Reviewer’s report

Title: Maternal Dietary Patterns and Risk of Gestational Diabetes Mellitus in Twin Pregnancies: A Longitudinal Twin Pregnancies Birth Cohort Study

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Reviewer: Sarah Glastras

Reviewer's report:

This manuscript examines the maternal dietary patterns in women pregnant with twins to determine if they predict development of GDM. GDM is increasingly common in twin pregnancies and this study contributes to knowledge about risk of its development. It is well written and statistical analyses are solid.

The major strength of this study is the decent sample number of twin pregnancies (I think this is not a weakness as suggested in the discussion) - twin studies are notoriously difficult to attain large N. All of these twin pregnancies had a FFQ carried out which is not a small feat. The diagnosis of GDM was clearly established. The principle component analysis was well carried out.

The authors mention a previous study that similarly used PCA of the FFQ in singleton pregnancies to predict GDM. Using this study, what sample number was required to attain adequate statistical power?

The purpose of diagnosing GDM is to reduce perinatal complications of pregnancy as rightly pointed out in the background. And, as stated, GDM is associated with increased risk of HT and preeclampsia in twin pregnancies. Therefore, this association necessitates inclusion of perinatal outcomes of the GDM vs non GDM pregnancies. What were their gestations, Caesarean section rates, PET, HT, birth weights, neonatal hypoglycaemia, NICU stay etc? These perinatal outcomes are a necessary part of this study and must be included.

Major risk factors for gestational diabetes (twin or non twin pregnancy) are known: they include previous GDM, family history of diabetes, high BMI (> 30 in Caucasian popns), PCOS, ethnicity (all Chinese descent in this study), assisted reproduction and advanced maternal age ( > 40 years). Though some of these clinical risk factors were added to the multivariate analysis, these other known clinical risk factors should also be added to model 3 also. Furthermore, these baseline characteristics of the women with and without GDM should be outlined in the table. Why were the rates of family history of T2D so low? Could the authors please discuss this in the discussion?

Minor - caesarean needs a capital letter, line 223 - ? family history of T2D rather than GDM, line 348 needs capital to start sentence

Could the authors please comment in the discussion about the lack of generalisability to other ethnic groups and the need for similar studies in other ethnic populations? Could the authors make a further BMI group > 27 (and thus 24-27) rather than just > 24?

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