Reviewer's report

Title: Cementless short-stem total hip arthroplasty in the elderly patient. Is it a safe option? A prospective multicentre observational study

Version: 0 Date: 13 Feb 2019

Reviewer: Seung-Jae Lim

Reviewer's report:

This is a prospective multicenter observational study comparing the clinical and radiological outcomes as well as perioperative complications of a calcar-guided short stem between a young (<60 years) and a geriatric (>75 years) population.

This manuscript may include some interesting points. However, authors need for clarify several points for more consideration.

1. The clinical follow-up period is too short to validate their conclusion, 'advanced age and potentially reduced bone quality should not necessarily be considered as contra-indications for calcar-guided short stem THA'. Group A has a mean follow-up of 52.0 months (SD 17.9) and group B has only a mean follow-up of 43.3 months (SD 21.3).

2. Total hip arthroplasty with a proximally coated single-wedge cementless stem had been generally considered not to be suitable for Dorr Type C femurs. In a recent publication (Kim SM et al. Int Orthop. 2018 Sep;42(9):2069-2076.), advanced age, higher American Society of Anesthesiologist grade, femur morphology of Dorr type C, and the use of a calcar-loading short stem stem increased the risk for periprosthetic femoral fracture. Did you check the type of femurs according to Dorra's criteria?

3. In this study, postoperative periprosthetic femoral fractures during follow-up were observed in 0.4% in group A and 3.6% in group B respectively, the difference being statistically significant (p = 0.02). And, a high incidence (3.6%) of postoperative periprosthetic femoral fractures in group B only in a mean follow-up of 43.3 months (SD 21.3) may be an alarming issue. Further follow-up is necessary to draw safe conclusion regarding postoperative periprosthetic femoral fractures in elderly patients using this femoral stem.
4. I believe that the findings of this study must be interpreted with caution because this study may introduce a new design of femoral stem. One of the critical weaknesses of this study included the lack of randomized controlled trial. Additionally, the authors studied only one design of prosthesis and therefore cannot generalize their findings to all cementless short-stem total hip arthroplasties.

**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.

Yes

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

No

**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 recommend additional statistical review

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

Acceptable

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