Reviewer's report

Title: Maternal venous hemodynamics in gestational hypertension and preeclampsia

Version: 2 Date: 12 March 2014

Reviewer: Thomas Easterling

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"Maternal venous hemodynamics in gestational hypertension and Preeclampsia," by Gyselaers et al is an observational cohort study.

• Changes in notching and pulsatility index are present in some cases of preeclampsia but by no means for all cases. This is also true for serum analyte markers. If this were true, we would have very efficient screening tests. The statements in the Background should probably be more circumspect.

• Why were only 13 controls studied compared to 20-30 subjects in each hypertensive group? Was this decision driven by a sample size calculation?

• Was the diagnosis of GH determined at the point of presentation or at the conclusion of the pregnancy? Some women with an initial diagnosis of GH will progress to preeclampsia.

• Table 1 is labeled “Demographics.” It contains lab results that are not demographics. The name of the table should reflect the data in the table.

• Table 2 does not seem to contain what is suggested in the text: renal, uterine and hepatic results. It only contains central hemodynamics.

• The text suggests that data was collected at 38 weeks in the UP, GH and LPE pregnancies at 32 weeks in the EPE pregnancies. It would be more accurate to state the range of gestational ages or the mean gestational age at collection.

• Some of the data referenced to Table 3 is in Table 2: ACI, VI, TAC.

• Are the ranges presented in the Tables confidence intervals or ranges?

• There is a substantial literature regarding central hemodynamic function in hypertensive pregnancies – both cross sectional and longitudinal. Can the authors place their results in the context of this literature? The existing literature would challenge the statement that “Arterial hemodynamic dysfunction in gestational hypertensive disorders presents clinically as overt arterial hypertension, related to vasoconstriction of smaller peripheral arteries and increased systemic vascular resistance…”

• Validation studies of impedance cardiography in pregnancy should probably be included. This should include the slope of the relationship between impedance and the validating methodology. We should probably looking beyond
reproducibility.

A large amount of preliminary data is presented. As a reader who does Doppler based hemodynamic research, I find the presentation difficult to follow. The large number of abbreviations is difficult to keep straight. I find myself looking for a guiding physiological framework and am left struggling.

**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:**

None