Reviewer’s report

Title: Prevalence and Long-term Outcomes of Non-alcoholic Fatty Liver Disease Among Elderly Individuals from the United States

Version: 0 Date: 08 Mar 2019

Reviewer: Yao-Chun Hsu

Reviewer’s report:

In this study, the authors analyzed a NHANES-III to determine the prevalence of fatty liver (as determined by US-FLI score) in US citizens aged 60 years or older, and explored the association of fatty liver with incidences of mortality according to age subgroups. They demonstrated a high prevalence of fatty liver in the elderly and found the diagnosis was associated with cardiovascular outcomes and mortality in individuals aged between 60~74 years, but not in those older than 74 years. Overall, this study is and mainly descriptive and straightforward. It might provide useful information to clinicians taking care of patients with fatty liver. Several caveats were noted and discussed below.

Major comments:

1. The novelty is mediocre as it has been well known that the prevalence of fatty liver increases with age and that fatty liver is associated with increased risks of cardiovascular outcomes.

2. Using US-FLI score to define fatty liver in the elder may be problematic, given that the formula includes age as an explanatory variable. Has US-FLI been independently validated in the elderly? Was the diagnostic accuracy (referenced by gold standard such as histology or MR spectroscopy) similar across different ages, particularly in those older than 70 years? Is there supportive reference?

3. What was analyzed, in fact, was a scoring formula that consisted of age, race-ethnicity, waist circumference, gamma-glutamyltransferase, fasting insulin, and glucose. In a sense, the findings regarding the association with metabolic and cardiovascular disorders might simply reflect the component variables.

Minor points:

1. How many patients were excluded because of insufficient data? The authors did not explain why they believed "elders (aged 60 and over) who were excluded from the study were similar to the final study cohort."

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

Yes

**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.

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