Reviewer’s report

Title: Risk factors associated with the development of postpartum diabetes in Japanese women with gestational diabetes

Version: 0 Date: 07 Sep 2017

Reviewer: Kerstin Berntorp

Reviewer's report:

The aim of this retrospective study was to identify risk factors associated with the development of postpartum diabetes in Japanese women with a history of gestational diabetes mellitus over a longer postpartum period than previously reported by the same group (6-8 weeks) and to evaluate whether the risk of postpartum diabetes differ between women diagnosed by the previous Japanese GDM criteria and those proposed by the IADPSG.

Several risk factors for postpartum diabetes have been identified in a number of studies over the years based on different populations and diagnostic criteria, such as fasting or 2-h plasma glucose level during the diagnostic OGTT during pregnancy, as well as more recently pregnancy HbA1c. However, how the new IADPSG criteria will affect the postpartum diabetes risk is yet not known and therefore the most interesting part of this study. Unfortunately, the present material is still too small and the follow-up time too short to adequately address this question. It would have been desirable if the two groups of women (diagnosed according to the previous criteria and the new ones) had been evaluated as two separate groups, especially since there was a significant difference in follow-up time (old criteria GDM during an 8-year period 2003-2010, mean follow-up period 83 weeks, and new criteria GDM during a 5-year period 2010-2014, mean 59 weeks, p = 0.0006) which can explain the non-significant difference in diabetes frequency between the old criteria (9.6%) and new criteria (11.2%). Therefore, all results throughout the study should be adjusted for the difference in follow-up time. Furthermore, glucose levels and HbA1c levels should also be given in SI units (mmol/L and mmol/mol, respectively) throughout, since many readers are not familiar with the mg and %-values given. Many countries in Europe have change to the IFCC-agreement on reporting HbA1c in mmol/mol. For further comments see below.

Pagination is missing throughout.

Abstract

Background line 18: IADPSG stands for International Association…… not Society. The same refers to List of abbreviations.
Results: The first section is unclear and hard to follow. How many women were primarily identified as GDM by the old and the new criteria, respectively, and how many of these had follow-up data in the respective group? Give follow-up data for both groups separately concerning follow-up time and the number of women diagnosed with diabetes in each group (11/116 (9.4%) old criteria and 21/190 (11.1%) new criteria. The results in the multivariate analysis should be adjusted for follow-up time.

Give results in SI-units as well, see above.

Conclusion: Adjust according to results after taking the difference in follow-up time into account.

Methods

First paragraph line 42-46: … before June 2010 ……… after July 2010 … unclear. Should it be up to June 2010 and from July 2010? Table 1 gives OGTT thresholds only. Please also inform about the screening procedure. Did all women undergo a 75 g OGTT or are they screened by a 50 g test? Which pregnancy week? Did the screening procedure change when the IADPSG criteria were introduced?

Next page paragraph 3 line 53: (defined as unspecified diabetes within second-degree relatives) unclear, do you mean (defined as unspecified diabetes in first and second-degree relatives)?

Next page last paragraph: Add information about the statistics used in Table 2 and 3.

Results

First paragraph line 32-39. The information about PG levels during the diagnostic OGTT can be omitted since it could be understood from Table 1 that the PG levels by definition were higher in the JSOG group.

It would be of interest to add information in Table 2 on the number of women in the respective group who had only one early follow-up visit (rather than at least two), since these women most likely had pregestational diabetes.

Next page line 21: The word diabetic should be avoided, change diabetic women to women with diabetes.
Next paragraph: Only risk factors identified as significant (p < 0.05) in univariate analysis were included in the multivariate model. However, also those of known interest and of borderline significance could be included. Since fasting glucose levels have been identified as a risk factor in many studies it would have been of interest to also include fasting PG in the model as well, and if non-significant this could be discussed further, see below.

Tables

Add information under all tables about the statistical method used.

In Table 2, what does Rx in Insulin Rx stand for? Explain and add to abbreviation list.

Table 4 could be replaced by mentioning the results in the text.

Adjust for follow-up period in the logistic regression analysis in Table 5 and 6. Model 1 could be excluded from these tables since the adjusted values are those of interest.

Discussion

Modify the aims of the study (Introduction) and the following discussion according to the remarks above. Address further the limitations of the study, which was unpowered to show a difference in postpartum diabetes comparing the old and new criteria, and the effect of these criteria on the risk factors for postpartum diabetes.

Second page line 28-32: Correct prevalence 11/116 (9.4%) old criteria and 21/190 (11.1%) new criteria instead of 9.6% and 11.2%, respectively?

Next page line 3-11: The difference in follow-up time between the JSOG group and IADPSG group is mentioned to explain the difference between the present results and those found by others, i.e. that the IADPSG criteria seem to better recognize women at risk for postpartum diabetes. Why not adjust for this difference in follow-up time?

Same page line 21-35 makes no sense. The IADPSG criteria are based on the risk of adverse neonatal outcomes (LGA etc.) and not on the risk of developing postpartum diabetes.

Same page line 46-49: … the follow-up tests after delivery have been suboptimal [ ] in spite of the current recommendations [ ]. Please comment on which recommendations.

The study of M. Ekelund and al. is referred to (reference 20). There have been quite a few studies addressing HbA1c as a predictor of postpartum diabetes after this, listed below, which should be referred to.
Bottom 5:tn page of Discussion: We did not find a significant association between fasting PG and diabetes; ...... referring to M. Ekelund et al. However, the fasting PG was not included in the present multivariate model (see above), which could have been of interest. If not identified as a predictor of postpartum diabetes it could be explained by ethnicity, as fasting PG has been reported to be less sensitive to for the diagnosis of diabetes than the 2-h PG level in the Asian population (Hsu et al. Diabetes Care 2012;3:1189-1198.)

**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.

Unable to assess

**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

**Quality of written English**
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published
Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare that I have no competing interests' below

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal