Reviewer's report

Title: The Effect of Alcohol on Auditory Thresholds

Version: 1 Date: 20 December 2006

Reviewer: Tien-Chen Liu

Reviewer's report:

General
This paper investigated the acute effects of alcohol consumption on the auditory thresholds. It is a relatively unexplored area with increasing importance. I find the paper very interesting and also providing useful information. The study design is simple and straightforward. However, I do have some major and minor criticisms. I think the paper should be re-written before it can be accepted for publication.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
1. The paper was apparently studying the “acute” effects of alcohol consumption on auditory thresholds. From the results that most subjects’ hearing returned to pre-exposure level, it is clear that the threshold elevation is temporary. Therefore, the results or conclusion can not be generalized to or compared parallel with the effects of “chronic” alcoholism, which was mentioned several times in the Discussion section. In the results and conclusion or even in the title, I would suggest that the authors specify that this is about the acute and temporary effects of alcohol consumption.
2. I have difficulty in understanding Figure 1. Why is the x-axis (indicating thresholds) become more and more negative as the scale gets down? The hearing was supposed to be poorer (threshold higher) after exposure. Also, at first glance, the figure gave me an impression that authors wish to compare the blue and brown areas, which does not make any sense. I think the author wished to plot the averaged thresholds (in clinical practice, threshold across all 6 frequencies is very seldom used, average threshold of 500, 1 k and 2 kHz is more often used) for all subjects in figure 1. I think they should not connect these data point. Otherwise, the illusion of comparing areas is created.
3. In the subgroup analysis, is there a group of habitual heavy drinker? I think this group substantially biased the whole results and should be excluded in the study. Because these heavy drinkers may have different characters of alcohol tolerance and metabolism which may become a significant confounding factor.
4. Define what exactly is the “pre-set amount of alcohol”? Like how many ml of Whisky etc. What is the time interval between the alcohol drinking and hearing test?
5. The “Results” section is relatively weak. The authors have done several subgroup analysis. Why only show the data of gender difference in Table 1 ?. I know, in the final paragraph, the authors stated that limited numbers of case prevents stringent subgroup analysis. But I think the data and the results are the key part of the paper. It can be modified to become more detailed and illustrative.

Minor Essential Revisions
1. In “Background” the authors stated that “Alcohol consumption and tolerance to loud noise is a well observed phenomenon as…” Is there any reference or citation for this?
2. Throughout the text, table and figure. Please change “db” to “dB”. Also provide the standard deviation after the mean data in the results and figures.
3. In the first word on page 6, “reduction of AT”. Does this mean an improvement in hearing acuity or actually elevation of AT (deterioration of hearing)?
4. In Table 1, the unit of frequency should be Hz, but not dB.

Discretionary Revisions (which the author can choose to ignore)

It is quite unusual to me that an un-complicated study like this takes 10 author and co-authors

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests