Reviewer’s report

Title: Prediction of uncomplicated pregnancies in obese women: a prospective multicentre study.

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Reviewer: Amanda Henry

Reviewer’s report:

This is a well written paper, using data from the UPBEAT trial to attempt to identify a lower-risk group amongst pregnant women of high BMI, the concept being that these lower risk women might need less surveillance/less intensive model of care than women of high BMI with a less favourable risk profile.

My main comments are around making revisions to (a) put this research more explicitly in context/give more detail compared with similar studies, to enable the reader to better judge how clinically useful the modelling in this study might be (b) be a little more cautious in interpretations of findings/conclusions.

Abstract comments: Suggest change first sentence of conclusion to "Clinical factors and biomarkers can be used to help stratify pregnancy and delivery risk amongst obese pregnant women". Use of "help" better conveys that clinical factors and biomarkers can be an aid, without giving the impression that these factors are all that is needed (which for a model with AUROC of 0.72, and 0.69 for clinical factors, is clearly not the case).

I would also suggest that (a) the AUROC when using clinical factors only goes into the results section of the abstract (b) the sensitivity/specificity/PPV/NPV using the clinical factors is inserted into the abstract, as the clinical factors model best reflects information that would be universally and easily available to clinicians (and able to be applied tomorrow in the real world, for units who think the model is helpful).

Results:

Table 4 shows the proportions of women with complications by 5ths of the overall model: please also in this table give the outcomes using the 5ths of the clinical factors only, as this is what is most likely to be used in practice.

It would also be good to have in the results what the AUROC and confidence interval (and also the upper 5th results, where it seems the model would most likely find clinical use if it is going to) using clinical factors plus HbA1C, but not adiponectin. As it would conceivably be reasonable to have an HbA1C on women with high BMI, but adiponectin levels are unlikely to be available outside of research setting without compelling evidence of benefit, it would be of interest to know how much difference there is between the clinical, full model, and HbA1C (but not adiponectin) plus clinical model.
Discussion:

1) Previous study of predicting uncomplicated pregnancy and birth in nulliparous women of any BMI is mentioned - would be good to mention some more of those findings for comparison (e.g. that over 60% of that cohort has no complications versus a third in this one). It would also be good to more explicitly discuss expected levels of complications in pregnancy generally/in other "high risk" and unselected groups that are referenced but not further discussed (e.g. expand on "Women with the highest prediction of uncomplicated pregnancy and birth (those in the upper fifth) had similar levels of risk of most complications to those seen in an unselected obstetric population [12, 20-22]”). This would help place the high BMI risk group and your data relating to this in context for the reader.

2) More acknowledgment of the limitations of the models e.g. an AUROC of 0.72, and modest PPV/NPV, is warranted (especially when that is with adiponectin and HbA1C, neither of which are routinely performed in pregnancy, particularly adiponectin which is essentially a research measurement). As the authors focus on, the model is most likely to be of use in (roughly) predicting the proportion (upper 5th) of women who are least likely to have complications, who may be suitable to have less intensive surveillance. Again, the clinical model and its upper 5th prediction and sens/spec/PPV/NPV should be discussed, not just the full model, if the authors are seriously proposing use of their model to triage care of pregnant women of high BMI.

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

Yes

**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

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