Title: Exeter total hip replacements 744 hips followed for 2-20 years with no loss to follow-up

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Reviewer: Dr Stein Atle Lie

Level of interest: A paper whose findings are important to those with closely related research interests

Advice on publication: Unable to decide on acceptance or rejection until the authors have responded to the compulsory revisions

Reviewer's report:

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Reviewer: Dr Stein Atle Lie, University of Bergen (Stein.Lie@smis.uib.no)

Level of interest: A paper whose findings are important to those with closely related interests

Advice on publication: Unable to decide on acceptance or rejection until the authors have responded to the compulsory revisions

Quality of written English: Acceptable

Competing interests: None

Specific comments:
This paper is well written. Iceland is ideal for studying differences or changes in patient care due to its homogenous and stable population, therefore this article may be of particular interest for those with closely related research.
Compulsory revisions:
1. The subtitle is misleading. Of the 744 prosthesis, there are only 654 primary prostheses which are followed until revision. The subtitle: "654 primary prostheses, with a maximum follow-up of 20 years", may be more appropriate.

2. This study both gives results for the prostheses (time to revision) and for the patients (complications and deaths). The structure of the article should be strengthened by dividing these two issues into separate paragraphs.

3. There has been a change in the design of the Exeter prosthesis during the years of the study. This may explain changes in revision rates, there have, however, also been a decrease in hospitalisation, and a change to vacuum mixing, during the same period. The argument that there has been a change in revision rates should be based on a measure for statistical significance (e.g. a p-value from a log-rank test or results from a regression analysis. A Cox-regression would be simple to perform since this method is present in the SPSS-software).

4. It should be stated in the "Methods" section that all prostheses were cemented with Palacos containing gentamycin.

5. In survival studies of prostheses, the observation of the prosthesis is lost to follow-up when the patient dies. The observational time for the prosthesis is, hence, censored at the time of death for the patient. Thus, a complete follow-up for the patients (with only administrative censoring at the end of study) don't necessarily mean a complete follow-up for the prostheses. This should be clarified in the article.

6. There are 591 patients with 744 prostheses. What were the number of patients for the 654 primary prostheses?

7. Are only prostheses which was primary operated at Akureyri included? Were revisions from any hospital in Iceland connected to these primary operations? If so how where comparison of revision rates with other hospitals performed, which are stated as the primary purpose of the study (last sentence in the background section)?

8. Figure 1 and Figure 2 should have the same axis. Thus, the X-axis in Figure 2 should also go from 0 years to 17 years.

9. Total revision rates should be provided, and not only curves for aseptic loosening, since dislocations is common for Exeter prostheses. It would, furthermore, be interesting to see a table with the different designs of the Exeter prosthesis (matt vs. polished stem and metal backed vs. all polyethylene acetabulum) and the reasons for revision (such as for the 28 aseptic loosenings, the 7 dislocations etc.). Preferably figures for the total revision rates, which are commonly presented in the literature, should be presented, in addition to the curves for aseptic loosening.

10. It may also be that prostheses lost to follow-up due to patient death have a higher risk for revision than those not lost to follow-up. Some of this difference might be explained by differences in age, since old patients have a high mortality and may have a low revision rate. This paragraph should be moved from the conclusion section to the discussion.

11. The conclusion section does not summarize the findings in the study and should hence be rewritten.
12. Is Table 2 for the early postoperative period? If so, state the number of days in the table heading, that these numbers account for.

Orthographic corrections:
1. In the results section of the paragraph change the last sentence to "... within the end of year 2001."

2. In the fist sentence of the background section erase the word "there".

3. Rewrite the fist sentence of the second paragraph in the background section to: "In Iceland, as in the other Scandinavian countries, ..." (Two commas and the word "the" added).

4. Rewrite the third sentence of the second paragraph in the background section. It is difficult to understand.

Discretionary revisions:
1. State the version of the SPSS-software used for the statistical analyses.

2. Figure 1 and Figure 2 is obviously not plotted in SPSS. State the software used to calculate the confidence limits and to create the figures.

Competing interests:

None declared.