Reviewer's report

Title: Association between adverse pregnancy outcome and imbalance in angiogenic factors and oxidative stress biomarkers in gestational hypertension and preeclampsia.

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Reviewer: Edward T. Dassah

Reviewer's report:

1. Major Compulsory Revisions

The authors need to justify their sample size estimates, as it appears the study may be underpowered to detect a number of the differences reported.

Initially 253 women were recruited but only 150 women were finally enrolled in the study after excluding 50% of women with pre-eclampsia, nearly 30% of women with gestational hypertension & 23% normotensive pregnant women.

The authors also carried out a number of subgroup analysis; it is unclear whether the study was adequately powered for such subgroup analysis e.g. in Fig 1-3 and possibly Table 4.

The authors did not state any limitations of the study.

2. Minor Essential Revisions

The authors should include statistical analysis in the abstract.

The aim of the study should be clearly at the end of the “Background”. “Restriction” is preferred to “retardation” in defining IUGR. PLGF & PIGF are being used interchangeably throughout the manuscript, please clarify, are they the same?

Can the authors state the reasons for excluding about 40% of the women that were initially contacted to participate in the study?

Several obstetric definitions need to be modified to make them suitable for use in a developing country like Ghana.

The authors define IUGR as birth weight less than the 10% centile corrected for gestational age. Can the authors explain which growth curve/chart was used for the determination of birth weight in relation to gestational age? Stillbirth was defined with no reference to viability. This is unusual, as the age of viability should be taken into account when defining stillbirth; it also matters when making a distinction between stillbirth and abortion. Similarly, several other obstetric outcomes were defined using a gestational age cutoff of 20 weeks, but age of viability in Ghana is commonly considered to be at 28 weeks (please check WHO age of viability for international comparisons). The definition of PPROM should include before the “onset of labour”.
Statistical analysis should include the use of chi-squared test

Results

Tables and figures

Explanatory notes for tables and figures should be given as footnotes (at the bottom of the table or figure) and not on top. Figures should be accompanied by their titles.

Table 1: The authors mention that “values are presented as frequency (proportion)”. This should include “unless otherwise indicated” as there are a number of variables that are not given as frequency (proportion) eg age, GA at baseline and postpartum, SBP, DBP & urinary protein. There is no need to include “Fisher’s exact test was used to compare outcomes”, since this was described in the statistical methods section and not all variables (eg those given as mean with SD, and those with larger percentages eg parity, gravidity etc) were compared using the Fisher’s exact test. “GA at postpartum” should be “GA at delivery”. Can the authors explain why there is no “GA at baseline” for the NP group? It is quite interesting that the mean GA at postpartum (delivery) for the NP group is <37 weeks given that nearly all (47/50) of these babies were delivered term, unless the 3 preterm deliveries were extremely preterm, please re-check. * for significant results given in the table are not consistent with those given in the text eg * for education is on “no education” while the significant results described in the text were for JHS leavers.

Table 3: Half of the outcomes in the NP group recorded no complications. This may be due to inadequate sample size, hence the need to justify the sample size estimates.

Figures 1-3: Was the study adequately powered to compare proportions of subgroups (eg severe PE group in fig1, categories of adverse outcomes in only PE group in fig 2, and severe PE & PE with IUGR in fig3)? Hence the need to justify sample size estimates. Figs 1 & 2: Figures should be given in the order in which they appear in the text. Please also check use of PLGF & PIGF/PlGF.

Mean birth weights observed for the PE group (90% were delivered preterm) in fig 3 may be confounded by the gestational age at delivery, hence results should be interpreted with caution.

Table 4: Was correlation done for only the PE group? This is quite difficult to interpret from the table. If this was the case, there is the need to justify this in the sample size estimates. Moreover, the study aimed to assess correlation of angiogenic factors and oxidative stress biomarkers with adverse outcome in GH & PE women (abstract).

Discussion

No limitations of the study have been stated/discussed

3. Discretionary Revisions

None
Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:
I work in the same institution with one of the authors