Author's response to reviews

Title: Pertrochanteric fracture of the femur in the Finnish National Hospital Discharge Register: validity of procedural coding, external cause for injury and diagnosis

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Author's response to reviews: see over
To the Editor of BMC Musculoskeletal Disorders

We thank you for reviewing our manuscript titled “Pertrochanteric fracture of the femur in the Finnish National Hospital Discharge Register: validity of diagnosis, procedural coding and external cause for injury”. Below we have addressed point by point the concerns raised by the two reviewers and additionally as mentioned below, made revisions on the manuscript.

Yours Faithfully

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Reviewer's report #1

Title: Pertrochanteric fracture of the femur in the Finnish National Hospital Discharge Register: validity of diagnosis, procedural coding and external cause for injury

Version: 3 Date: 9 December 2013

Reviewer: Michael Davidsen

Reviewer's report:

This is a nice and thorough research paper on validation of a specific diagnosis in the Finnish NHDR and furthermore of aspects of the NOMESCO classification. The methods are appropriate, the research question is well defined, the data are sound and the analysis and conclusions relevant.

The authors thank for these positive opening comments.

Discretionary Revisions

I suggest to move the first two sentences in the Methods section regarding ethics (paragraph 1) cp from the beginning to after ‘...an approval of the institutional review board was obtained.’

The sentences have been moved as requested.

Minor Essential Revisions

1. It should be made very clear in the methods section that procedural coding was made using NOMESCO.

   The use of Finnish version of NomESCO procedural classification is now emphasized in methods section.

2. The general variables in NHDR are mentioned in detail a bit too often to my taste – both in the introduction and the methods section. In the first paragraph of the discussion section the authors use the term ‘reliability’ while they throughout the rest of the paper use accuracy and coverage. I believe they should stick to the latter two.

   The redundant repetition of the general variables in the NHDR has been removed from Methods section as requested.

   The term ‘reliability’ in the first paragraph of Discussion has been replaced by ‘coverage and accuracy’ as suggested.

3. A weakness of this study is that ‘the true coverage of the diagnosis could not be assessed .. as the diagnosis code S72.1 was a selection criterion ...’ (discussion section paragraph 4). I feel this fact could be highlighted a bit more because this is a drawback especially when promoting epidemiological use of the NHDR.

   In a previous study we assessed both coverage and accuracy of diagnosis of anterior cruciate ligament injury (Mattila VM et al, Coverage and accuracy of diagnosis of cruciate ligament injury...Injury 2008). The reliability of diagnosis coding has also been evaluated in numerous previous studies (Sund R, Quality of the Finnish Hospital Discharge Register...Scand J Pub Health 2012). Therefore in this study we wanted to focus on the accuracy and coverage of procedural coding and external cause for injury, which have not been studied. The issue has been raised in Discussion as suggested. We have also changed the phrasing of the title of the study to reflect the emphasis on the studied variables.
Reviewer's report #2

Title: Pertrochanteric fracture of the femur in the Finnish National Hospital Discharge Register: validity of diagnosis, procedural coding and external cause for injury

Version: 3 Date: 21 December 2013

Reviewer: Axel Skytthe

Reviewer's report:

General comments

The aim of this paper is to validate data from the Finnish National Hospital Discharge Register (NHDR) on diagnosis, procedures and external cause in relation to a specific injury. Thereby the authors intend to justify the use of data routinely collected in register-based research on injury epidemiology. The methods employed are clearly and well described. The number of patients included is sufficient and with three different hospitals a reasonable variation is obtained.

The authors conclude that accuracy of diagnosis and both coverage and accuracy of procedures are excellent, indicating that the NHDR data can be used as a reliable source in epidemiological studies of injuries. In general, the paper is well written and has a clearly defined aim. The procedures employed are sound, and the conclusions drawn are justified by the data. The paper adds in extending the field where the use of register data can be justified in epidemiological research.

The authors thank for these positive comments.

Minor comments:
1. In the abstract, confidence intervals for coverage and accuracy are not mentioned.

The confidence intervals have added to abstract as suggested.

2. The inclusion criterion was a specific diagnosis in the NHDR, the ICD-10 code S72.1, and in 709 of 741 patients the NHDR diagnosis was correct. If one wants to assess the true incidence of pertrochanteric hip fracture it could also be interesting to have an indication of the number of patients not correctly coded as having a pertrochanteric fracture of the femur as well. Do the authors have any knowledge on this?

In this study we assessed the accuracy and coverage of procedural coding of pertrochanteric hip fractures in the NHDR. To accomplish this we obtained all S72.1 –diagnosed patients and evaluated their medical records and radiographs. The rationale behind this was that a sliding hip screw and a gamma nail are feasible to identify from radiographs to confirm the corresponding procedural code. The authors fully agree that to assess the true incidence of pertrochanteric hip fractures,
all hip fractures (including femoral neck and subtrochanteric fractures) should be reviewed. However, this was not in the scope of this study.

3. The authors state that when the assessment of the radiographs did not lead to consensus among the two physicians, the result was resolved by the expert opinion of the radiologist who originally evaluated the radiological images. In this case the assessment could not be independent. In how many cases did the two physicians not reach consensus?

There were only two cases in which the physicians disagreed on a basal collum / pertrochanteric hip fracture.

4. The authors clearly state the nature of their reference material: the medical records, patient charts and x-rays. The underlying assumption in studies concerning validation of data in national hospital registers is that the medical records represent the truth or serve as golden standard. This is a reasonable assumption in relation to the diagnosis and procedures related to treatment, but in relation to the external cause of the injury the medical record may hold second-hand information on what led to the injury and thereby a possible bias may be introduced. The assessment of the external cause of injury therefore only relates to a validation of the correct coding of what has been noted in the patient chart. For a validation study of the NHDR this may be sufficient, but in a study on prevention of injury this possible bias has to be addressed.

Thank you for this important comment. The authors fully agree that the assessment of external cause from bases of medical records can be challenging and such information should not be used in injury prevention studies. In our study the assessment of external cause for injury was done so, that unless the mechanism of injury was clearly evident on the original medical records for instance ‘fell on stairs’ the external reason for injury code was deemed incorrect. Therefore only a note of ‘fell’ and the use of some specific external cause for injury code was deemed incorrect. By being strict in this sense, we are more likely to under- than overestimate the accuracy of the coding.

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