Reviewer's report

Title: Association between Leukocyte Telomere Shortening and Exposure to Traffic Pollution: a Cross-Sectional Study on Traffic Officers and Indoor Office Workers

Version: 1 Date: 17 April 2009

Reviewer: Ariana Zeka

Reviewer's report:

The study contributes to the current knowledge on the effects of traffic pollution on disease pathways (telomere shortening). An additional important aspect of the study is the selection of an occupational group to study these effects. However, there are limitations to the study, such as lack of information on length and patterns of exposure as the more appropriate exposure measure to look in association for long term effects on TL. Such limitations need to be discussed in more detail. Other suggestions and comments are listed below.

Major Compulsory Revisions

1. Abstract

   a. Conclusions. The sentence should state ‘…suggesting evidence of …’ rather than ‘…potentially reflecting…’. The study has limitations due to the design (case-crossover) therefore it would be difficult to conclude beyond suggestive.

2. Introduction

   a. The first paragraph of the Discussion section seems more appropriate for the first section of the Introduction. There are a few technical terms such as ‘senescence’ which may not be very familiar for the reader of EH, therefore need some clarifications (as done in the first paragraph of Discussion).

3. Methods

   a. The last sentence of the first paragraph mentions that information on traffic conditions were obtained through the questionnaires for Traffic Officers. This seems as very valuable information. What kind of information was obtained (pattern of exposure, exposure intensity, length – months, years)? Please include this detail.

   b. First sentence, 2nd paragraph: are benzene and toluene measures only ONCE? Please clarify.

   c. Age, smoking (pack-years) are analyzed as categorical. Please specify this in this section.
4. Results

a. There is repetition of information on covariates adjusted for in the last paragraph of the methods and first paragraph of the Results. I would suggest this information goes (or stays) in the Methods section.

b. p-values are not informative as a statistic on the effect magnitude and precision. Therefore, it would be better to only present (where you can) the effects and their CIs. One example is a finding reported in the Results section of the abstract of the LTL mean of 1.10 (95%CI 1.04-1.16) for traffic Officers, and 1.27 (95%CI 1.20-1.35), p-value< 0.001. I think the reader can get all the information by just looking at the difference of effects, as well as the precise (not including null), tight and non-overlapping CI. The p-value is unnecessary and not informative in this case (and others).

c. One of the limitations of this study is the cross-sectional nature of it. The authors recognize this in a brief statement in the discussion section. I think this needs more attention and a more elaborate discussion. In the Results section (page 7, 2nd paragraph) the authors report the association between reporting high traffic exposure and toluene and benzene levels. However, if information on exposure length and pattern exists (see comment 3a), then include some results on this.

d. age, smoking (pack-years) were treated as categorical variables in your models. How did you decide about these categories? Did you try to use them as continuous non-linear function (maybe quadratic)? I suggest that additional analyses with these variables as continuous non-linear terms are included.

e. Page8, second last sentence: ‘…as a comparison, the percent decrease in TLT…’ – comparison with what?

f. last sentence (cont in page 9). Give effects and 95% CI instead.

5. Discussion

a. First paragraph belongs to Introduction section.

b. Page 10, 1st paragraph, 3rd sentence: 6.2%-6.4%. Specify which result belongs to what exposure.

c. Limitation: the authors need to discuss the limitation of this study due to lack of long term exposure measurements, the implications for the temporal relationship with shortening of telomere length.

Minor Essential Revisions

1. The paper need editing for language and minor mistakes throughout

2. When reporting effects and their 95% confidence interval, keep that reporting consistent throughout the paper (for example there are times when ‘to’ is used, and other times when ‘-‘ is used). Also report the unites of the effects for the 95%
confidence limits as well.

**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.