Maternal uterine and internal iliac arteries doppler in healthy and hypertensive pregnant women


Objectives
The present study aimed to compare Doppler flows pulsatility index (PI) and resistance indexes (IR) of uterine and internal iliac arteries in the first, second and third trimester of pregnancy, in low risk women and in those with stage-1 essential hypertension.

Design
Longitudinal and prospective study.

Subjects
The study was carried out in 100 singleton pregnancies (70 low-risk pregnancies and 30 with stage 1 essential hypertension).

Methods
Doppler flow assessment was performed at the 1st, (mean=13.04 weeks(min.11.43-max.14.14)SD=0.68), 2nd (mean=20.73 weeks(19.14-23.71) SD=0.78) and 3rd trimesters of pregnancy (mean= 30.59 weeks(28.71-33) SD=1.19). Multiple linear regression models, fitted using generalized least squares and whose errors are allowed to be correlated and/or have unequal variances, were used.

Results
We found that in both groups the UtA-PI and UtA-RI suffer a decreasing trend with increasing gestational age, unlike the IIA-PI and IIA-RI suffer a growing trend. The model testing the hemodynamic adaptation was different in pregnant women with and without hypertension: although presenting the same trend, hypertensive pregnant presented lower values for proportion (IIA-UtA)/IIA's, for each of the index.e.

Conclusions
Mean UtA-PI, UtA-RI showed a progressive decrease from the 1st to the 3rd trimester of pregnancy, while the IIA-PI, IIA-RI revealed an increase in the same period. Hypertensive pregnant women exhibit an similar adaptation to normal hemodynamics but potentially deficient.

Keywords
Doppler ultrasonography, resistance index, pulsatility index, uterine arteries, hypogastric artery Doppler, internal iliac artery Doppler