Reviewer's report

Title: Long-term prognosis of patients with Non-ST-segment Elevation Myocardial Infarction according to coronary arteries atherosclerosis extent on coronary angiography: a historical cohort study

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Reviewer: Bartosz Hudzik

Reviewer's report:

Alzuhairi and colleagues have set out to investigate the long-term prognosis of patients with NSTEMI according to coronary arteries atherosclerosis extent on coronary angiography. The study covers a period of 12 years (2000-2011) and comprises a large cohort of patients (N=8,889). Epidemiology-wise this is an interesting analysis, especially when one considers study groups: patients were classified by coronary angiography into: 0-vessel disease (0VD), diffuse atherosclerosis (DA) (0% < stenosis <50%), 1-vessel disease (1VD), 2VD, and 3VD with stenosis >50%.

The study is particularly interesting as it examines the prognosis of patients without obstructive CAD (0VD and DA). This subgroup of patients were classified as MINOCA in the recent 2017 ESC STEMI guidelines.

Having said that, the paper has some shortcomings that need to be addressed.

Major limitations:

1. The definition of MI has changed considerably throughout the study period: unstable angina with elevated troponins vs nonQ-MI vs NSTEMI). This, in my opinion, makes the study group very heterogenous. Thus, the obtained results do not reflect the current NSTEMI population and therefore should not be generalized to the NSTEMI population nowadays.

2. The paper lacks the information on the treatment modality (conservative therapy, PCI [BMS vs DES], CABG). More importantly, it also lacks the information on the type of antiplatelet therapy (mono vs dual; type of P2Y12 inhibitor; duration of dual antiplatelet regimen). All of these factors could have an unfavorable influence on the prognosis resulting in a higher rate of adverse events.
3. Noteworthy, the demonstration of non-obstructive CAD in a patient presenting with symptoms suggestive of ischemia does not preclude an atherothrombosis etiology, as thrombosis is a very dynamic phenomenon and the underlying atherosclerotic plaque can be non-obstructive.

4. Keeping in mind MINOCA is a working diagnosis and thus should result in a further investigation of the underlying causes. Failure to identify the underlying cause may result in inadequate and inappropriate therapy in these patients, which may lead to worse outcomes. The identification of the underlying cause of MINOCA should lead to specific treatment strategies. Although the outcome of MINOCA strongly depends on the underlying cause, its overall prognosis is serious, with a 1-year mortality of about 3.5%.

5. The authors need to discuss in more detail the phenomenon of a worse prognostic profile in patients with non-obstructive CAD.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
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Unable to assess

Are the conclusions drawn adequately supported by the data shown?
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