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Dr. Mohini Rajoriya
Assistant Professor, Department of
OBG, MGM Medical College,
Indore, Madhya Pradesh, India

Dr. Neeraj Kumar Bagde
Senior Resident, Department of
OBG, MGM Medical College,
Indore, Madhya Pradesh, India

To study the severity of preeclampsia in relation to placental laterality

Dr. Mohini Rajoriya and Dr. Neeraj Kumar Bagde

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Abstract

Background: In our study we compared lateral placentation with central placentation and their respective effects on maternal blood pressure and related complication. Of the 163 patients with lateral location of placenta 31.9% developed PIH, while of the 157patients with central location of placenta 37.58% developed PIH.

Method: Flow pattern in both the arteries were concluded in the form of Pulsatility index (PI) and Resistance index (RI), NDI and average values of such waveform were taken via Transabdominal route. A patient was diagnosed to have PIH if there was a rise in systolic pressure of at least 30 mmHg or a diastolic of at least 15 mmHg over the previously known blood pressure or an absolute rise in the blood pressure of at least 140/90 mmHg was taken to diagnose women as a case of PIH

Results: There is no any statistically significant relationship found b/w development of PIH and location of placenta.

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Conclusion: We conclude that the result of our study there is no significant association between uterine artery resistance and lateral placenta. According to our study lateral placenta and pregnancy induced hypertension, have no significant association.

Keywords: Preeclampsia, placental, laterality & severity

Introduction

Preeclampsia occurs only in the presence of placenta [1]. Several tests have been proposed to identify women at risk of developing preeclampsia. Some of these tests such as the cold pressor test, the isometric hand grip exercise, and the roll over test depend on the presence of some pathophysiological changes that occur in preeclampsia. Other tests such as the measurement of urinary calcium or plasma fibronectin are based on the presence of biochemical alterations peculiar to this disease [2].

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Material & Method

The present study, "A Prospective Study Of Correlation Between Placental Laterality And Uterine Artery Resistance In Preeclampsia And It's Severity" was a prospective analytical study carried out over 320 antenatal women over 06 months duration extending from Jul 2018 to Dec 2018 in the Department of Obstetrics and Gynecology of MGM Medical College and M.Y. Hospital, Indore.

Inclusion Criteria

- Subjects with singleton pregnancy.
- Subject's BP more than or equal to 140/90 mmHg with or without proteinuria & edema.
- Subjects with previous history of preeclampsia and eclampsia.
- Pregnancy more than 28 wks of gestational age.

Subjects giving their consent for participation in the study.

Correspondence
Dr. Mohini Rajoriya
Assistant Professor, Department of
OBG, MGM Medical College,
Indore, Madhya Pradesh, India

Exclusion Criteria

- Subjects with chronic hypertension.
- Subjects with multiple gestation.
- Subjects with diabetes mellitus.
- Subjects with uterine anomalies.
- Subjects with previous cesarean section.

Investigations

- Routine antenatal investigations.
- Ultrasonography for placental localization.
- Colour Doppler. for uterine resistance

Flow pattern in both the arteries were concluded in the form of Pulsatility index (PI) and Resistance index (RI), NDI and average values of such waveform were taken via Trans abdominal route. A patient was diagnosed to have PIH if there was a rise in systolic pressure of at least 30 mmHg or a diastolic of at least 15 mmHg over the previously known blood pressure or an absolute rise in the blood pressure of at least 140/90 mmHg was taken to diagnose women as a case of PIH.

Cases were followed in the antenatal clinic and screened routinely for development of PIH. Those with bad prognostic features of PIH were terminated at any time of gestational in second or third trimester. Rest of the patients presented during labour only.

Data analysis

Data was collected and master sheet was prepared. The data was analysed using statistical package of social science (SPSS) software version 18, significant testing of differences between proportions was conducted using chi-square and T- tests for independent values, were applicable. *P* values were corrected by maternal age using a multiple logistic regression analysis. Sensitivity, specificity, predictive positive (PPV) and negative (NPV) values were calculated according to the Bayes theorem. Statistically, *P* values <0.05 were considered significant. Statistical analysis was performed. The results were present in tables and graphs designed using Microsoft excel program.

Results**Table 1:** Association of pregnancy induced hypertension with placental location

