Reviewer’s report

Title: Prenatal exposure to persistent organic pollutants and child overweight/obesity at 5-year follow-up: a prospective cohort study

Version: 0 Date: 07 Aug 2017

Reviewer: Mildred Maisonet

Reviewer's report:

This study aims to determine the association between prenatal exposure to selected persistent organic pollutants and overweight/obesity at 5 years of age.

The assessment of the role of prenatal exposure to persistent organic pollutants on lipid metabolism in childhood is of scientific interest.

I have concerns, however, as to whether the study group used is adequate to answer the study question. The present analysis was conducted on a group of mother-child pairs enrolled in a study of small-for-gestational age births. In the present analysis 25% of children were SGA and the rest were non-SGA. SGA and non-SGA children have different growth trajectories. SGA is known to contribute to faster growth trajectories during infancy, while faster growth trajectories during infancy are associated with overweight status in childhood. The authors should have considered restricting the study group to non-SGA individuals or reporting results separately for SGA and non-SGA.

Given reported inverse associations between the persistent organic pollutants studied and fetal growth, and the fact that SGA is not an outcome that has been previously assessed in relation to the pollutants in questions, I find it relevant to first determine and report the association between these pollutants and SGA. Next, it would be important to consider whether the study exposures are antecedent to SGA and whether SGA is an intermediate factor that should be removed from the pathway such that it is possible to assess the role of the pollutants on excess weight at overweight/obesity at 5 years of age among SGA children.

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