

Non invasive study of haemodynamic parameters in normotensive versus hypertensive pregnancies

Never Stand Still

Medicine

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Background

- Maternal haemodynamics are compromised in pregnancy induced hypertensive disorders
- **Non invasive technologies** have become readily available for clinical use = **desirable within the obstetric population**
- A clearer understanding of normal cardiovascular adaptations might allow for early identification and prediction of pregnancy induced hypertensive disorders



Objectives

Evaluate the differences in **cardiac function** and **haemodynamic parameters** using point of care **non invasive testing** in **non pregnant** women and in women with **normotensive** and **hypertensive** (chronic hypertension, gestational hypertension, preeclampsia) **pregnancies**.

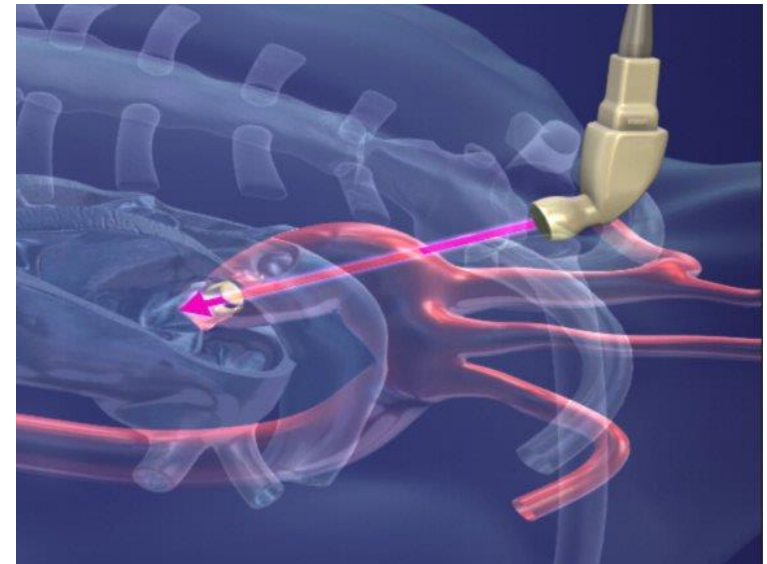
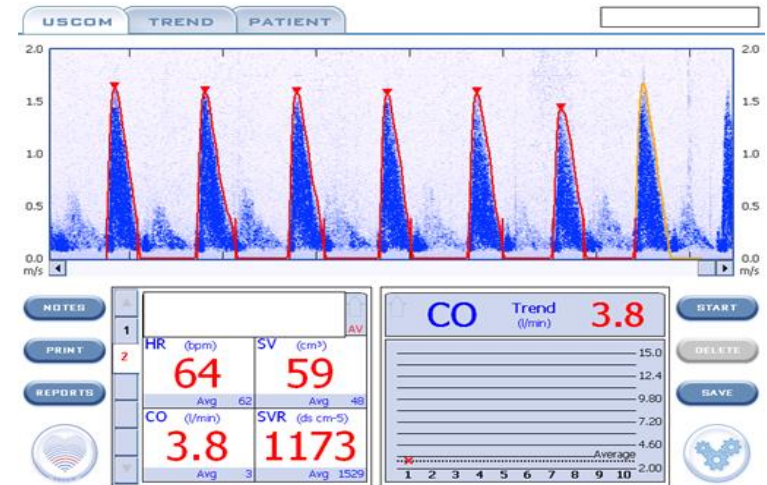
Method

- Haemodynamic data is gathered cross sectional
- Pregnancy outcomes prospectively
- Recruited normotensive and hypertensive pregnant women ≥ 20 weeks gestation with a singleton pregnancy
- A non pregnant control group



Method

- USCOM, continuous wave doppler via a user operated non imaging probe placed at the suprasternal notch
- Via entry of the patients weight, height and blood pressure a full haemodynamic profile is calculated
- Sample size: Need 59 in each group to detect a significant difference in SVR and CO



Results: Haemodynamic Data

- 168 women: 70 Normotensive, 23 chronic hypertensive, 22 gestational hypertensive, 20 preeclampsia and 33 non pregnant women
- Hypertensive - higher BSA
- GH and PE - higher gestational age
- **PE higher SVR and SVRi** - GH higher SVRi but not SVR
- **CO and COi remained stable**
- Hypertensive pregnancies = Increased MAP, sBP, dBP

Results: Pregnancy Outcomes

- Preeclampsia = early delivery and lower birth weights
- Superimposed Preeclampsia:

CH: 32%

GH: 35%

Norm: 4%

Results: In Context

- Overall, pregnancy outcomes support what is already known, haemodynamic data contradicted previous results
- Preeclamptic pregnancies - decrease in CO and SV followed by an increase in SVR
- **THIS STUDY: increase in SVR while other parameters remained stable**

Conclusions

- Significant difference in systemic vascular resistance but not over all cardiac output
- Pregnancy induced hypertensive disorders are at increased risk of preeclampsia development.
- Validate USCOM as a useful diagnostic tool in predicting which pregnancies will progress to preeclampsia