Reviewer's report

Title: Two-year changes in quality of life in elderly patients with low-energy hip fractures. A prospective case-control study

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Reviewer: Inger Hallberg

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Review of the manuscript:
Two-year changes in quality of life in elderly patients with low-energy hip fractures. A prospective case-control study

This is an interesting study of the two-year changes in quality of life in patients with low-energy hip fractures.
The questions posed by the authors are well defined. The methods are appropriate and well described. The data is sound and the manuscript adheres to the relevant standards for reporting and data deposition. The manuscript is well written.

Specific comments are:

- Major Compulsory Revisions

1. The major limitation was the design of retrospective analyses of baseline HRQOL and GQOL and that the risk of recall bias is very high. The fracture patients are affected by the fracture when they report the pre-fracture data. It would be more interesting to follow the patients if HRQOL and GQOL data was also collected in connection with the fracture event. There is a need for a more extensive discussion regarding the choice of method design (advantages and disadvantages).

- Minor Essential Revisions

2. Regarding the title: rephrase the title? A prospective case-control study to: A follow-up case-control study or A case-control study (since data results are both retrospective and prospective).

3. The authors use different concepts for the retrospective data, pre-fracture (in the fracture group) baseline and also inclusion. It would be advantageous to use the same concept or terms (i.e. recall data) in the manuscript.

4. In the statistical analyses: HRQOL (delta PSC and delta MCS) and GQOL (delta QOLS), what does “delta” mean in this context?
5. How were subsequent fractures handled at the two-year follow up? Were there more new fractures in the patient group? Patient with hip fracture had increased risk of vertebral fracture and this fracture type could reduce HRQOL more than hip fracture. According to the manuscript, two years after baseline, the same differences (demographic and clinical characteristics) between groups were present except for anti-osteoporosis treatment. How many hip fracture patients used anti-osteoporosis treatment at the two-year follow up?

6. Missing data in HRQOL and GQOL questionnaires: It is not clear how many questionnaires were incomplete? Readers should have this information to assess the results in the study.

7. All data is presented as a group. Are there differences between women and men, which could affect the results of HRQOL and GQOL?

8. In the multiple linear regression analysis, independent variable age was used as five-year groups, why not as continuous data, i.e. the actual age?

- Discretionary Revisions

9. Data regarding the domains in SF-36 is usually presented in a particular order: physical function, role physical, bodily pain, general health, vitality, social function, role emotional and mental health. Presenting data in this order makes it easier to follow for the reader, in the article data is not presented in the same order in the different sections.

10. Information about height and weight gives more accurate information than only BMI in this population.

11. Figure 2 is not very informative or easy to understand for the reader, it would be better with a table showing these data in order to increase the possibility to compare data between different studies. Figure 2 and 3 could be shown as a table instead.

12. Physical (PCS) and mental (MCS) component summary indexes were used in the study, but it was later concluded that the current PCS and MCS scoring procedure inaccurately summarizes subscale profile scores and should therefore be revised. Until then, component scores should be interpreted with caution and only in combination with profile scores. (ref: Taft C, Karlsson J & Sullivan M (2001): Do SF-36 summary component scores accurately summarize subscale scores? Qual Life Res 10, 395-404.)

13. Is there a need for references in the conclusion (19,20)? These references are also found at the end of the discussion.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable
**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.'