Reviewer’s report

Title: Current ICD10 codes are insufficient to clearly distinguish acute myocardial infarction type: a descriptive study

Version: 1 Date: 12 April 2013

Reviewer: Wilm Quentin

Reviewer’s report:

This is a well-written study with a clear objective and result, which may be of interest to researchers specializing in routine inpatient data analyses of AMI patients. Currently, different ICD-10 codes have been used for the identification of STEMI patients across studies. For researchers working in this area, it is important to know which ICD-10 codes can be used as a proxy. This study tells them that they should consider one additional ICD-10 code as an indicator of ST-elevated myocardial infarction: I213 – which might be relevant to this specialist group of readers.

However, I have a number of comments that may help to improve the paper:

(1) Abstract: in the abstract it is not clear what the development in the use of ICD-10 codes has to do with the ability of the codes to identify STEMI. Later in the paper it becomes clear that you use the performance of an angioplasty procedure as a proxy for STEMI – but in the abstract this is not clear.

(2) Background: I think it would be useful to insert Table 1 as material in the background section – otherwise it is difficult to know what the codes are standing for.

(3) Background: concerning the use of ICD-10 codes in prior research: you could also refer to other studies, e.g. Häkkinen et al.: PATIENT CLASSIFICATION AND HOSPITAL COSTS OF CARE FOR ACUTE MYOCARDIAL INFARCTION IN NINE EUROPEAN COUNTRIES. They use a different definition for STEMI — which would support your argument that it is important to have a more reliable definition.

(3) Methods: the study is based on the (reasonable) hypothesis that angioplasty procedures are performed primarily on STEMI patients. Basically it is assumed that those ICD-10 codes, where a large number of patients are treated with angioplasty are STEMI patients. – This hypothesis is explicitly mentioned in the discussion section. However, it would be good to make this clear already in the methods section. I was wondering for quite a while how looking at the development in the number of different AMI patients and angioplasties would contribute to answering your research question.

(4) Figure 2a and 2b are very similar: is it important to look at the two groups separately? (not well explained in the paper)

(5) Results: I would frame the results in the opposite way: last paragraph p. 5: mention the codes, where there has been a significant increase # these are the
ones that you consider to be STEMI.

(6) Discussion: maybe you should mention that according to European guidelines for the treatment of non-ST elevated MI, the use of PCI is also indicated. So, if there is an increase, for example in ICD-219 this does not necessarily mean the patients treated with PCI are STEMI’s – and I228 could also be non-STEMIs.

(7) In fact, I am not as convinced that I228 is a STEMI code as I am about the other codes. Also, it’s surprising that I21.3 was not included previously as a STEMI code as it refers to “transmural” myocardial infarction, which is generally considered to be the pathological correlate to ST-elevation.

(8) you could mention that ICDS-10-CM is the coding system used/developed in the United States, so the existence of these codes does not mean that in the UK, they will be implemented some time soon.

Minor comments:

(1) Abstract: Please avoid using ICD-10 codes without explanation of what they stand for in the abstract. This makes it difficult to read the abstract.

(2) Abstract, results section, second line, the first ICD-10 code in the bracket should probably be: I210 (instead of I220)

(3) Background: concerning the use of ICD-9 in Europe: also Portugal and Spain still use ICD-9-CM codes. (See Kobel et al. 2011 – DRG systems and similar patient classification systems in Europe).

(4) I do not understand the last sentence on page 5, starting from: in particular stating with the second part of the study…

Level of interest: An article of limited interest

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