewers who provided the reports via the online peer review system. We encourage you to also view the reports there, via the action links on the left-hand side of the page, to see the names of the reviewers.

Reviewer reports:

Debra Hain, PhD, APRN (Reviewer 1): Please include all comments for the authors in this box rather than uploading your report as an attachment. Please only upload as attachments annotated versions of manuscripts, graphs, supporting materials or other aspects of your report which cannot be included in a text format.

Please overwrite this text when adding your comments to the authors.

Important manuscript that provides evidence to support best practice. The following are my recommendations:
Abstract

Page 2 line 28: suggest use term evidence instead of literature unless the authors perform using research instead

AR: Literature has been replaced with research (Line 28).

Line 31: would help the reader understand the what the readmission were related to and how they determine readmission rate

AR: This issue was raised by the editor and this section has been clarified (Line 32,43). Introduction has been also clarified. We propose that definition is not described in the abstract due to space restrictions.

Page 3 Line 54: 1970 to 2013 is a long period of time, did the population change during the time? same comment to the other studies mentioned. why are these increasing? are there unique characteristics in the different study samples?

AR: This is a good question. Kannus et al. who investigated the 1970-2013 period stated: “Our new pelvic fracture data are in line with previous observations on the quick increase in various osteoporosis and falling-related injuries in elderly people [3–5, 10, 16] but cannot point out the exact reasons for the dramatic rise in fracture incidence.” They continue: “An increase in the average individual risk for osteoporosis or falling, or both, may partly explain the phenomenon, or, it may be that today older individuals have more serious consequences from falls than their predecessors”. These are all reasonable explanations for the increase. Naturally there might be some unique characteristics in these studies but since overall trends are similar, we feel that these results are generalizable.

Line 69: testifies is not the best word consider another word

AR: Corrected as suggested using word shows (Line 71).

Line 77: not sure indications is best word, we usually use index hospitalization diagnosis and readmission diagnosis

AR: We agree. Indication has been replaced with readmission diagnosis (Line 80).

Page 4 Line 85: how do the authors know this is checked by the physician

AR: The diagnosis and other data is required for discharge summary. Due to patient system requirements patient cannot be discharged from ED until all mandatory data is inputted to summary.
Methods: it is unclear how the femoral neck fractures and pelvic ring fracture are similar enough to compare the two populations?

It is understandable to have a reference population, this is a completely different time frame from where the study data was obtained, so it is important to describe the samples to evaluate for homogeneity and report

AR: This issue was also raised by another reviewer. We have now collected similar baseline data for neck fracture patients as with pelvic fracture patients. See Lines 141-142, 161-164 and supplementary Table.

Line 153-154: need to make clearer

AR: We agree this was unclear. It has been reworded now:”The time period for all the survival analyses was restricted to the years when the number of patients at risk fell below was more than 20.” (Line 157-158)

Results;

Line 170: not clear what groups the authors are presenting

AR: Text has been clarified: “…patients with a pelvic fracture” (Line 177)

Limitations were not described

AR: Limitations have been described in the end of discussion (Line 230-232)

What are the implications of the study findings to practice and future research?

AR: Main implication for future practice of our study is just that patients with a pelvic fracture should be referred to similar multidisciplinary assessment as patients with a hip fracture. This is mentioned in the conclusion section which is also modified to highlight this more (Line 244-245). Further research is warranted to investigate the effects of this intervention.

Line 233: do the authors know why?

AR: Patients with a pelvic fracture may have longer bedrest period than patients with hip fracture who are usually more rapidly mobilized. We suggest this is the main reason. More data is required to discuss this issue further.
Briggs Robert (Reviewer 2): This is an interesting analysis examining mortality and readmission rates in older patients with pelvic fractures and comparing to a population-based cohort and an age-matched cohort with hip fracture.

AR: We thank for the positive comments.

Suggestions:

1) baseline characteristics are presented for the pelvic fracture group but not for the hip fracture group.

While this comparison group appears to be age and sex matched it would be good to see if they have similar rates of cognitive impairment or CCI for example as these factors will also impact on mortality. Is it possible to present these in/alongside Table 1?

AR: Yes, we have now assess the prevalence of cognitive impairment and CCI score in the neck fracture patients. Comparison to study group is now presented. See Lines 141-142, 161-164 and supplementary Table.

2) is it possible to examine mortality rates for the different types of pelvic fracture, e.g. Rami vs. Acetabular vs. LC?

AR: This was examined and shortly mentioned in the results section (line 184-185). We did not observe any difference in mortality rates between fracture type.

If improvements to the English language within your manuscript have been requested, you should have your manuscript reviewed by someone who is fluent in English. If you would like professional help in revising this manuscript, you can use any reputable English language editing service. We can recommend our affiliates Nature Research Editing Service (http://bit.ly/NRES_BS) and American Journal Experts (http://bit.ly/AJE_BS) for help with English usage. Please note that use of an editing service is neither a requirement nor a guarantee of publication. Free assistance is available from our English language tutorial (https://www.springer.com/gb/authors-editors/authorandreviewertutorials/writinginenglish) and our Writing resources (http://www.biomedcentral.com/getpublished/writing-resources). These cover common mistakes that occur when writing in English.