Reviewer’s report

Title: Effect of GRM7 Polymorphisms on The Development of Noise-Induced Hearing Loss in Chinese Han workers: A Nested Case-Control Study

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Reviewer: Isabelle Schrauwen

Reviewer’s report:

This study explores the effect of metabolic glutamate receptor7 gene (GRM7) polymorphisms on the susceptibility to noise-induced hearing loss (NIHL). Though the study lacks in genetic methodology (only 5 SNPs were analyzed in one candidate gene, and no population stratification seems to have been assessed), the population and longitudinal data collected is very interesting.

I have a few specific comments:

- 'In the process of selecting cases and controls, subjects were excluded if they had a history of ear disease, ear trauma, ototoxic drug use or feigned deafness, exaggerated deafness, toxic deafness and so on.' Please specify all information gathered from study participants relevant to hearing in a supplementary table. Especially all exclusion criteria that were used to reduce confounding.

- 'The inclusion of cases was that binaural average hearing threshold levels (HTLs) in high frequencies (3kHz, 4kHz, 6kHz) ≥ 40 dB(A).'

- As multiple hearing evaluations were done, please specify if the most recent measurement was used or not. Is it possible to analyze the progression of hearing loss in the 'case' and 'control' groups and add this information to the paper?

- 'Fig.2 Best model gained by the analysis of GMDR. The left bars represent the sum of scores in case and the right represent the control. High risk cells are expressed by black shadow, low risk cells by light shadow and empty cells by no shadow.'

- Is it possible to add an interpretation of the high risk cells for a more lay audience?

- Was anything done to assess population stratification between case and control groups?

- Why was only GRM7 considered for analysis? If you are considering a candidate gene approach there are many genes suggested as NIHL candidates.

Have any other genes been analyzed in the past in this same set? If yes, please add that to this manuscript to give an overview of what has been found.
I would recommend to review the English language of this manuscript to improve its grammar and fluency.

**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.

Yes

**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 recommend additional statistical review

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

Needs some language corrections before being published

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