

Reviewer's report

Title: Relationship between dialkylphosphate metabolites of organophosphates and seminal quality in pesticide applicators in Majes-Arequipa, Peru: a cross sectional study

Version: 1 **Date:** 11 February 2008

Reviewer: Niels Jørgensen

Reviewer's report:

Yucra and co-workers have investigated the associations between markers of testicular function and organophosphates. The Back-ground and Methods sections are easy to read and understand. In contrast the Results section is confusing, and as a consequence the Discussion is also difficult to follow.

Specific comments:

Study design: How was it determined that the control group were not currently exposed to pesticides either occupationally or non-occupationally? This seems to be in conflict with the results that showed that some controls also had measurable levels of organophosphates. Some information on how persistent the compounds are is needed.

How was the control group selected?

Semen collection and analysis: Merely referring to the WHO manual is insufficient. Which type of haemocytometer was used for assessment of sperm concentration? Was strict criteria really used for assessment of sperm morphology as recommended by the WHO?

True-corrected fructose is not a parameter according to the WHO manual!

How was ejaculation abstinence for 3-5 days before semen collection defined? Would ejaculation on day 3 be acceptable or only on day 4 or 5?

Urine collection, storage: I am not a chemist, and therefore it is difficult for me to evaluate this paragraph. But some information of which chemicals were used in the analysis, standards etc. has to be added.

The freezing procedure of urine is detailed described. However the actual analysis is described too briefly. Some information about linearity of calibration curves or similar has also to be included. The recovery rate for all the six compounds is stated to range from 80 to 120% of expected values. Data for each compound has to be shown.

Data analysis: The description of transformation of parameters can be shortened. It will be sufficient to mention that To correct for the skewed distribution the following parameters were normalised by natural logarithmic transformation before a two-way analysis of variance: Sperm concentration etc.

How was duration of abstinence taken into account in the multivariate regression

analysis. It is well known that increase duration of abstinence still have an increasing effect on semen volumen, sperm concentration and total sperm count up to approximately 4 days.

The risk of mass significance should be mentioned, and stated how to take this into account in the interpretation of results.

Results: Far too many Tables are presented. I suggest that finding or ethylated and methylated OP metabolites are presented in the same Table. It has to be clearly stated what is the difference between **Exposure to pesticides** and **Time of exposure to pesticides**. From the presentation it is not clear what is the difference between the set-up of Tables 4 and 5, and Tables 6 and 7. How are the findings in controls taken into account. The whole results section has to be presented much clearer.

Discussion: It is difficult to evaluate the Discussion section, because it it not clear what the results have actually shown. However, in a revised version the authors have to discuss whether their significant findings are just by chance and do not represent reality.

Recommendation: In my opinion the manuscript is not acceptable for publication. If the authors choose to revise the manuscript, they will need to take the comments above into consideration. Especially, the results and discussion sections need to be improved significantly.

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