Reviewer's report

Title: The association of BMI and knee pain among persons with radiographic knee osteoarthritis: A cross-sectional study

Version: 1  Date: 29 September 2008

Reviewer: Annette W-Dahl

Reviewer's report:

The presented study is a cross-sectional study with the aim to quantifying the association between BMI and knee pain among subjects with radiographic knee OA. The authors bring up an interesting issue however the manuscript needs major compulsory revision.

1. The main reason for major compulsory revision is the lack of description of the statistical methods used, with reference to the Uniform Requirements. It’s not possible to follow how the association of pain and BMI has been analyzed and thereby limited possibility to interpret the findings.

   a. The potential confounders, except age and gender, have only been described but not analyzed. It might also be considered if there are other potential confounders that might be interesting and necessary. For example grade of radiographic knee OA might be interesting to include in the adjusted analyses. Disease status is not presented in table 1 or elsewhere. Further it would be informative to know how many of the patients in each BMI category who had pain and no pain respectively.

   b. My guess is that "Pain/No pain" has been used as dependent variable in the regression analysis and BMI category as independent variable as well as age and gender. However table 2 says; BMI=pain+age+gender it would then rather be Pain= BMI+age+gender.

   c. In the result part the authors write "a positive linear relationship with pain ....". The analyses are paired comparison and not linear regression which make the statement that there is a linear relation not possible.

2. There is a lack of definition/description that makes the purpose of the study unclear.

   a. The use of the word "quantification" in the background of the abstract is confusing. Quantification has two distinct meanings, one in mathematics and empirical science and one in logic. Do the authors mean to quantify the association between pain and BMI among RKAO individuals as stated as the aim of the study by reporting the OR (is OR 1.6 an expression of quantifying the association between pain and BMI?). However transforming the continuous data of BMI to categorical data and analyze pain with categorical data become then confusing. The choice of words should be considered and well defined (major compulsory revision).
b. The use of the term “symptomatic” includes more than pain. Why not use the terms “pain” and “no pain” as it is pain that is of interest (minor essential revision).

3. The purpose of the study is not stated in the abstract (major compulsory revision).

4. The background includes written errors and/or wrong use of words (minor essential revision).
   a. The cause of RKOA may be the cause of knee OA.
   b. High-risk occupations of what?
   c. What is RKOA knee pain? Knee pain in individuals with RKOA?
   d. Considerations of the last sentence, page 3 “Subsequently ….“ most patients seek medical care due to pain and disabilities not due to RKOA which makes the clinicians possibility to delay and prevent the onset of pain and impairment in these individuals unrealistic. Further, it’s only few of the patients with knee OA who need knee replacement, not “often” as written but rather in worse cases.
   e. In the background, the first part of page 4 includes partly author interpretations that are irrelevant to referred studies. The authors’ logical connection of BMI as a cause of knee OA becomes illogical when considers that even normal-weighted individuals suffer from knee OA and the authors may distinguish between cause and risk factor. Further the present study has scanty any possibility to clarify the relationship between pain and BMI among patients with RKOA neither by reporting the OR for each BMI category in a cross-sectional study nor with the very narrow perspective used (major compulsory revision).

The result, discussion and conclusion sections are difficult to interpret as the methods of statistics are scanty described as well as the purpose of the study is unclear. The authors have an excellent cohort and together with a clear defined research question, with a wider perspective of a systemic disease and appropriate, well described statistical methods the paper has the potential to be interesting and may contribute to increasing knowledge.

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

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

'I declare that I have no competing interests'