Reviewer’s report

Title: Screening of noise-induced hearing loss (NIHL)-associated SNPs and the assessment of its genetic susceptibility

Version: 0 Date: 03 Feb 2019

Reviewer: Jianlin Lou

Reviewer’s report:

Comments to the Author:

Based on the continuation of two previous studies based on a cross-sectional investigation (Zhang et al. 2014; Zhang et al. 2015), This work reported the screening of noise-induced hearing loss (NIHL)-associated SNPs and the assessment of its genetic susceptibility. The authors found that Seven SNPs were significantly associated with the risk of NIHL, and positive correlation between GRS values and odds ratio (OR) for NIHL was also observed. Subjects with higher GRS showed a higher risk of NIHL incidence. Furthermore, two SNPs, rs212769 and rs7910544, were validated in the cohort study. The topic is of interest since NIHL is a worldwide occupational health risk and a common sensorineural hearing loss, and genetic susceptibility plays important roles but its mechanism remains unclear. However, the following should be addressed:

Major Comments

1. The research progress is not adequately described in the section of Introduction, making it difficult for readers to understand the progression of research on SNPs in NIHL. Besides, the references are dated. The authors need to read more advanced related articles and make a good summarization.

2. The authors state that subjects with 476 NIHL and matched controls were recruited from a cross-sectional survey on NIHL in China. Please provide more information about inclusion criteria of the two groups.

3. Is there any difference between occupational and non-occupational NIHL, and how to make sure there is no detrimental effects form occupational risks in the workplace to the subjects with NIHL.

4. Detailed information on the occupation health conditions in the workplace should be provided in the section of Methods.

5. Given that NIHL is the second most frequent form of sensorineural hearing loss, after age-related hearing impairment (ARHI). In the present study, the mean age of the NIHL subjects was
significantly older than the control individuals. Is there the possibility that age participates in the hearing impairment?

Minor Comments

1. Remove the repeated words in Acknowledgments 'This study was supported by … supported this study'.

2. In the cross-sectional study, a total of 476 occupational workers were recruited, while 565 subjects were followed in the cohort study. What is the relationship of the subject between cross-sectional and cohort study?

3. Is there any confounding factors that may interfere the following results of hearing loss in the cohort study?

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