Reviewer’s report

Title: Relation between dietary cadmium intake and biomarkers of cadmium exposure

Version: 1 Date: 23 August 2011

Reviewer: Alfred BERNARD

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The objective of this study was to determine whether the estimated dietary intake of Cd made by the authors correlates well with the internal dose of Cd assessed on the basis of U-Cd or of B-Cd.

Major concerns

My first major concern is about the small sample size especially as the correlation between U-Cd and dietary Cd intake appears to be mainly driven by a few points. This study was based on relatively non-invasive indicators which can be measured on large populations. Most Cd studies currently published involve a minimum of several hundreds subjects, especially when based on the general population.

My second major concern is about the possible confounders and the unavoidable collinearity between measured variables, a problem which is difficult to resolve with such a small sample size. Among possible confounders, there is for instance the urinary creatinine used to adjust for variations in diuresis. We know that this mode of correction is not entirely reliable and that it leads to an underestimation of U-Cd when U-creatinine values are very high and to an overestimation of U-Cd when U-creatinine values are very low. U-creatinine can also vary with age, BMI and diet, further complicating the situation. BMI is also a possible confounder which apparently has not been considered (the authors have apparently tested the influence of weight but not of BMI). To consolidate this study, it would be useful to include a correlation matrix and to ensure that U-Cd is still correlated with dietary Cd intake when subjected the data in multivariate analysis. Perhaps this has been done but not clearly reported.

Third, the authors base their manuscript on the assumption that U-Cd reflects the Cd body burden. One way to check this assumption is to show that U-Cd correlates indeed with age after adjustment for the dietary intake of Cd, the serum ferritin level and other possible covariates.

Minor point

Data for U-creatinine should be reported. If no adjustment is made for the residual association of U-Cd values expressed per g of creatinine, then the authors should check that their findings persist after eliminating samples with extreme values of U-creatinine (<0.3 and >3 g/l) as this is done routinely for
monitoring industrial workers.

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

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**
None