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**Title: Predicting the Unseen: The Predictive Role of Uterine Artery Doppler for Preeclampsia and IUGR in 2nd Trimester**



**INTRODUCTION**

"Improving diagnosis for patient Safety" is the WHO's theme for World Patient Safety Day in 2024, and the campaign tagline is "Get it right, make it safe!". An essential feature of obstetrics is antepartum evaluation.

- Preventive care throughout pregnancy, including prenatal, intrapartum, and postpartum care, is a major aspect of obstetrics. Proper and timely treatment for mothers not only allows for awareness-raising counselling and early detection of anomalies, but it also allows for the early identification of at-risk populations and departures from normalcy, which is one of the important aspects of antenatal care.
- In India, preeclampsia is said to afflict 8–10% and IUGR- 3-10% of pregnant women.
- Care aims to reduce the risk of problems for both the mother and the fetus by safely extending the pregnancy under constant observation.
- To detect preeclampsia and IUGR in high-risk pregnancies and enable early intervention to enhance maternal and perinatal outcomes, this study emphasizes the use of Doppler ultrasound studies in the second trimester.
- Uterine artery Doppler reflects trophoblastic invasion and placental development.
- Increased diastolic blood flow velocity with a decrease in S/D ratio and the loss of the early diastolic notch by 22 weeks of gestation are signs of a normal-term pregnancy. On the other hand, pregnancies with persistent high resistance waveforms and early diastolic notches are associated with a preterm delivery risk because of pre-eclampsia, abruption, and intrauterine growth restriction (IUGR).
- Common signs used to assess uterine artery blood flow include the Pulsatility index (PI),  $PI=(S-D)/\text{mean}$ , resistance index (RI)  $= (S-D)/S$ , systolic/diastolic (S/D) ratio, and the development of an early diastolic notch.

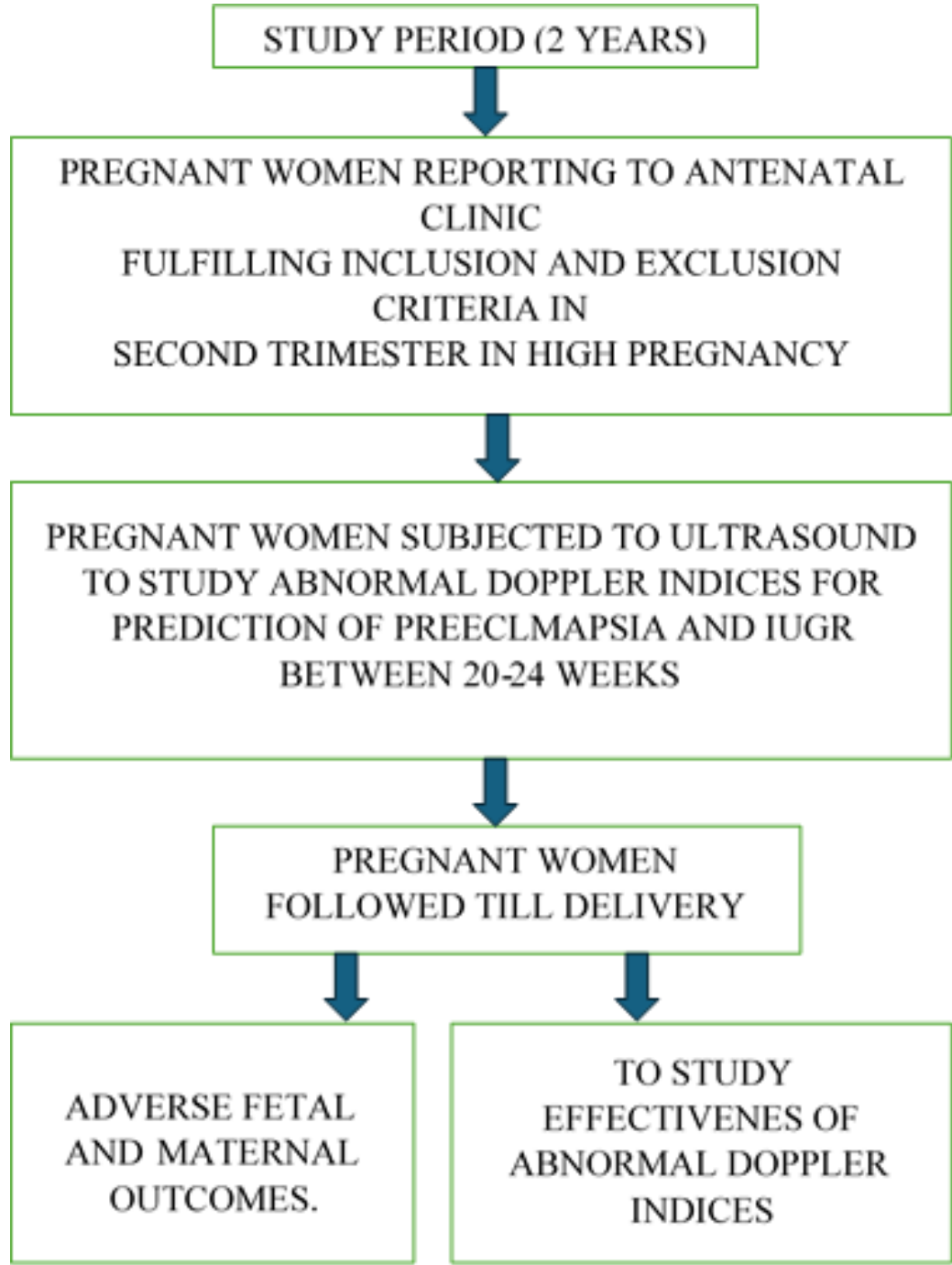
The probability of unfavourable perinatal outcomes, such as small for gestational age and admission to neonatal intensive care units (NICU), has been significantly correlated with abnormal uterine artery Doppler.

