Reviewer's report

Title: Relationships between heavy metal concentrations in three different body fluids and male reproductive parameters: A pilot study.

Version: 1 Date: 13 October 2010

Reviewer: Julie Wirth

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Overall. The authors present the results of a study determining the effects of exposure to environmental levels of cadmium (Cd), mercury (Hg) and lead (Pb) on sperm parameters and levels of FSH, LH and TE in men recruited from fertility clinics in Spain. They also present levels of metals measured in whole blood, blood plasma and seminal plasma. The examination of sperm parameters, hormone levels and metals measured in the 3 compartments is novel and more studies using all 3 types of sample are needed.

Major points
1. The manuscript is well written and organized.
2. A more extensive description of the demographics for the participants is needed, including variables for education, alcohol consumption and race, as they have been reported to affect semen quality. The characteristics should be provided for cases and controls separately.
3. I suggest using a common measure units for the metals (µg/L).
4. The species of mercury - methy or inorganic - should be specified.
5. I’m not familiar with anodic stripping voltammetry, so cannot comment on its utility for measuring mercury.
6. The authors say the participants provided least 2 semen samples. How were the semen values in the manuscript derived? Are they means of the multiple samples? If so how many? The SD of the means needs to be included.
4. The major comparison made was between cases (low for all three sperm parameters – oligo-astheno-teratospermia) and the normospermic men attending the same clinics. This definition of case may be too restrictive as patients with OAT are usually regarded as more severely affected than men with only one or two abnormal sperm parameters.
5. Although their major finding is not new, the comparisons of metal levels in the 3 compartments is helpful but would be much more important if found in a larger sample.

Minor points

Line 71: make associations plural
Line 72: remove the period after both
Line 71: combine the sentences from 71 through 81 into one paragraph
Line 92: change seminal to semen
Line 165: Remove A from the end of the line
Line 166: Capitalize the s in summary
Line 168: the first sentence is redundant – remove
Line 184: Around is imprecise- give the exact percentages.

**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.