Reviewer's report

Title: Blood Pressure Measurement At Two Years In Offspring Of Women Randomized To A Trial Of Metformin For GDM: Follow Up Data From The MiG Trial

Version: 5 Date: 20 October 2014

Reviewer: Tine Dalsgaard Clausen

Reviewer's report:

- Major Compulsory Revisions

The MiG-study is/was a very important RCT-study in order to evaluate the use of metformin (+/- insulin) versus insulin alone, and the follow-up of the children is essential.

However, unfortunately I do not find that the present part of the follow-up in its current form is very useful.

The study evaluates the blood pressure (BP) from n=170 (form 2 year old offspring of women being treated for GDM (including 2 different arms) in a mixed population, which is not found alike many other places in the world. Data on women with diet-treated GDM are not included.

It will in coming studies be difficult to evaluate whether a potential difference according to BP in another cohort should be referred to ethnic differences or effects of potential mal-treated GDM.

The authors claims 2 aims

1. To provide data on BP in 2 year old offspring of women with pharmacologically treated GDM -

2. To study the effect of treatment on the BP of the offspring- comparing metformin-arm with insulin-arm

To me the secondary aim is by far the most interesting aim - though it would still have been more relevant to evaluate the effect of treatment by comparing to diet-treated GDM. I don't find that the primary aim is interesting in itself, without comparing data on BP with a relevant reference-population.

In the discussion section it is stated, that it is reassuring, that systolic and diastolic BP does not differ from "published norms", but in my opinion this should have been discussed in much more details and have been included also in the results-section and in the abstract. What is the ethnic background in the reference-material? And how would it affect the interpretation of data from the current study?
Furthermore, one could speculate whether BP by the age of 2 years is clinical relevant, valid and/predictive of later cardiovascular disease (which is also mentioned in the discussion section) - I would be happy for a reference and more discussion evaluating this issue.

This follow-up includes only 23% (170/751) of the children from the original trial and only 77% of those “who attended for assessment”. The issue regarding lost-to-follow-up is only mentioned very briefly in the discussion and needs more attention than a reference to a previous publication.

The authors describe the back-wards elimination procedure - and apparently (but I am not sure) the reduced model regarding the systolic blood pressure contains only offspring height and weight - but it is not clear to me what the content of the reduced model is regarding the diastolic blood pressure. And are the estimates of BP in Figure 1 and 2 - crude estimates?

I know, that there is no “truth”, but personally I would prefer a full-model including relevant covariates in favor of a reduced “final model” - e.g in a table.

- Minor Essential Revisions

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- Discretionary Revisions

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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:

I declare that I have no competing interests