Reviewer's report

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.

Minor comments:

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

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?

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?

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.

**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