Reviewer’s report

Title: In utero exposure to mercury and childhood overweight or obesity: counteracting effect of maternal folate status

Version: 0 Date: 23 Jul 2019

Reviewer: Alison Holloway

Reviewer's report:

The goal of this study is to assess the link between in utero exposure to mercury and childhood overweight. This study is well done and provides some important insights into the effect of mercury exposure and childhood overweight. There are some minor points which should be addressed.

1. It is not clear what growth charts were used to define the BMI percentiles. This information should be provided

2. For the interaction between maternal OW/DM and RBC-Hg (figure 2) it appears that even the lower quartiles of Hg may have modified risk of childhood overweight with maternal overweight or diabetes. Therefore it is not clear why the authors have only chosen to investigate/report on this relationship for the highest exposure group.

3. The one aspect in the discussion that I feel is missing is the fact that if Hg acts as an obesogen there is a strong possibility that the children born to moms with high Hg exposure may also be in similar environment (i.e., high Hg exposure postnatally). Since there are no Hg measures in the children, I feel that the conclusion that the childhood overweight is due to the in utero exposure may be an overinterpretation of the data.

Minor points

1. Page 8, line 20: there is a reference to Figure 3, but no Figure 3 was provided.

2. Page 9, line 8: The reference to Supplemental Figure 3 should be Supplemental Figure 2?

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.
Not applicable

**Are the conclusions drawn adequately supported by the data shown?**
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No

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I am able to assess the statistics

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