Author's response to reviews

Title: Analysis of risk factors of acute myocardial infarction in young patients

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Version: 3
Date: 28 July 2014

Author's response to reviews: see over
Dear Mr. Tacbobo,

Thank you very much for your letter and advice. We have revised the paper, and would like to re-submit it for your consideration. We have addressed the comments raised by the reviewers. This manuscript has been edited and proofread by Medjaden Bioscience Limited. Point-by-point responses are provided below:

**Reviewer 1:**

1. *The abstract is weak.*

   We have revised the abstract, and included relevant findings and a concise summary to support the conclusion.

2. *The introduction fails to summarize what is currently known about this topic.*

   We have amended and expanded the introduction section to include a summary of related literature.

3. *The description of methods is incomplete. In particular, the study population remains unclear.*

   We have revised the manuscript to include a more detailed description of the study population. In particular, the population was selected from the 2460 cases of myocardial infarction that were hospitalized in our institution during the study period. Of these, patients with ST-segment elevation myocardial infarction (STEMI) that met the study criteria were grouped according to age. Young patients \((n = 86)\) were defined as those 18–44 years of age who complained of chest tightness or chest pain upon hospital admission, and their controls included age-matched consecutive patients admitted to the hospital because of chest tightness or chest pain during the study period without coronary heart disease (determined by coronary angiography), with or without high blood pressure, diabetes or other diseases (not confirmed). The old group was comprised of 65 STEMI patients between 60 and 74 years of age. Patients 75 years of age or older were not included because a higher proportion of patients at these ages choose interventional treatments due to their higher risk levels.

4. *The AMI definition used by the authors is not the definition currently being the standard.*

   We have revised the AMI definition accordingly.

5. *The authors should provide a rationale why exactly these baseline variables were selected.*

   We selected variables that are currently reported common risk factors for coronary heart
disease, and have included body mass index in the revised version of the manuscript.

6. *The multivariable logistic regression should be exactly described*
   The model population included the young STEMI and young control groups, with STEMI as the categorical variable. Independent variables were identified as those that were identified by a $P < 0.25$ in the $t$-test.

7. *The discussion does not elaborate concisely what the study adds.*
   The discussion has been revised and expanded to more clearly express the significance of the study findings. Within this section, we now state that the HbA1c level is associated with the development and prognosis of coronary diseases, yet this correlation is less frequently reported in young patients. Our results indicate that HbA1c is associated with the initiation of STEMI in young people. Fibrinogen is a risk factor for coronary heart disease, though rarely reported in different patient age groups. The results of our study indicate that fibrinogen is significantly higher in young patients than controls, and old patients also had higher levels, suggesting that its effect in this population is even more important.

8. *The description of limitations is incomplete.*
   In the revised manuscript, we have included a more thorough discussion of the study limitations.

9. *The conclusion is far too strong.*
   We have amended the discussion in the revised version to reflect a more conservative assessment of the study findings. We emphasize that the results demonstrate associations, rather than cause and effect relationships.

10. *The references are not cited in the text in the correct order. Some references are missing in the list. Previous relevant studies in the field are missing.*
   We apologize for the oversight and have amended the references in the revised manuscript. Furthermore, previous relevant studies in the field have been added.

**Reviewer 2:**

1. *The study enrollment of patients is incorrect:*
   The original version of the manuscript did not contain an accurate description of patient
enrollment. We have revised the manuscript to indicate that we selected patients with STEMI as described above in the response to Reviewer 1.

2. Troponin I positivity: *This could be good for clinical data collecting and baseline characteristics, but there is no mention of quantitative values of TnI of AMI patients and of its reference values in authors’ hospital.*

We added the detailed data of each troponin and its reference values to the revised manuscript.

3. Bibliographic references are quite all incorrect and need a wide revision, in particular in the paper reference number 22-27 don’t find location in the reference chapter (there are only 1-21, furthermore with errors in coupling text and references), and in some point of the text references are missing (See page 7, definition of smoking index)

We apologize for the errors and have revised the references. Previous relevant studies in the field also have been added.

4. An English mother tongue revision is needed, especially in discussion section.

The manuscript has been edited by AmEditor Inc.

We hope that the revision is acceptable, and we look forward to hearing from you soon.

With best wishes,

Yours sincerely,

Li T