



UTERINE ARTERY DOPPLER ANALYSIS IN PREGNANT WOMEN DURING NT SCAN FROM 11 WEEKS +0 DAYS TO 13 WEEKS +6 DAYS

Radiodiagnosis

Dr. I. Siva Deepthi	Final year post graduate student Department of Radiodiagnosis Santhiram medical college and general hospital ,Nandyal.
Dr. B. E. Panil Kumar	MDRD, Professor and HOD, Department of Radiodiagnosis Santhiram medical college and general hospital ,Nandyal.
Dr. K. Janardhan Reddy*	DNB,RD Professor, Department of Radiodiagnosis Santhiram medical college and general hospital ,Nandyal. *Corresponding Author

KEYWORDS

INTRODUCTION

Pre-eclampsia (PE) remains one of the leading causes of maternal and perinatal mortality and morbidity, with an estimated 10-15% of all maternal deaths being due to hypertensive diseases in pregnancy. The prediction of patients at high risk for PE has been a focus of research and, at present, the first trimester is considered to be the preferred gestational period for PE screening¹.

The prophylactic use of low-dose aspirin beginning in early pregnancy (prior to 16 weeks) is able to reduce the prevalence of PE by as much as 50% and significantly decrease rates of perinatal death¹. Although no single efficient screening procedure for predicting PE has been adopted in clinical practice, uterine artery doppler is the most widely studied clinical test available for this particular purpose, becoming a useful method for the indirect assessment of uteroplacental circulation in early pregnancy (11–14 weeks).

Abnormal uterine artery Doppler results have been shown to be strongly correlated with several types of adverse maternal and perinatal outcomes^(1,2). Early identification of pregnant patients at risk of developing PE and IUGR is more likely to facilitate targeted antenatal surveillance and possibly an efficient early intervention. It would also potentially avoid the development of serious complications, through interventions such as administration of low-dose aspirin and, if needed, antihypertensive medication, and early delivery in selected cases.

AIM AND OBJECTIVES OF THE STUDY

To find out the sensitivity of uterine artery doppler at the time of NT scan from 11weeks+0 days to 13weeks +6 days of gestation in predicting pregnancy complications associated with uteroplacental insufficiency before the onset of clinical features and thereby follow up the at risk patients to improve perinatal outcome

MATERIALS AND METHODS

TYPE OF STUDY: It is a prospective study

SOURCE OF DATA: Department of Radiodiagnosis at Santhiram medical college and general hospital, Nandyal, Andhra Pradesh.

PERIOD OF STUDY: October 2022 to January 2022

SAMPLE SIZE: Approximate sample size is 100 cases

SAMPLING CRITERIA

INCLUSION CRITERIA:

- Pregnant women with gestational age 11 weeks 0 days to 13 weeks 6 days
- Those who gave informed and written consent.

EXCLUSION CRITERIA:

- Pregnant women with gestational age < 11 weeks 0 days and > 13 weeks 6 days
- Those who did not give informed and written consent.

EQUIPMENT

- In the present study ,real time ultrasound examination is carried

out using LOGIC P9 and LOGIC S8 ,at Santhiram General Hospital, Nandyal.

RESULTS

Among the 100 pregnant women in the group studied, there were 42 patients from 11 weeks + 0 days to 11 weeks + 6 days (42 %), 26 from 12 weeks + 0 days to 12 weeks + 6 days (26%), and 32 from 13 weeks + 0 days to 13 weeks + 6 days (32%) gestational age.

The values of the Doppler indices were 1.75 ± 0.79 (range 0.46-4.33), 1.88 ± 0.81 (range 0.46-4.33), 1.71 ± 0.81 (range 0.55-4.29), and 1.58 ± 0.72 (range 0.49-3.93) for the PI and 0.72 ± 0.14 (range 0.36-1), 0.75 ± 0.14 (range 0.36-1), 0.71 ± 0.14 (range 0.40-0.96), and 0.70 ± 0.14 (range 0.37-0.94) for the RI for the entire group and for the three gestational age intervals, respectively.

