**Uterine artery Doppler and third trimester quantitative preeclampsia risk assessment**

In each trimester of pregnancy, multifactorial algorithms employing uterine artery Doppler, maternal blood pressure, biochemical markers and maternal demographics are the best available means by which to screen for preeclampsia, impaired placentation and placenta related adverse obstetrical outcomes.
O36.513 - maternal care for known or suspected placental insufficiency.

Third trimester uterine arterial Doppler and quantitative preeclampsia risk assessment

Risk stratification optimizes clinical resources and best defines which patients require higher levels of monitoring.

Third trimester preeclampsia risk assessment stratifies the pregnant population into high risk and low risk groups.
_ high risk characterization captures 90% of patients that will ultimately go on to develop preterm preeclampsia requiring once weekly monitoring of maternal blood pressure and urinalysis for proteinuria.
_ low risk characterization with normal uterine artery Doppler confers >90% negative predictive value mitigating against impaired placentation / placenta related adverse obstetrical outcomes including PTD <36 weeks, IUGR, abruption, stillbirth, NICU admission.

https://obgyn.onlinelibrary.wiley.com/doi/epdf/10.1002/uog.21869
https://fetalmedicine.org/research/assess/preeclampsia/third-trimester
https://fetalmedicine.org/research/assess/preeclampsia/background

*The competing risk approach for prediction of preeclampsia. Wright. Am J Obstet Gynecol. July 2020
*From first trimester screening to risk stratification of evolving preeclampsia and second and third trimesters of pregnancy: comprehensive approach. Ultrasound Obstet Gynecol. Poon. 2020;55:5-12.

Clinical correlates of normal and abnormal uterine artery doppler

Normal mean uterine artery pulsatility index has a high negative predictive value >90% mitigating against the subsequent development of the following clinical expressions of impaired placentation / placenta related adverse obstetrical outcomes - early onset preeclampsia, PTD <36 weeks, IUGR, abruption, stillbirth, NICU admission - in both low risk and high risk populations.

*Ultrasound Obstet Gynecol. 2004 Jan;23(1):50-5. Harrington. The value of uterine artery Doppler in the prediction of uteroplacental complications in multiparous women.
*Obstetrics & Gynecology. 120(4):815-822, Oct 2012. Myatt. The utility of uterine artery Doppler velocimetry in prediction of preeclampsia in the low risk population.

Comorbidities of abnormal third trimester uterine artery Doppler - if so identified  - in AGA fetuses - clinical correlations

Abnormal uterine artery doppler after 26 weeks - even in the AGA and/or 'low risk' population - confers increased risk for  less than expected EFW for genetic potential, preterm delivery, C-section and NICU admission.
*Persistence of increased uterine artery resistances in the third trimester and pregnancy outcome. Ghi. Ultrasound Obst Gynecol. Nov 2010.
*Third trimester abnormal uterine artery Doppler findings are associated with adverse pregnancy outcomes. Shwarzman. J Ultrasound Med 2013; 32:2107-2113.

Abnormal uterine artery Doppler predicts fetal compromise despite normal umbilical arterial Doppler.
*Chang. Prediction of perinatal morbidity at term in small fetuses. British Journal OB/GYN. 1994; 101. 422 - 7.
*Espinoza. Ultras Obstet Gynec 2012.

Uterine artery Doppler screening of the high risk population identifies a subgroup of patients at significant risk for adverse pregnancy outcome.
*Scisione. Am J ObGyn 2009.