Usefulness of the uterine artery doppler flow velocimetry at 20 weeks

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Objective
The aim of this study was to evaluate if patients with elevated uterine artery mean pulsatility index measured at 20 week ultrasound examination had a higher frequency of adverse perinatal outcomes.

Methods
A retrospective study which exhaustively reviewed the medical records of deliveries attended in our hospital between September and December 2014 (704 pregnant women) was performed. The analyzed variables were: uterine artery mean pulsatility index (PI) measured at 20 weeks and adverse perinatal outcome [early and late intrauterine growth restriction (IUGR), early and late preeclampsia, preterm premature (prelabor) rupture of membranes, fetal demise and placental abruption].

Results
5.7% of pregnant women had elevated uterine artery mean PI measured at 20 Weeks (PI >95th percentile). Of them, only the 7.5% developed early intrauterine growth restricted fetuses and 22.5% late IUGR versus 1.1% and 2.4% (respectively) in those patients with normal uterine artery test (p=0.015 and p<0.001). No significant differences were found between pathological uterine artery test and other adverse perinatal outcomes (early and late preeclampsia, preterm prelabor rupture of membranes, stillbirth and placental abruption). 34% of growth restricted fetuses had elevated uterine artery mean pulsatility index measured at 20 weeks. If we consider those fetuses diagnosed as early and late IUGR we found that 70% and 64% (respectively) of them had no pathological uterine artery test at 20 weeks. In our population, the sensitivity of uterine artery doppler flow velocimetry in the prediction of intrauterine growth restriction is 34.28% while the specificity of this test is 95.81%.

Conclusion
- In our population, 30% of pregnant women with pathological uterine artery test (PI>95th percentile) at 20 weeks developed intrauterine growth restricted fetuses. Therefore, the sensitivity of this test is low (34, 28%) but his specificity is very high (95, 81%). - Most of growth restricted fetuses (66%) had a uterine artery mean pulsatility index < 95th percentile at 20 weeks.