Reviewer’s report

Title: Foetal aortic flow velocity waveforms in healthy and hypertensive pregnant women

Version: 2 Date: 8 January 2014

Reviewer: Francesco Stea

Reviewer’s report:

Major Compulsory Revision (those in the first review):

1) Ok.

2) The fact that BP was not measured at the moment of each Doppler study should be stated as a limitation.

Anyway, blood pressure was measured, and, according to it, women were categorized into normotensive or hypertensive. I don’t think it is acceptable to deal with such a subject without reporting any blood pressure value ever.

As correctly stated on p. 6, lines 42-44, "mild to moderate hypertension in pregnancy corresponds QUITE CLOSELY to stage 1 hypertension", as the first includes women with diastolic BP 100-109 mmHg, which corresponds to stage 2. Therefore, the definition of the subjects as stage 1 hypertension should be abandoned all along the abstract and the manuscript - unless all of the women actually had diastolic BP under 100 mmHg (in the case, this should be clearly stated). Again, this highlights the need to report the BP of the analysed population.

3) It is still doubtful to me that three time points only could be treated as a continuous variable in the analyses (especially if you admit the intervals being "roughly" and "approximately" the same).

Moreover, the fact that the model just fits better with a log-transformation of "time" does not seem to me a reason strong enough to log-transform it, especially when above you just said that the intervals between time points are the same (and we are still dealing with three time points only). And the graphs all have a linear scale.

Part of the problem is probably just that the mathematical analyses are quite complex, while the general audience of the paper would mostly be composed of medical doctors. Should a simpler and more accessible explanation be included in the paper, leaving a detailed mathematical description as additional file?

4) Ok. Should 95% CI be plotted in Figure 3 to show that they don't overlap?

5, 6, 7) Ok.

Minor essential revisions
8-16) Ok.

17) The fact that all hypertensive women took ASA should be stated as a limitation, as this is actually a study comparing "normotensive" vs. "hypertensive treated with ASA", and we can't formally exclude a role of ASA in determining the results.

18-20) Ok.

21) Ok. So none of the women dropped out because of these criteria? This should be made explicit, whether true or not. 4 are reported to have quitted because of "fetal pathology" but foetal growth is not explicitly mentioned or excluded.

22-23) Ok.

24) The choice of using classes and explanatory variables instead of continuous variables seems arbitrary and I would not say that is more clearly understandable, as people are well used to see age and BMI as continuous. Moreover, chosen age cut-offs are totally arbitrary; those for BMI are more meaningful, but, as we are dealing with pregnant women, can hardly be considered to have the same value as for non-pregnant people. Continuous variables should be tested, and they will probably be excluded from the model as well. If classes are to be used, tertiles could be tested. Anyway, any choice other than using continuous variables should be clearly justified.

25) Ok.

26, 31) There is no reason to not mark significant differences between HT and NT in Table 2.

27) "puts impedance at a lower level" is still in the abstract. Differences of indexes between NT and HT should be reported in the Results section in the abstract.

28-30, 32) Ok.

33) See point 4.

Discretionary revisions

34-40) Ok.

41) I do apologize for my wrong use of the term "histogram". I actually meant "bar graph". Box-and-whiskers would be preferable to bar graphs here, as they would show the actual distribution of the indexes, instead of just a mean and 95%CI. Statistical significance of mean comparisons could be shown above the box-and-whislers exactly as they are shown now on the bar graphs.
ADDITIONAL AND NEW DISCRETIONARY REVISIONS:

Page 4, line 81: "as a means" -> "as a mean". It is anyway questionable that a circulation could be "a mean".

Line 92: "acid base" -> "acid-base".

Page 6, line 138: "chronic infections and measured" -> "chronic infections, and measured"

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests