Reviewer's report

Title: Higher urine 1-hydroxy pyrene glucuronide (1-OHPG) is associated with tobacco smoke exposure and drinking mate in healthy subjects from Rio Grande do Sul, Brazil

Version: 1 Date: 28 December 2005

Reviewer: Lisbeth E. E Knudsen

Reviewer's report:

General
The manuscript seeks associations between increased rates of esophageal squamous cell carcinoma (ESCC) and exposure to PAHs through tobacco smoking, barbeque heating and mate drinking by use of biomarker of 1-hydroxypyrene in urine. Spot samples of 10 ml urine has been sampled from 200 persons in the city of Santa Maria Brazil and analysed for 1-hydroxypyrene and cotinine. From questionnaires filled in by interview the exposure to tobacco smoke mate, alcohol and barbeque smoke was obtained. The exposure information was categorized and the comparisons of levels of 1-hydroxypyrene versus exposures variables were analysed in univariate models as well as a multivariate linear regression model. As expected exposures to tobacco smoke, smoke from barbeque and mate drinking was associated with increased levels of 1-hydroxypyrene. A correlation between cotinine and 1-hydroxypyrene concentrations was also reported. The authors conclude possible contribution from PAH exposures to the increased incidence of ESCC in the area.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
The criteria used for the selection of study persons is not clear and should be further described. The method used for analysis of cotinine should be included in the methods section and results presented. The authors should explain the lack of adjustment of 1-hydroxypyrene and cotinine towards creatinine levels in the samples which is recommended procedure (see eg Anne Helene Garde, Åse Marie Hansen, Jesper Kristiansen, Lisbeth Ehlert Knudsen (2004) Comparison of uncertainties related to standardisation of urine samples with volume or creatinine concentrations. Ann Occup Hyg 48:171-179.)
The statistical methods used dividing some data sets into quartiles is not explained and should be justified in relation to data shown in table 1. Also the statistics used in table 2 should be further explained and the authors are recommended to make use of the GENMOD procedure available in SAS statistical package. In tables 1 and 2 the number of study persons in each group plotted should be given.
The discussion is initiated in the results section and the authors are recommended to stick to the IMRD concept presenting results only in the results section.
There is an apparent lack of discussion and reference to the work on the ESCC causation by the authors available by search in the PubMed database. The hypothesis underlaying the study should be further discussed.
In case this study includes other biomarkers of exposure or effect (eg P53) reference to these analyses should be made.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Discretionary Revisions (which the author can choose to ignore)
**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:** Not suitable for publication unless extensively edited

**Statistical review:** Yes

**Declaration of competing interests:**

I have no competing interest in this paper and I hope the authors can make use of my comments.