Author's response to reviews

Title: Mortality and cause of death in hip fracture patients aged 65 or older - a population-based study

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Author's response to reviews:

MS: 9759436863810721 - Mortality and cause of death in hip fracture patients aged 65 or older - a population-based study

Dear Editor,

Thank you very much for the opportunity to revise our manuscript (manuscript titled “Mortality and cause of death in hip fracture patients aged 65 or older - a population-based study”).

We have revised the statistical points with our biostatistician. Please find them at the end of this letter. The manuscript has also been edited by professional native-English speaking editors (SciTechEdit International LLC).

On behalf of our research team

Sincerely,

Jorma Panula MD
The authors should try to address a couple of issues in the manuscript:

1. My major concern is still related to proportional hazard (PH) assumption. Testing of PH assumptions using Kaplan-Meier curves gives only a rough guide. One of formal PH assumption tests is to include time dependent covariates in the Cox model which can be founded in http://www.ats.ucla.edu/stat/sas/faq/test_proportionality.htm. This is an important issue for the study because:
   The authors reported that based on a Cox’s proportional hazards model HR of death for men compared to women after a hip fracture was 1.55 (95% CI: 1.21 to 2.00, P<0.001) at the end of the follow-up (last paragraph, page 9). This implied that the HR of 1.55 was for the entire follow-up period. At the same time they also reported the HR of 2.12 (95% CI: 1.12 to 4.01, P=0.02) for the period of 1st day of a hip fracture to 30 days after the fracture based on another Cox’s model. So, which HR for the first 30 days after the fracture shall a reader believe?
   We tested the proportional hazards assumption and included sex and age as time-dependent covariates by creating interactions of the predictors and a function of survival time and included them in the model. The proportional hazards assumption held in both unadjusted (proportionality test, p=0.1493) and age-adjusted (proportionality test, p=0.1173) models, indicating that the Cox regression model is an appropriate method to analyze the data.

2. The finding of higher risk of death in men compared to women after a hip fracture might not add much to the literature since this was also the case in the general population. It would be more interesting to know whether increased risk of death due to hip fracture was higher in man than in women. This might be assessed by calculating RRs of death for persons with hip fracture to persons in the general population by gender and comparing the two RRs.

Our main interest focused on the differences between sexes and fracture types among our patient material. Adjusting our study population to the general population was considered to be beyond the scope of this analysis. Therefore, no RR comparisons of death were made between our material and the general population. That might, however, be an issue for future analysis.
Level of interest: An article whose findings are important to those with closely related research interests
Quality of written English: Needs some language corrections before being published
Statistical review: Yes, and I have assessed the statistics in my report.
Declaration of competing interests:
I declare that I have no competing interests

This manuscript has been edited by a professional native English-speaking science editor.