Reviewer's report

Title: Risk factors for eczema in infants born in Cuba: a population-based cross-sectional study

Version: 3 Date: 31 December 2013

Reviewer: Jennifer Koplin

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Major Compulsory Revisions

1. Methods: More information is required regarding definition of exposures. This will affect the interpretation of the results. For example, insect sting allergy, which was associated with eczema, seems unexpectedly common (52% according to Table 2). How was insect sting allergy defined? Is it likely that there has been misclassification here? Also, where cut-offs were used for continuous variables, please explain why these were chosen. For example breastfeeding was categorised at less than or more than 4 months – why was this cut-off chosen?

2. Methods: Please provide some information on how the sample size for the study was arrived at and provide an indication of statistical power to detect risk factors for eczema.

3. Methods: It would be important to test for linearity for continuous variables such as weight and maternal age and eczema, as the association between these factors and eczema may not be linear.

4. Results: Study participation was very high (96%), which is a key strength of the study. What proportion of infants had complete data for all the variables listed in Tables 1 and 2?

5. Results: Please include P values for Tables 2 and 3. These would provide an indication of the strength of the evidence for an association for each factor and could be used to better assess the likelihood that an observed association was due to chance, which is particularly important given the large number of individual comparisons made in Table 2.

6. Results: Was information collected on number of siblings? If so, the relationship between number of siblings and eczema should be explored rather than simply the presence or absence of siblings. Previous studies have often reported that number of siblings is important in risk of allergic disease.

7. Discussion: There are some additional potential limitations to the study design that should be discussed. Is it possible that recall bias may have affected the results? For example, is it possible that likelihood of recognising and reporting eczema differed by maternal age? There is also the possibility that the study was unable to adequately control for confounding in some of the analyses because
potential confounding variables were unmeasured or measured inaccurately. This may be particularly important when examining the association between paracetamol exposure and eczema. Although the association persisted after adjustment for reported symptoms of wheeze, respiratory infections may also have occurred in the absence of wheeze and episodes of wheeze during the first year of life might not be accurately recalled by parents when the child is one year of age.

Minor Essential Revisions

1. Methods – Study population: the ethics sentence appears to be missing a comma between “National Institute of Hygiene, Epidemiology and Microbiology” and “the local Havana Scientific Committee”

2. Discussion paragraph 1 and conclusion: “an younger mother” should be “a younger mother”

3. Discussion paragraph 4, 1st sentence should read “no comparable studies”

4. Discussion, paragraph 7, 1st sentence: this does not make sense as currently written and needs to be revised.

5. Conclusion: Second sentence should read “The delivery of high quality observational…”

Discretionary Revisions

It would be useful if some information could be provided on how representative the study population is of all infants in Havana. Is there any information available on (for example) median maternal age for all mothers in Havana, or what proportion of infants are born by caesarean section?

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

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

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

Declaration of competing interests:

I declare that I have no competing interests