Reviewer's report

Title: Prepregnancy BMI and Risk of Preterm Birth: Association Heterogeneity by Preterm Subgroups

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Reviewer: Katherine Goetzinger

Reviewer's report:

This is a study using data from the Boston Birth Cohort study in order to evaluate the association between pre-pregnancy BMI with early and late medically-induced and spontaneous preterm birth. The authors found that prepregnancy obesity is associated with a higher risk of medically-induced, but not spontaneous preterm birth which is substantially explained by maternal medical co-morbidities such as hypertension and diabetes. Overall, this is a well-written manuscript which addresses an important topic for risk stratification in an obese population. Specific comments are as follows:

Major Compulsory Revisions

1. Patients were enrolled in the Boston Birth Cohort study starting in 1998. This particular study used data from 1998-2008; however, there are still only 4677 patients included. Clearly, this is a much lower number than the expected delivery volume over a ten-year period. Can the authors explain how these patients were selected? How many patients declined enrollment? This may introduce significant bias into the study.

2. The preterm birth rate in the study is ~42% which is exceptionally high. While this is likely due to the case-control study design of the original Boston Birth Cohort, this may effect your results given that preterm birth is the primary outcome studied.

3. Were Cesarean deliveries included or excluded? It is unclear in the Methods.

4. Gestational weight gain was calculated as the difference between the last recorded weight before delivery and the self-reported prepregnancy weight. Was there a threshold of how long of an interval between last recorded weight and delivery could have lapsed?

5. Were records complete for each patient enrolled? How did the authors handle missing data?

Minor Essential Revisions

1. I would recommend changing the wording of your objective to "to evaluate the association between prepregnancy BMIs and early and late medically-induced and spontaneous PTB..."

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

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests