Author's response to reviews

Title: The course of radiographic loosening, pain and functional outcome around the first revision of a total hip arthroplasty

Authors:

Emin Aghayev (emin.aghayev@memcenter.unibe.ch)
Regula Teuscher (regulateuscher@sonnenhof.ch)
Michal Neukamp (michal.neukamp@memcenter.unibe.ch)
Eu Jin Lee (maileujin@gmail.com)
Markus Melloh (markus.melloh@uwa.edu.au)
Stefan Eggli (stefaneggli@sonnenhof.ch)
Christoph Röder (christoph.roeder@memcenter.unibe.ch)

Version: 2 Date: 5 April 2013

Author's response to reviews: see over
Reviewer's report
Title: The course of radiographic loosening, pain and functional outcome around the first revision of a total hip arthroplasty
Version: 1 Date: 12 February 2013
Reviewer: Naomi Kobayashi

Reviewer's report:
The authors investigated the course and interrelationships of radiographic loosening, pain and physical function 5 year before and after a first revision THA. The serious issue of this study is that this is retrospective study. Because each clinical data must be collected from previous database, so that it seems difficult to assess accurate clinical outcome or functional status.
It is also important to understand that revision surgery include many kinds of parameters such as cause of loosening, technical issue, implant selection etc. It is difficult to find any specific value in this study. All results seems quite common from point of clinician. However, it may be suggestive for us that most strong motivation for revision surgery should be pain relief, rather than functional outcome.
It seems better to omit radiographic result, because radiographic loosening is irrelevant in this study. I suggest that the author should describe only about clinical results, if possible including some activity score or muscle power data, rather than radiographic loosening.

Level of interest: An article of limited interest
Quality of written English: Acceptable
Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:
I declare that I have no competing interests.

We are glad to be able to correct the reviewer’s misperception of the retrospective nature of our study. The retrospective analysis is based on a structured and stringent prospective data collection in an international hip registry. Our previous publications in e.g. JBJS-Am have agreed with our study design and derived an evidence level II (prognostic study) from it (e.g. Influence of preoperative functional status on outcome after total hip arthroplasty. C Röder, LP Staub, S Eggli, D Dietrich, A Busato, U Müller JBJS-Am, 2007 Jan;89(1):11-7.). Hence no data needed to be collected from another database than that of the registry. As stated in paragraph “Sample selection” we clearly only included Charnley type A patients with a revision diagnosis of aseptic loosening, to have a representation of the most common and most frequent THA patients and revision diagnosis. That way, we consider the sample to have a certain uniformity and representativeness for the majority of THA revision cases. We don’t think that the course of pain and radiographic loosening will significantly differ from our curves in other cases of Charnley A patients with aseptic loosening, but in case of e.g. infections, periprosthetic fractures or gross implant failure it will, of course. However, for these types of situations we did not want to draw an example.

Regarding the specific value of the study we refer to the comments of reviewer three since they exactly represent our opinion: “The study derives the information from a large database, which makes its results interesting and, although relatively known in the day to day practice, not easily reproducible by another study. … Therefore, in
The information derived from the present study is useful and clinically relevant. We did also perceive that so far there is no comparable study in the literature that is able to visualize and quantify the course of pain, function and radiographic loosening during a 10-year time window around a first revision of THA. Some studies mention that initial component loosening was pain free, but that the onset of radiographic loosening signs happens about 4 years before the actual revision and about 2 years before the sharp uptake of symptoms has not been shown anywhere else. In addition, the parallel loss especially of walking capacity, that does not fully recover post-revision, while freedom of pain is nearly completely achieved, are important aspects that are valuable to know for surgeons and patients in our opinion. For that reason we would like to keep the radiographic information in the study.

Regarding inclusion of a functional score, we are able to derive the HHS from those followup forms that carry all the necessary HHS items. Defining an HHS>80 points as good, i.e. desirable outcome, we could include the following graph into the article if the reviewer considers it of sufficient importance.

Reviewer's report
Title: The course of radiographic loosening, pain and functional outcome around the first revision of a total hip arthroplasty
Version: 1 Date: 5 February 2013
Reviewer: Brett Levine
Reviewer's report:
I had a difficult time reading through this paper. The grammar makes it very hard to read. Additionally, the short term follow-up and conclusions are difficult to
understand what this paper adds to the literature.

**Level of interest:** An article of insufficient interest to warrant publication in a scientific/medical journal

**Quality of written English:** Not suitable for publication unless extensively edited

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:** I declare that I have no competing interests

We refer to our answers to reviewers one and three. We do consider 10-year time window of a relatively homogeneous group of first THA revisions for aseptic loosening as a rather long followup that does as such not yet exist in the literature. We had the paper language edited by a native speaker (US scientist) with comprehensive experience in editing English scientific publications. However, if the reviewer insists we will give the article to another language editor once more.

**Reviewer's report**

**Title:** The course of radiographic loosening, pain and functional outcome around the first revision of a total hip arthroplasty

**Version:** 1  **Date:** 9 February 2013

**Reviewer:** Sofia Chatziioannou

**Reviewer's report:**

This is a well written retrospective study that evaluates the patients in the time period around the first revision after total hip arthroplasty. The study derives the information from a large database, which makes its results interesting and, although relatively known in the day to day practice, not easily reproducible by another study. A drawback is that because of the nature of the study itself, the patients’ sample was not homogeneous, the physicians that performed the operation were apparently multiple and the procedure/type of implant used varied significantly between patients. This weakness is already mentioned in the discussion section, and it is understood that in studies based on databases, it cannot be easily overcome. Therefore, in general the information derived from the present study is useful and clinically relevant.

Minor Essential Revision

1. Figure 1 and table 2 show exactly the same information. Please remove the one of the two.
2. 80.1% of the patients had pain at the time of the revision. Please comment on why almost 20% of the patients did not have pain, but still underwent revision. Based on the results of the study would the authors still recommend surgery on these patients? Please comment on that.

**Level of interest:** An article of importance in its field

**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.

We are thankful for the reviewer`s comments and suggestions and do refer to our comments for reviewer one regarding sample homogeneity. We have removed table 2. Despite carrying more precise information we are of the opinion that conveying the respective information graphically (Figure 2) is of sufficient precision and does more
clearly show the course of the respective variables. Acc. to the literature early loosening is often painless (see discussion paragraph “Signs of radiographic loosening before and after revision” and the 20% of patients may have been cases with clear radiographic loosening signs but with only mild symptoms (our curves only show relevant, i.e. moderate, severe, intolerable pain, but in the graph below we have added a third green curve including patients with mild pain for your kind notice and potential inclusion in the paper) where the surgeon decided to intervene early to preserve as much bone stock as possible. We have tried to make this clearer in several places in the paper by adding the word “relevant” before pain and by rephrasing the first sentence of the respective discussion paragraph that does now better emphasize the need for early detection AND revision. Our definition of radiographic loosening based on the terminology of the IDES system is accepted in the literature and has been used and published multiple times (JBJS-Am, JBJS-Br, JOR, J Arthroplasty, etc.). However, the register forms cannot really picture all details of imaging as they presented to the surgeon and those cases that did not display any or only mild symptoms but were still revised did most probably leave no doubt about a loose component and an indication for revision, but it may not have been well recordable on the registry forms. Hence we do of course have to leave it to the surgeon’s and radiologist’s expertise to make the indication for a revision surgery but would clearly also support this decision in asymptomatic or mildly symptomatic cases in accordance with the literature. We did also rephrase the results part of the abstract and the conclusions in order to make this point clearer.

![Graph showing the percentage of patients with radiological loosening and symptoms](image-url)