Reviewer's report

Title: Are patients with non-ST elevation myocardial infarction undertreated?

Version: 1 Date: 16 November 2006

Reviewer: Richard Bach

Reviewer's report:

General
This manuscript is a report of a retrospective single center study of 824 patients with a discharge diagnosis of MI divided into those with STEMI and those with non-STEMI according to the presenting ECG between January 2001 and January 2002, of whom 29% were classified as non-STEMI and 71% were classified as STEMI. The authors report that patients with non-STEMI were older, had more adverse risk factors, underwent less frequent coronary angiography and revascularization and less often received clopidogrel and ACE-inhibitor at discharge. Mortality at three years was higher in the non-STEMI patients compared with the STEMI patients. Multivariate analysis suggested that age, diabetes, previous MI and not performing angiography were predictors of long-term mortality.

Comments:
1. The number of patients in this analysis is relatively small and the distribution of non-STEMI vs. STEMI patients is unusual, related most likely to the way STEMI patients are triaged in to this hospital. The atypical characteristics of the population may affect outcome comparisons and generalizability of the observations.
2. The reporting of longer term (3 year) outcome is welcome, since most previous analyses in the literature are limited to shorter term (6 month to one year) outcomes. The 20% mortality at three years in the non-STEMI patients is unexpectedly high.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
3. The patients included in this study were predominantly cared for in 2001, when the randomized trials supporting the benefit of routine early invasive management for non-STEMI and on antiplatelet therapies were ongoing or had just been released. Evidence-based clopidogrel use at that time may have been restricted to patients receiving stents. There is no analysis of use of glycoprotein IIb/IIIa antagonists or early use of clopidogrel and no data on extent of CAD, LV function, or procedural events. Thus the number of informative variables is quite limited. Care patterns for the non-STEMI patients of this study may naturally be somewhat outdated and not fully reflect current care, limiting relevance to the question of whether nonSTEMI patients are currently "undertreated." These limitation should have been discussed.
4. In multivariate analysis, non-STEMI classification was not independently associated with mortality. The observation that the non-STEMI patients are older, more often female, and likely have more co-morbidities - some of which are not being collected as part of this dataset – is not itself very novel and appears to account for much of the higher mortality rate for the group. The lower rate of use of coronary angiography and its association with higher adverse event rates again has been reported previously, is also likely due to multiple factors, and the factors accounting for it are not elucidated by this study. For balance, a comment that acknowledges the limitations of knowing what contraindications to cath may have been present in many of these patients and what could be predicted about the potential benefit versus harm of the catheterization for such patients should be included.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
5. It appears that some of the reference citations are misplaced in the manuscript.

Discretionary Revisions (which the author can choose to ignore)
What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

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

Quality of written English: Acceptable

Statistical review: No

Declaration of competing interests:
'I declare that I have no competing interests'