Reviewer’s report

Title: Surgical Trends in Elderly Patients with Proximal Humeral Fractures in South Korea: A Population-based Study

Version: 0 Date: 04 Dec 2018

Reviewer: Werner Schmoelz

Reviewer's report:

Summary:
In this study the authors analysed the Korean Health Insurance Review and Assessment Service database regarding the incidence and treatment of proximal humerus fractures in patients older than 65 years from 2008 to 2016. While they found no change in the incident rates of PHF, the overall operation rate increased. Open reduction and internal fixation as well as reverse shoulder arthroplasty were performed more frequently compared to closed reduction and external fixation and hemiarthroplasty, respectively. The authors hypothesize that this increase in surgical treatment may be due to the development of new implants and surgical techniques. Their findings seem to be in consistent with other studies.

Overall, the study is well written and adequate in form and style.

Comments:
1. Line 66ff: The authors explain, why locking plates are used more often when performing ORIF. In the reviewers’ point of view, a few sentences about intramedullary nailing should also be added.

2. Line 97-98: The surgical codes should be explained immediately (as done in line 108-110) to avoid confusion.

3. Line 145-146. The authors state that the proportion of RSA increases significantly in Patients older than 80 years. In line 197-204 the authors explain, that until 2017, only patients older than 80 years received insurance coverage for RSA. Assumingly, patients younger than 80 had to pay for the procedure themselves. This poses a massive bias. If the information, that RSA is more frequently used in patients over 80, is given in the results, the insurance bias must be explicitly mentioned in the limitations of the study.

4. Line 169-171: The authors state before, that the incident rate of PHF does not increase, because the population of South Korea has increased in the monitored years concurrent to the number of PHF's. If osteoporosis is an important risk factor in PHF, like stated, and the number of cases of PHF is predicted to increase steadily, why didn't the incident rate increase in this study? Please discuss.
5. Line 181-189: Like before, the intramedullary nail is not mentioned. Is it not used in South Korea? If not, why?

6. Discussion: No functional outcome was registered in the data. We learn from this study, that the frequency of surgical treatment increases, but it would be interesting to know, if the functional outcome is getting better simultaneously. In the reviewers' point of view, this is a limitation of the study and should be mentioned as such.

7. Table 3: Please mark statistical significant differences in the table. If all differences are significant, please state this in the description.

8. Figure 3: Are the patients more than 65 or older than 80 years old? Please state this in the description.

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.

Unable to assess

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
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

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable
Declaration of competing interests

Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

'I declare that I have no competing interests'

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal

Do you want to get recognition for reviewing this manuscript? Add a record of this review to Publons to track and showcase your reviewing expertise across the world’s journals. Signing up is quick, easy and free!

No