Reviewer’s report

Title: Auditory dysfunction associated with solvent exposure

Version: 1 Date: 29 October 2012

Reviewer: Fabriziomena Gobba

Reviewer’s report:

The topic of the research is relevant and up-to-date, and the method applied is
interesting, but in the study there are some major problems.

The main is the selection of Controls and Exposed subjects.

The Controls are from two inhomogeneous subgroups: administrative employees
of the University of Chile and male police officers.

First of all, why use male police officers as “controls” in a study on auditory
dysfunction? It is hard to suppose that previous exposure to noise due to fire-arm
use (but also, possibly, motorbike use etc) is uninfluent. In addition, presumably
there are several differences among police officers and the other groups
(administrative employees of the University, laboratory workers and workers from
the paint-making factories) in terms of life style (e.g. alcohol and smoking, both
important for hearing loss, etc.).

But also the group of Exposed workers is composed by 2 clearly different
subgroups: “workers from the paint-making factories” and “laboratory workers”:
the former were exposed to a mixture of different solvents (MEK, toluene, xylene
and varsol and many other including benzol, esters and alcohols), the latter
mainly to one solvent only, xylene, at levels apparently low compared to the
occupational limits; furthermore, also the pattern of exposure was presumably
different. Accordingly, the 2 subgroups should be considered separately.

Another problem: were exposed (“workers from the paint-making factories” and
“laboratory workers”) and controls (“administrative employees of the University of
Chile and male police officers”) educational level matched, as stated by Authors?
The suggestion is to revise the study considering the comments

Other major Revisions needed:

1) The Background is too long.
2) In the revision of the Background, please consider that the definition of
   “solvent” is not correct; compare e.g. the IUPAC definition.
3) the Authors state that “In the occupational health and safety arena, solvents
   have been associated with dermal effects [1], neurobehavioral changes [2], and
   respiratory effects [3]”: but solvents have several other relevant effects, e.g. can
   be carcinogens, nephrotoxic, etc.
4) Methods:
   Subjects:
Page 6-7: What about diseases and use of ototoxic pharmaceutical drugs?

5) Table 1: the Authors state that the mean number of cigarettes per week in group 2 is 9.3: is so, why is the median 0?

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests.