Introduction

Cardiovascular profiling is becoming increasingly important in order to understand the pathophysiology of hypertensive pregnancy disorders. However, conflicting results of cardiac output evolution from third trimester pregnancy to term are frequently reported.

Objectives

To stress the effect of maternal position in the assessment of maternal cardiac and arterial parameters during normal pregnancy.

Methods

16 normal pregnancies

- Impedance cardiography measurements
  - throughout gestation (weeks 8 – 40 in four-weekly intervals)
  - standard protocol with known reproducibility
  - gestational evolution of stroke volume (SV), cardiac output (CO), cardiac cycle time intervals, aortic flow parameters and total peripheral vascular resistance (TPVR)
  - in supine ( ), standing ( ) and sitting ( ) positions
- SAS procedure MIXED for linear mixed models for each parameter separately.

Results & Discussion

Evolution of stroke volume (SV) and cardiac output (CO) in supine position differed from standing (p<0.01) and sitting positions (p<0.05).

Pre-ejection period, left ventricular ejection time index, systolic time ratio and total peripheral vascular resistance also showed a different evolution between supine and standing positions (p<0.05); no differences were observed between standing and sitting positions (p≥0.19).

Conclusion

Next to the frequently reported cardiac output, gestational evolutions of other parameters derived from the preload-dependent parameter “left ventricular ejection time” are influenced by maternal position, related to the growing pregnant uterus which interferes with venous return. This study indicates the importance of a standardized protocol for the measurement of cardiac and arterial characteristics.