**AIMS AND OBJECTIVES**

- To study the effectiveness of uterine artery Doppler indices in the second trimester as a predictor of IUGR and preeclampsia in high-risk pregnancies.
- To study the association of maternal and perinatal outcomes with abnormal uterine artery Doppler indices in high-risk pregnancy.

**MATERIAL AND METHODS**

Observational Study of 200 women over a period of two years between the gestational age of 20-24 weeks.



**Inclusion criteria**

- Primigravida
- Multigravida
- Age>35yrs
- Preeclampsia in previous pregnancy
- Chronic hypertension
- Pre-gestational or Gestational diabetes
- Renal disease
- Past childbirth more than ten years ago
- Pregnant women with APLA
- Obese (BMI>30-35) or overweight (BMI>25-30).
- Anaemia

**Exclusion criteria**

- Women carrying unidentified congenital abnormalities that can be detected sonologically.
- Women carrying twins who get preeclampsia between weeks 20 and 24 of pregnancy.

**RESULTS**

	Cesarean deliveries	Vaginal deliveries
	116	84
Uterine artery RI (>0.6)	94	35
Uterine artery PI (>1.0)	113	40
Uterine artery S/D ratio (>2.5)	97	32

Association of baby weight of babies in pregnant women with abnormal Doppler indices

	Low birth weight	Normal birth weight
	103	97
Uterine artery RI (>0.6)	80	25
Uterine artery PI (>1.0)	98	28
Uterine artery S/D ratio (>2.5)	87	41

Development of pre-eclapmsia and IUGR

	Preeclampsia	IUGR
	110	100
Uterine artery RI (>0.6)	90	88
Uterine artery PI (>1.0)	100	90
Uterine artery S/D ratio (>2.5)	98	94

**CONCLUSIONS**

**This Study Concludes**

- Uterine artery Doppler indices PI, RI, S/D RATIO can be used for the prediction of Preeclampsia
- Maternal outcomes such as preeclampsia and IUGR are more associated with abnormal uterine artery Doppler indices in high-risk pregnancies
- Abnormal uterine artery Doppler indices in high-risk pregnancies are associated with adverse perinatal outcomes like low-birth-weight babies, low APGAR score, and IUGR.

**REFERENCES.**

- FIGO Committee for the Ethical Aspects of Human Reproduction and Women's Health - PubMed [Internet]. [cited 2024 Jun 19]. <https://pubmed.ncbi.nlm.nih.gov/10610350/>.
- Maternal mortality [cited 2024 Jun 19]. Available from: <https://www.who.int/news-room/fact-sheets/detail/maternal-mortality>

