Reviewer's report

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

Version: 1 Date: 29 March 2013

Reviewer: Alessandro Barchielli

Reviewer's report:

The authors carried out a retrospective analysis of hospital records in England to determine the feasibility of distinguishing AMI type on the basis of ICD10 codes.

The topic of this article is of some interest to your Journal, because:
- Hospital discharge data are extensively used in health research.
- Given the clinical differences between ST segment elevation myocardial infarction (STEMI) and non-ST segment elevation myocardial infarction (NSTEMI) in terms of treatment and prognosis, it is important to distinguish between them and consequently it is also important to record them appropriately in medical records.
- ICD-10 codes I21* (AMI) and I22* (subsequent AMI) make no explicit mention of ST elevation or non-elevation. As specified in the paper the code I21.4 is referred to Acute subendocardial myocardial infarction (a definition partially overlapping with NSTEMI) whereas I22* codes do not have any mention of subendocardial MI or NSTEMI.

In my opinion some aspects could improve the paper.

Major suggestions.

Authors reported a high prevalence of I21.9 (43%) and I22.9 (61.4%), non-specific codes used only when no further information about the condition is known. These two subcategories showed also low values of angioplasty performed the same/next day. The conclusion is to consider them as NSTEMI. In my opinion this aspect need to be better analysed, investigating age of patients, hospital and ward (cardiology/medicine) of treatment, socio-economic aspects etc.. In other words, it should be investigated if the use of unspecified codes and the low angioplasty rates are markers of poor diagnosis and treatments.

In the comparison between MINAP records (England and Wales) and HES records (England), rates could be added to number of cases, to exclude differences in the data coverage and selection in the hospital inclusions.

The Discussion and Conclusions sections could be updated on the basis of results on the previous points.

Minor suggestions.
Figure 3. The temporal pattern of STEMI cases is different between MINAP data (flat) and HES (decreasing)

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

**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