Our study revealed that 42 (42%), 20 (20%), and 38 (38%) patients had bilateral, unilateral and absent uterine artery notching, respectively. The Doppler indices for the three aforementioned groups were 2.18 ± 0.79 (range 0.72-4.33), 1.63 ± 0.72 (range 0.55-3.55), and 1.33 ± 0.57 (range 0.46-2.82) for the PI and 0.79 ± 0.11 (range 0.46-1), 0.71 ± 0.14 (range 0.40-0.96), and 0.66 ± 0.14 (range 0.36-1) for the RI, respectively.

Table 1 Presents The Mean, Standard Deviations And The 5th and 95th Percentiles For The Pulsatility And Resistivity Indices

Group	PI			RI		
	value	5 th	95 th	value	5 th	95 th
All (100 patients)	1.75 ± 0.79	0.55	3.58	0.72 ± 0.14	0.41	0.95
11 weeks + 0 days to 11 weeks + 6 days (42 patients)	1.88 ± 0.81	0.55	3.58	0.75 ± 0.14	0.50	0.91
12 weeks + 0 days to 12 weeks + 6 days (26 patients)	1.71 ± 0.81	0.79	2.71	0.71 ± 0.14	0.52	0.87
13 weeks + 0 days to 13 weeks + 6 days (32 patients)	1.58 ± 0.72	0.75	2.76	0.70 ± 0.14	0.49	0.89
Bilateral uterine artery notching (42 patients)	2.18 ± 0.79	1.12	3.58	0.79 ± 0.11	0.62	0.93
Unilateral uterine artery notching (20 patients)	1.63 ± 0.72	0.81	2.57	0.71 ± 0.14	0.53	0.86
Absent uterine artery notching (38 patients)	1.33 ± 0.57	0.59	2.36	0.66 ± 0.14	0.43	0.86
Uterine artery with notch	2.16 ± 0.76	1.12	3.56	0.79 ± 0.11	0.60	0.93
Uterine artery without notch	1.30 ± 0.54	0.58	2.36	0.65 ± 0.14	0.41	0.87
Uterine artery with notch in unilateral notch patients	2.08 ± 0.66	1.29	3.16	0.79 ± 0.11	0.62	0.91

Uterine artery without notch in unilateral notch patients	1.17±0.43	0.63	2.04	0.63±0.12	0.44	0.81
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TABLE 2. Distribution of frequency of different types of uterine artery notching among the three gestational age groups

Notching	11 weeks + 0 days to 11 weeks + 6 days (n=42)	12 weeks + 0 days to 12 weeks + 6 days (n=20)	13 weeks + 0 days to 13 weeks + 6 days (n=38)
Bilateral	21	8	13
Unilateral	9	3	6
Absent	12	9	19

CONCLUSION

Our study revealed that 42 (42%), 20 (20%), and 38 (38%) patients had bilateral, unilateral and absent uterine artery notching, respectively. The Doppler indices for the three aforementioned groups were 2.18±0.79 (range 0.72-4.33), 1.63±0.72 (range 0.55-3.55), and 1.33±0.57 (range 0.46-2.82) for the PI and 0.79±0.11 (range 0.46-1), 0.71±0.14 (range 0.400-0.96), and 0.66±0.14 (range 0.36-1) for the RI, respectively.

IMAGES

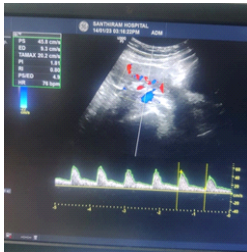


FIGURE 1: Early diastolic notching in uterine artery

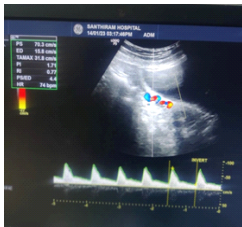


FIGURE 2: Absent early diastolic notching in uterine artery

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