Reviewer's report

Title: Type 1 diabetes-associated cognitive impairment and diabetic peripheral neuropathy in Chinese adults: results from a prospective cross-sectional study

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Reviewer: Baqiyah Conway

Reviewer's report:

Ding and colleagues investigated the association of measures of cognitive dysfunction with type 1 diabetes status, and among patients with type 1 diabetes, correlates of cognitive dysfunction. Cognitive function was based on the MoCA and MMSE scales. Persons with type 1 diabetes had lower scores on visuospatial/executive functions, memory, language function, abstraction, calculating ability, orientation, and language function. Among persons with type 1 diabetes, age, C-peptide, and nerve conduction velocity were associated with cognitive dysfunction.

Strengths:

1. Biochemical markers of type 1 diabetes used in the diagnoses of the persons with type 1 diabetes
2. Multiple measures of cognitive function used

Comments/concerns:

1. In the last sentence of the results in the abstract it should be made clearer that that those specific results were only for those with Type 1 diabetes, if that is in fact the case. Otherwise it seems that the comment "Logistic regression showed age, fasting C-peptide, education level and nerve conduction velocity were associated with cognitive dysfunction diagnosed by MoCA scores" refers to both those with Type 1 diabetes and those without type 1 diabetes. Additionally, why was this only looked at in persons with Type 1 diabetes? Why wasn't it investigated in the healthy controls to see if correlates were similar in both groups?

2. In the second paragraph of the introduction section, p. 3 lines 13-15, the sentence "DPN has been considered…only before" is not clear. Only before what?

3. Although the authors refer the reader to a previous publication, it would be helpful if more information were provided in the current manuscript about the healthy examination center. This concept is not something that many readers will be familiar with.
4. Please provide more information on the selection of the healthy controls. How were they selected? Was this a case-control study? If so, how were the participants matched?

5. The tables in the methods section need to be numbered. These tables could also probably be better moved to a supplementary section of the paper.

6. In Table 1, the row for education attainment that has 0(0) for both the diabetic group and control group should probably have the 0(0)s remove since that row is simply a group heading and no numbers belong there. In table 1 also in this same section on education, should the row "~≤ 12 year education" be "7 to ≤ 12 years of education"?

7. Page 9, line 51, "fast" should be "fasting".

8. Page 8, line 53, what is meant by "in which serum C-peptide level stood out as a risk factor?" What is meant by it standing out?

9. Page 9, lines 44-58, it needs to be clearly stated within this paragraph that these results are only for participants with type 1 diabetes.

10. Page 9, lines 57 to 58, i.e. the last sentence of this paragraph: this sentence may be better simply stated that abnormal never conduction velocity may be a risk factor for cognitive impairment in persons with Type 1 diabetes.

11. Discussion section. Page 10, last sentence of the first paragraph, please provide references.

12. Page 10, lines 59 to 61. Based on the meaning as written, this sentence doesn't seem useful. If those studies investigated the magnitude and pattern of cognitive impairment, of course cognitive impairment would be observed.

13. Top of the page, please provide a reference for the "previous results" where it is said "which are basically consistent with previous results."

14. Conclusions: I would suggest moving the "in a Chinese population" to before "T1DM" so that that sentence reads as "In conclusion, this study has identified cognitive impairments in an adult Chinese population with T1DM and connection between cognitive impairment and DPN..."
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.

Unable to assess

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

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
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I am able to assess the statistics

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