Trending of the Uterine Artery Doppler (UAD) in the first and second trimesters – does it impact screening for PE and LBW?

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• Preeclampsia represents the second most common cause of maternal death, affecting 5 - 10% of pregnancies worldwide.
• In India, the incidence of preeclampsia is about 5.4%.
• The aim of antenatal care is to identify and manage pregnancies that are “at risk” for complications.
• Doppler study of fetal and maternal blood vessels is an invaluable tool in the management of high risk pregnancies. It allows non-invasive evaluation of the uteroplacental circulation by comparing systolic and diastolic waveforms.

AIM: To analyze the trend of progression of UAD in the first and second trimesters and assess its impact on prediction of developing maternal preeclampsia (PE) and fetal Low Birth Weight (LBW) below 5th centile for the gestational age.

We divided the trend into 4 categories:
- A: Normal 1st trimester, Normal 2nd Trimester
- B: Abnormal 1st trimester, Normal 2nd trimester
- C: Normal 1st trimester, Abnormal 2nd Trimester
- D: Abnormal 1st and 2nd trimesters

INCLUSION CRITERIA - $N = 4822$ Pregnancies
- 1st and 2nd trimesters UAD assessment between Jan 2008 to Dec 2016
- Scans performed by certified FMF operators
- Outcomes - maternal PE < 37 weeks and LBW < 5th centile for the gestation

EXCLUSION CRITERIA - Fetal anomalies & Multiple pregnancies

CONCLUSION:
- Our study shows that a persistently high UAD PI in the 1st and 2nd trimesters increases the likelihood of developing PE and having a LBW baby.
- Women who have a normal 1st trimester UAD but don’t “normalise” for the 2nd trimester continue to have a high risk of developing PE/LBW baby.

DISCUSSION: The cohort (group C) of women who will have a UAD PI of less than 95th centile in the FT but this will not reduce to below the 95th centile by the second trimester. This group of women will behave like those who have a persistently high UAD PI. This can lead to “under-treatment” of a group of women who will still develop complications. More importantly, these women will be falsely reassured with a “normal UAD” in the FT. There is a need to add on more “markers” in the FT to improve the efficacy of prediction. Screening with UAD alone, particularly in the first trimester will lead to “over diagnosing” (as in group B) and “undertreating” (as in group C), both of which will have an impact on the pregnancy.

REFERENCES:
2. MANTHISA SATHI, VANDAM NIMBARGI, AMIT MODI, RONAK SUMARIYA, ATMARAM PAWAR. Incidence of pregnancy induced hypertension and prescription pattern of antihypertensive drugs in pregnancy.