Reviewer's report

Title: Persistent organic pollutants and non-alcoholic fatty liver disease in morbidly obese patients: a Cohort Study

Version: 1
Date: 18 April 2015

Reviewer: Robert Barouki

Reviewer's report:

This is an interesting study on the correlation between several POPs and contaminants and liver pathology such as NASH. The study was carried in obese individuals before and after surgery. The biochemical findings in this paper (i.e. correlation between increased ALT values and some POPs 12 months after surgery) are in line with previous findings as outlined by the authors. However the novelty of the paper is that the authors compared the liver histology at baseline with the amount of contaminants in blood. Their findings are extremely surprising as basically they observe an inverse correlation between the amounts of contaminants and the degree of liver inflammation. This is indeed surprising as there is evidence that 1) these pollutants increase inflammation; 2) inflammation decreases liver capacity to metabolize xenobiotics, 3) there is no reason to believe that inflammatory liver has increased capacity to store these compounds. While these findings are surprising, this is to my knowledge the first time that liver histology is compared to pollutants concentrations in this population. In have some comments.

1- very often the authors describe variations in the amounts of contaminants when those variations are not statistically significant (even in the abstract). They should be more cautious and describe only what is significant.

2- I am confused by the OR columns in tables 3 and 4. Was there a threshold that was set? I may have missed something. Also there is a huge variability. Please explain in more detail.

3- The discussion is long and fails to give any clues to the surprising findings of the paper. Here is one suggestion. The elimination of many POPs and other contaminants is often through the feces. This could be through biliary excretion and decreased intestinal uptake. Is NASH associated with altered biliary excretion or altered biliary-intestinal cycle? Maybe they could use blood chemistry to assess this or at least literature review.

4- Minor: there are some typos all along the manuscript.

In conclusion, the paper provides novel and surprising data. The statistics should be reviewed. Discussion is too long and does not provide real clues.

Level of interest: An article of importance in its field

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

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

**Declaration of competing interests:**

I have published previous papers relevant to the study described here. Some of the data are in line with my previous findings, others lead to distinct conclusions. No financial interests