Reviewer’s report

Title: Type 3 finger length pattern is associated with total knee replacements due to osteoarthritis but not with hip replacements or hand osteoarthritis in the elderly: The AGES-Reykjavik Study.

Version: 2 Date: 30 December 2012

Reviewer: Yuanyuan Wang

Reviewer’s report:

In a cross-sectional study of 5170 participants, the authors examined the association between type 3 finger length pattern read from digital photographs and total joint replacement due to OA. They found the type 3 pattern was associated with knee OA but not hip OA.

Major Compulsory Revisions

1. Methods: Paragraph 2, what was the prevalence of hand OA? How did the authors define severe hand OA? Paragraph 3, for the assessment of finger length ratio, which hand was examined, left, right, or both?

2. Results: Paragraph 1, please provide the range of pixel 2D:4D ratio. What was the agreement of visual assessment and physical measurement of finger length ratio on hand radiographs? Paragraph 2, have the authors physically measured the 2D:4D ratio on hand photographs? What was the agreement of visual assessment and physical measurement of finger length ratio on hand photographs? Have the authors examined the agreement of physical measurement of finger length ratio on radiograph and photograph? Paragraph 4 and Table 1, please provide information about statistical tests and p values for the assessment of difference between groups. Paragraph 5, please describe results for THR and severe hand OA. Paragraph 5 and Table 2, please provide information about statistical tests and p values for the assessment of difference between groups.

3. Results: What will the results show if the authors compare the TKR or THR group with those without any total joint replacement?

4. Discussion: Although the authors discussed possible mechanisms for an association between type 3 finger length pattern and the risk of OA, they did not really address the site difference for the association, i.e. why the association was seen on the knee but not the hip.

5. Discussion: Paragraph 4, there is increasing evidence suggesting that hip shape plays an important role in the pathogenesis of hip OA.

6. Discussion: Paragraph 7, since the authors stated in the Results section (paragraph 2) that visual assessment of photographs had underestimated the prevalence of type 3 pattern, there has been misclassification of type 3 pattern.
How would this have affected the findings of the study? Would it be better to use 2D:4D ratio physically measured from the photographs as the risk factor?

Minor Essential Revisions

1. Methods: please provide information about the assessment of BMI, OA at other sites, bone mineral density since they were used as confounders.

Level of interest: An article whose findings are important to those with closely related research interests

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.