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**Title:** The effect of inflammatory response on joint function after hip fracture in elderly patients: A clinical study

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### **Reply to the comments**

Dear reviewer,

Thank you for your careful reading of our paper. We have carefully considered the comments and have revised the manuscript accordingly. Please find below our responses to the reviewers' comments. All the revisions have been addressed in the **Reply** and highlighted in the manuscript with yellow background. We hope the revised manuscript can be considered acceptable.

#### **Reply to the comments of Reviewer 1**

***Comments:** Introduction - Last sentence - As this is a weak epidemiologic study (retrospective, small, single center), you must say "may be" associated not that "are" associated with a poor outcome. This goes for the conclusion as well as this is only a pilot study that can now establish direction for further study.*

(1)

**Reply:** We sincerely thank the reviewer for careful reading. As suggested by the reviewer, we have corrected the "are" into "might be" and explained the introduction in a tone that is not overly assertive. This paper is indeed a small, single-center retrospective article, and we also add that we hope that this study "establish direction for further study".

***Comments:** Methods - Gen info - There is no information about how "bad" this hip was before it was broken. Maybe there was a lot of osteoarthritis or rheumatoid in the joint. Maybe these would add to the level of inflammation at the time of surgery. Why was this information not captured? Discuss that point in the Methods and in the Discussion.*

(2)

**Reply:** We were really sorry for our careless mistakes. Prior to this study, we formulated detailed inclusion and exclusion criteria to prevent the occurrence of abnormal preoperative inflammatory indicators in patients, which could not exclude interference. Therefore, we have corrected the Exclusion criteria: associated with bone metabolic or

inflammatory diseases; received medications affecting bone metabolism and inflammatory factors such as glucocorticoids, antibiotics, calcitonin, bisphosphonates, etc. prior to admission to the hospital. This is the part where we forget to add in the Methods section, thank you for your reminder, we really appreciate your help.

Also, we've added content to go over this in the discussion section and highlighted it in the manuscript, thanks for your suggestion.

**Comments:** *Inclusion - what about patients with obvious OA or rheumatoid or other inflammatory diseases that were admitted into the study? Blood markers may be up already - This is not discussed in the Methods or in the Discussion - please add.*

(3)

**Reply:** We sincerely appreciate the valuable comments. As in the reply to the second question, we note that the inclusion and exclusion criteria are incomplete, so we have added this section. We appreciate for Reviewer's warm work earnestly and hope that the correction will meet with approval.

**Comments:** *Evaluation - hip fracture length of stay in our trauma hospital is now 1 week in our hospital. What was length of stay in your hospital - make clear and provide information as to when blood tests were done as it is not clear and then when they were reported upon - this is not clear either.*

(4)

**Reply:** We feel great thanks for your professional review work on our article. As you are concerned, there are several problems that need to be explained. First, the length of stay in our hospital is not fixed, and is mainly determined according to the postoperative blood test indicators and physical conditions of patients, particularly inflammation-related indicators. Therefore, we calculated the length of stay as the outcome to evaluate the correlation between them. Second, we usually do blood tests on the first day after surgery and usually receive a report the same day or the next day so that we can know the levels of inflammatory factors.

**Comments:** *Data Collection - no information about previous OA or rheumatoid in patients. What about infections in patients? With this many patients - some would have had infection.*

(5)

**Reply:** We were really sorry for our careless mistakes. In response to the above question, our inclusion criteria were patients with a confirmed hip fracture who had a primary fracture and no other infectious diseases, which we also added to the exclusion criteria. Thank you for your reminder.

**Comments:** *Results - Remove laterality - this makes NO difference and is not published upon.*

(6)

**Reply:** Thanks for your careful checks. Based on your comments, we have removed laterality to make Table 1 harmonized within the whole manuscript.

**Comments:** Table 1 - wording - should be Trochanteric not Intertrochanter - When was Fair or Excellent hip function determined - last day in hospital? Make clear. It says 4-6 days after injury. Graphs with outcomes scores would help. What made an Excellent versus a Fair result? Make clear. - Eliminate bleeding volumes from the WHOLE paper. It is too inaccurate to be reportable. What about internal bleeding and bruising? That is not recorded. What about blood thinners - that is not recorded. This is a major weakness of the paper relying upon bleeding volumes which are notoriously inaccurate. Eliminate.

(7)

**Reply:** We feel sorry for our carelessness. In our resubmitted manuscript, we have corrected the “Intertrochanter” into “Trochanteric.” Thanks for your correction.

In the Table 1, we calculated the variable Time from Injury to Surgery, and the result showed that it was not significant, so we did not describe it in graphs. As to whether hip function is fair or excellent, we described the classification in the Evaluation method, but we did not describe it specifically. Specifically, the Harris Hip Function Scale was used to evaluate hip function 12 months after surgery, a score greater than or equal to 80 was classified as excellent, and a score less than 80 was classified as fair, we have made extra modifications in the Evaluation method section. In addition, according to your comments, we eliminated the bleeding volumes.

Thank you again for your positive comments and valuable suggestions to improve the quality of our manuscript.

**Comments:** Table 2 - Write out F. - Fair. E. Excellent. - There is no information about who among these patients had wound healing or infection problems. Add and make very clear as this should also correlate to the other numbers. How many infections?

(8)

**Reply:** Thank you for your reminding. In all the patient data we included, we did not find any patients who developed wound infections or other infection diseases before or after surgery, we did not mention this in the paper.

**Comments:** Discussion - Eliminate all reference to "bleeding volumes" including Tables as this is notoriously inaccurate. No description of how measured and it is very inaccurate - major weakness of the paper.

(9)

**Reply:** We have removed the description of bleeding in the discussion section as well as in the tables. Thank you for your correction.

**Comments:** There is no discussion about those patients who had pre-existing OA or rheumatoid or infections from surgery. This is a major weakness of the study. There is no mention about patients who died as this group is often dead at a high rate postop

(10)

**Reply:** We would like to thank the reviewer for your critical and constructive comments. In response to the above question, we excluded patients with OA and other infection

diseases when formulating the exclusion criteria, so as to avoid the inaccurate results caused by the impact of their own diseases on inflammatory factors. We also added this part of the expression in the paper. None of the patients we observed died during the entire study process, which may be due to the fact that our observation period was only one year, which is one of the limitations of this study. Thanks again for your advice.

**Comments:** *Conclusion - The conclusion is much too firm and should be softened as this is a poor epidemiologic study and so all this study can say is that more work need be done like prospective studies and that these markers "may" be important.*

(11)

**Reply:** We agree with your viewpoint. We have softened the tone of the conclusion. Thank you for your reminding.