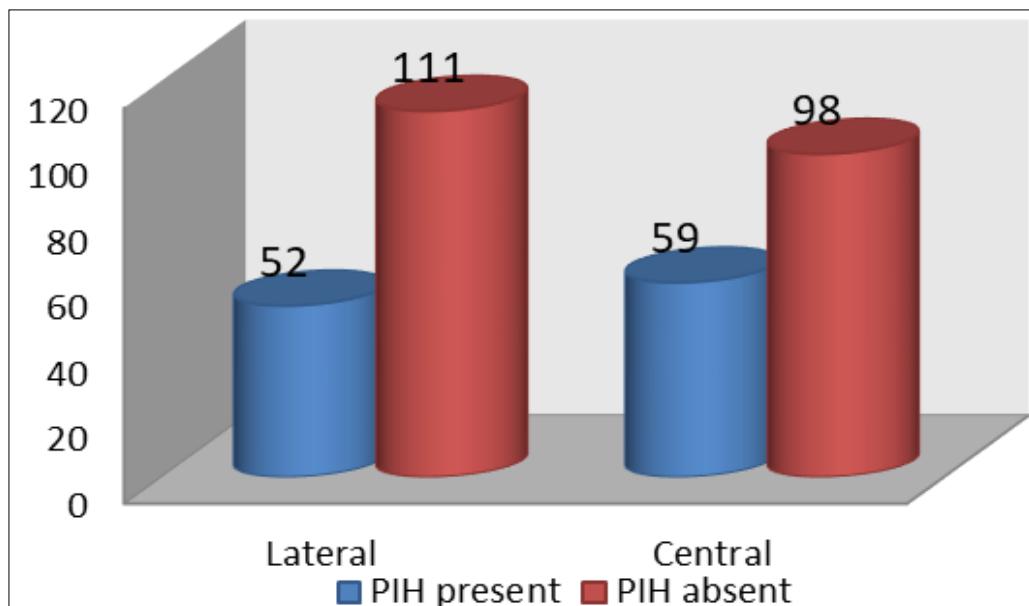
| Pregnancy Induced Hypertension | Lateral n (%) | Central (Anterior + Posterior + Fundal) n (%) | Total (%) |
|--------------------------------|---------------|---|--------------|
| PIH present | 52 (31.90%) | 59 (37.58%) | 111 (34.69%) |
| PIH absent | 111 (68.09%) | 98 (62.42%) | 209 (65.31%) |
| Total | 163 (100%) | 157 (100%) | 320 (100%) |

$\chi^2 = 1.138$, p value is 0.286, not significant ($p > 0.05$).

Above table shows association of PIH with location of placenta, of the 163patients with lateral location of placenta 31.9% developed PIH, while of the 157patients with central location of

placenta 37.58% developed PIH.

There is no any statistically significant relationship found b/w development of PIH and location of placenta.

**Fig 1:** Association of pregnancy induced hypertension with placental location**Table 2:** Association of pregnancy induced hypertension with placental location

| Pregnancy Induced Hypertension | Lateral n (%) | Central (Anterior+Posterior+Fundal) n (%) | Total (%) |
|--------------------------------|---------------|---|-------------|
| GHTN | 39(23.93%) | 39(24.84%) | 78 (%) |
| Preeclampsia | 9(5.52%) | 13(8.28%) | 22(6.88%) |
| Eclampsia | 4(2.45%) | 7(4.45%) | 11(3.44%) |
| Normal | 111(68.09%) | 98(62.42%) | 209(65.31%) |
| Total | 163(100%) | 157(100.0%) | 320(100%) |

$\chi^2 = 2.2424$, p value is 0.5236, not significant($p > 0.05$).

The above mentioned table shows association of pregnancy induced hypertension with placenta location, suggested, Of the total 163 patients with Lateral placenta location showing that 39(23.93%) patients belonging to GHTN and 5.5%,2.45% and 68.09 %patients belonging to Preeclampsia, Eclampsia and normal respectively. Similarly, of the 157 patients with central placenta localization39 (24.84%) patients belonging to GHTN and 8.28%, 4.45% and62.42%patients belonging to Prereclampsia, Eclampsia and normal respectively.

There is no any statistically significant relationship b/w PIH and location of placenta.

Discussion

Cases according to placental location of the total 163 patients with Lateral placenta location showing that 39(23.93%) patients belonging to GHTN and 5.5%,2.45% and 68.09 %patients belonging to Preeclampsia, Eclampsia and normal respectively. Similarly, of the 157 patients with central placenta localization39 (24.84%) patients belonging to GHTN and 8.28%, 4.45% and62.42%patients belonging to Prereclampsia, Eclampsia and normal respectively^[5].

Our study fails to show any statistically significant relationship b/w PIH and location of placenta.

Tania Kakar *et al.* out of the 84 women with laterally located placenta, 56(66.6%) developed PIH, while 24 women (36.3%) out of the remaining 66 women with centrally located placenta developed PIH, so, the risk of developing PIH was five times greater in the females with laterally located placenta. These findings are not similar to our study^[6].

Kanika Chandra *et al.* out of the 50 women with laterally located placenta, 33 (66%) developed preeclampsia, while 18 women (36%) out of the remaining 50 women with centrally located placenta developed preeclampsia. So, the risk of developing pre-eclampsia was five time greater in the females with laterally located placenta. Which is not similar to our study^[7].

Preeclampsia is a complex clinical syndrome involving multiple organ systems and still remains the principal cause of maternal and perinatal mortality and morbidity. The search for an ideal predictive test and preventive measure remains challenging.

Conclusion

We conclude that the result of our study there is no significant association between uterine artery resistance and lateral placenta. According to our study lateral placenta and pregnancy induced hypertension, have no significant association.

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