Reviewer's report:

Title: Is Knee Osteoarthritis a Symmetrical Disease? Analysis of a 12 Year Prospective Cohort Study

Version: 2 Date: 24 January 2012

Reviewer: Kamil Barbour

The authors attempted to answer the question of knee OA as a symmetrical disease. They conclude that bilateral knee OA is very common over time and clinicians need to be aware of this phenomenon. This is a well written article which could potentially be of importance in its field.

I have some concerns that the definition of OA (KL #1) may be too sensitive. I would recommend the authors use the standard KL#2 as the definition for OA, which may have more clinical relevance. Given that there is a lot of controversy about use of osteophytes and the longstanding belief has been that equivocal osteophytes in KL grade 1 are meaningless.

Kijowski R et al. Arthroscopic validation of radiographic grading scales of osteoarthritis of the tibiofemoral joint. AJR. 2006 Sep;187(3):794-9

Introduction:

Any studies showing the effects of bilateral knee OA on physical function? If so, please add to introduction. This study is focused on incident bilateral knee OA, not bilateral knee pain.

Methods:

Consider limiting the analysis to only an OA definition (KL #2).

Consider listing other covariates measured (i.e., age, height, weight, baseline bilateral pain,) towards the end of the methods section (since they are covariates in the analysis).

How might not having 18 patients with radiographic examinations at 5 years affect your findings at 5 and 12 years? Is this a limitation? Potential for misclassification?

Need a reference for the KL classification system.

Please clarify how bilateral disease was determined based on JSN criteria.

On page 5 “baseline pain” is not defined previously.

Odds ratios tend to overestimate the risk of bilateral OA, because bilateral OA is common in this population. Can you please justify the use of odds ratios instead of hazard ratios? Consider performing a survival analysis, or an analysis that can computes risk instead of odds.

Authors need to justify the logistic regression analysis. How does this analysis help answer your research question? Maybe discuss towards the end of the
introduction that this manuscript attempts to identify risk factors for bilateral OA.

Results

Table 1 can be improved. Perhaps, consider looking at gender differences by age, BMI, baseline pain, and K-L grade all knees in Table 1. Please list percentages (not just Ns for categorical variables).

The analysis for figure 3 is not mentioned in the methods.

Use the same scale for y axis on in 2 graphs in figure 2 for ease of comparison of results for two outcomes (KL grade# 1 and KL grade# 2).

The analysis for bilateral knee pain at baseline is not mentioned in the methods.

Page 8, consider moving the line on 37 patients excluded who bilateral disease at baseline to the methods section.

The logistic regression results: it is more meaningful to compare bilateral OA at follow-up to everyone else in the cohort (unilateral and no OA). One would like to know, for instance, how does age impact the risk of bilateral knee OA in the population, and not just comparing unilateral vs. bilateral disease.

Also, please report confidence intervals instead of p-values for the odds ratios. Confidence intervals are more useful, because they provide information about direction and strength of the effect as opposed to p-values.

Discussion

The discussion needs to be augmented. More interpretation of the findings is needed.

There needs to be a discussion of joint space narrowing findings and baseline bilateral knee pain findings.

Limitations and strengths of study need to be listed.

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