

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: 2 Date: 31 May 2008

Reviewer: Melissa Perry

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Major Compulsory Revisions

The description of the lab methods are improved. The data analysis and discussion of findings need additional clarification and exposition.

Explain the process of data analysis in greater detail. It is assumed that the pesticide applicators and nonapplicators were originally the main groups of interest. But at some point the groups were aggregated and then compared on levels of OP metabolites. It is assumed that the comparable levels of OPs among the pesticide applicators and non applicators was not originally expected prior to data analysis. Explain the steps in the data analysis process that led to the division of the sample into below and above the limit of detection. Similarly, what was the biological relevance of separating the analyses by ethylated and methylated metabolites? What the distinction originally part of your hypotheses? If not, then state this. What was the rationale for controlling for the ethylated and methylated metabolites in Tables 4 & 5 and how is "controlling for" different from the adjustment for age and alcohol use? That is, how were the OPs treated in the models?

The discussion needs more consideration of the biology of the findings. Why would volume be lower in the ethylated group and why would ph be higher in the methylated group? Provide more critical analysis and explanation regarding the timing of exposure (acute vs chronic effects) and impacts on post-testicular semen. Also, explain more as to why OPs may be affecting sex accessory glands. Was this part of the original hypotheses?

Minor Essential Revisions

Table 1 - It would be worthwhile to add descriptive information on the limits of detection and the concentration levels of each of the OP metabolites in the pesticide applicator and non applicator groups so these levels can be compared to other studies.

Because most readers will not be familiar with all of the sperm indices measured, it would be worthwhile to provide a brief description of some of the measures and why they are important, including zinc, fructose, leucocytes, and an explanation of the motility grades 3 & 2.

Level of interest: An article whose findings are important to those with closely related research interests

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

Statistical review: Yes, and I have assessed the statistics in my report.