Reviewer’s report

Title: Socially disadvantaged city districts show a higher incidence of acute ST-elevation myocardial infarctions with elevated cardiovascular risk factors and worse prognosis

Version: 0 Date: 23 May 2017

Reviewer: Rosa Sicari

Reviewer's report:

Please include all comments for the authors in this box rather than uploading your report as an attachment. Please only upload as attachments annotated versions of manuscripts, graphs, supporting materials or other aspects of your report which cannot be included in a text format.

Please overwrite this text when adding your comments to the authors.

This is an interesting study addressing the role of socio-economic status in patients with STEMI in the metropolitan area of Bremen, Germany. Authors conclude that the negative association of low socioeconomic status and STEMI-incidence, with higher rates of smoking and obesity, more extensive infarctions and worse prognosis for the socio-economically deprived. The topic is timing and relevant and socioeconomic status is becoming a new risk factor not only for cardiovascular diseases. However, there are several issues that need to be addressed:

1. How was the socio-economic status assessed? The residents postal code may be a too weak parameter. Please clarify.

2. The results do not support conclusions and should be rephrased. Actually, only for the MACE end-point a worse outcome is observed. Please tone down and rephrase conclusions.

3. Although this is not the aim of the study, it would be important to speculate a little more on why this is happening. Obesity and smoke are more frequent in the subset of patients in the G4 group. The higher incidence of events (revasc/restenosis/rehosp) may be due to a worse adherence to medical therapy, worse life-style etc. Please address.

4. A very important study published last year has not been cited: The Association Between Income and Life Expectancy in the United States, 2001-2014. Chetty et al. JAMA 2016. This study shows higher income was associated with greater longevity, and differences in life expectancy across income groups increased over time. However, the association between life expectancy and income varied substantially across areas; differences in longevity across income groups decreased in some areas and increased in others. The
differences in life expectancy were correlated with health behaviors and local area characteristics.

5. In line with the previous comment, it would be important to try to identify the social factors and the potential role of different areas in the city.

6. The good news is that, in Germany, the largest EU country with a strong welfare state, no patent is left behind in terms of treatment. However, it is conceivable that the survival differences observed could be related to the impact of treatment in the follow-up.

7. Discussion is a little long

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

No

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

No

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

No

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

**Quality of written English**
Please indicate the quality of language in the manuscript:

Acceptable

**Declaration of competing interests**
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?
2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare that I have no competing interests

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal