Reviewer’s report

Title: Placental Vascularization Alterations in Hypertensive Disorders Complicating Pregnancy (HDCP) and Small for Gestational Age with HDCP Using Three Dimensional Power Doppler in A Prospective Case Control Study

Version: 2
Date: 2 July 2015

Reviewer: Wellington Martins

Reviewer’s report:

I read with great interest the manuscript entitled “Placental Vascularization Alterations in Hypertensive Disorders Complicating Pregnancy (HDCP) and Small for Gestational Age with HDCP Using Three Dimensional Power Doppler in A Prospective Case Control Study”, which describes the correlation between 3D-PD and Hypertensive Disorders in gestation. 3D-PD is a step toward the future, as its potentials such as integrated analysis of vascularity of a whole organ or tissue, portability and low cost, make 3D-PD a valuable tool when considering today’s conventional methods of angiography evaluation (e.g. Angiotomography, Magnetic Resonance Angiography and Radioscopic Angiography).

1 - Introduction: no comments.

2 – Methods:

• The proposed classification for Hipertensive disorders is not usual. NHBPEP classification recently reviewed by ACOG should be used. In this case, pre-eclampsia (PE) is recognized as a multi-systemic progressive disorder, and therefore, terms such as minimal or mild preeclampsia should be discouraged. Additionally, according to ACOG, proteinuria is not a necessary element to characterize PE. This is acknowledged in the latest Williams obstetrics edition (the authors used the former edition as reference). Please comment on that.

• At “Manual mode was set, and the vascular area of the placenta was encircled manually by rotating 30 degrees, six times” it is possible to infer that the authors used the manual mode (VOCAL) to encircle the whole placenta vascularization. Was the whole placenta vascularity assessed? After acquiring the 3D-PD dataset, wasn’t only the spheres the regions of interest? Please clarify this issue.

• Why use S/D ratio as impedance index? S/D is not commonly assessed, since Pulsatility index (or in some cases the Resistance index) provides a more complete information and it is used as a standard index of flow impedance worldwide.

3 - Results: The greatest strength of the present study was the correlation between placental perfusion and severity of the hypertension disorder.

4 – Discussion: Here lies the main adjust that should be addressed in this paper.
Limitations of 3D-PD quantification:

Authors must acknowledge that PD quantification is being considered a limited tool to assess vascularization (1, 2), mainly because of the high dependence of gain and other machine settings (3-6), attenuation (7) and reproducibility (8, 9). Such obstacles are capable of altering VI, FI and VFI quantification.

One alternative for reducing the dependency of machine settings and attenuation is applying the fractional moving blood volume; which was not performed in this study (10-13). Additionally, volumetric pulsatility index has been suggested as an alternative method to overcome such problems (4).

References


**Level of interest:** An article of importance in its field

**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