Reviewer’s report

Title: Frequency and risk factors for recurrent gestational diabetes mellitus in primiparous women: a case control study

Version: 1 Date: 03 Jun 2018

Reviewer: Hema Venkataraman

Reviewer's report:

1. Very useful to study to undertake - prediction of recurrence of GDM.

2. Methods: The authors compared characteristics of women in 2 groups - with and without recurrence of GDM. Their nomenclature and description of the groups and methods is rather confusing and misleading. Simply defining 2 groups as recurrence and no recurrence would be clearer.

3. Small sample sizes with significant missing data - more than 30% missing data for pre-pregnancy BMI, weight change between pregnancies (which may be one of the most important determining factor for recurrence), more than 40% missing data on gestational weight gain. Very difficult to study predictors of recurrence in a logistic regression model with such limited data for important confounders.

4. Statistics: It is surprising that several variables are normally distributed in this very small sample size. Logistic regression methods are not clear. It is not clear how they have categorised variables such a FPG, TG etc for logistic regression, especially if they did not fit normal distribution. The regression model did not include very important confounders such as gestational weight gain, weight gain between pregnancies and gestational age? These are very important co-variates and should be accounted for.

5. Finally the link between triglycerides and recurrence of GDM is an important one and been shown to be a marker of recurrent GDM. Again the association would have been more robust if GWG, and weight gain between pregnancies were adjusted for.

6. Inverse relation between FPG and GDM recurrence if difficult to explain. I believe it is a spurious statistical finding that carries no clinical significance.
7. Overall - the study aims to answer an important question but because of the retrospective nature of the study with missing data, small size and poor statistical design makes their conclusions not tenable.

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

No

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

Yes

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

No

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I recommend additional statistical review

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