

CORRELATION OF ADVERSE PERINATAL OUTCOMES AND PLACENTAL INFARCTS IN HYPERTENSIVE PRIMIGRAVIDA MOTHERS

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ABSTRACT

Objective: To determine the frequency of placental infarcts and its effect on fetal outcome in hypertensive primigravida mothers.

Methodology: This study was conducted at Obstetrics & Gynecology Department, Lady Reading Hospital Peshawar from 1st January 2011 to 30th September 2011. The sample size was 130 primigravida mothers. This study was cross sectional in which non probability consecutive sampling technique was adopted. The data was collected on predesigned proforma and was analyzed using SPSS version 17.

Results: This study included 130 primigravida mothers in age range from 19-35 years with mean age of 27.27±4.04 years. Placental infarcts were seen in 31% (n=40) patients. Sixty percent (n=24) patients had focal placental infarcts while 40% (n=16) had multifocal placental infarcts. Among fetuses whose placenta showed no infarction, 90% fetuses were live born and 10% were still-born while those fetuses whose placenta showed infarction 70% fetuses were alive and 30% fetuses were still-born.

Conclusion: The incidence of adverse perinatal outcomes including intrauterine growth restriction and still birth is higher in hypertensive primigravida mothers with placental infarcts than in hypertensive primigravida mothers with no infarcts.

Key Words: Hypertensive, Morbidity, Mortality, Placental infarcts, Pre-eclampsia.

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INTRODUCTION

The hypertensive disorder of pregnancy complicates approximately 12 to 22 percent of all the pregnancies. Hypertensive disorders of pregnancy are responsible for significant maternal and perinatal morbidity and mortality¹.

The International society for study of hypertension in pregnancy uses the term gestational hypertension when the women have previously been nor-

motensive and is now having a blood pressure higher than 140/90 mm Hg without the presence of protein in the urine and diagnosed after 20 weeks of gestation². Gestational hypertension is mainly the disease of primigravida and accordingly its incidence is higher in this group¹.

Pregnancy complications like hypertension are reflected in placenta in a significant way both macroscopically and microscopically³. Pre eclampsia is a disease of placenta⁴. A variety of changes in placental villi is known to occur in hypertension complicating pregnancy and is directly proportional to the severity of disease and fetal outcome³.

Peripheral infarcts on maternal side are relatively common and are not thought to be clinically significant. However those that occupy more than 5% of the placental mass or are more than 3cm in diameter are associated with perinatal mortality and morbidity⁵. This lesion has been associated with fetal death (40%), preterm delivery (58%) and intrauterine growth retardation (54%)⁶.

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Rationale of the study was to determine the frequency of placental infarcts and its effect on fetal outcome in hypertensive primigravida mothers. Moreover due to recurrent nature of this condition, it is necessary to make guidelines in the management of hypertensive pregnancies, thus the present study may help in the formation of guidelines in future studies.

METHODOLOGY

This study was conducted at Obstetrics & Gynecology Department, Lady Reading Hospital Peshawar. This was 8 months study from 1st January 2011 to 30th September 2011. Total patients were 130. This was a cross sectional study in which non probability consecutive sampling technique was adopted. Women were included in the study after informed consent. Approval was obtained from hospital ethical committee. In order to control bias of age and parity only primigravida mothers less than 35 years of age were included in the study. Patients with diabetes and other medical illnesses were excluded from the study. The placentas of the subjects were collected from labor room of the wards. Placenta was weighted after removal of adherent blood, umbilical cord, and extra placental membranes and was fixed in 10% formalin. After allotting special code, sample was sent to histopathology laboratory of the hospital with proper care and coordination between unit and laboratory. After gross examination of placenta, sections of placenta was stained with hema-

toxylin eosin stains. Only consultant pathologist was reporting the slides. Regarding fetal outcome the live birth was determined clinically by assessing the sign of life such as voluntary movement, heart beat and pulsation of the umbilical cord. Birth weight was noted with baby weight machine in Kg while the still birth was determined by ultrasound that was performed by expert sonologist of the hospital. The predesigned proforma was used to record data. The data was analyzed using SPSS version 17.

RESULTS

This study included 130 hypertensive primigravida mothers in age range from 19-35 years with mean age of 27.27±4.04 years. Among these 130 hypertensive patients, placental infarct was found in 31% (n=40) patients (Table 1). Regarding severity of placental infarct it was observed that 60% patients had focal infarct while in 40% patients multifocal infarct was found (Table 2). In 90 patients whose placentas were infarct free, 91.11% (n=82) fetuses were alive and 8.88% (n=8) fetuses were still-born (Table 3). Fetal outcome in 40 patients whose placentas showed infarct was that 70% (n=28) fetuses were alive and 30% (n=12) fetuses were still-born (Table 4). To see the correlation between fetal outcome and placental infarct results, chi square test was applied on the data and result showed that there was significant correlation between fetal outcome and placental infarct (p value = 0.004) [Table 5].

Table 1: Frequency of placental infarcts (n=130)

Placental Infarcts	Frequency	Percentage
Present	40	31%
Absent	90	69%
Total	130	100%

Table 2: Severity of placental infarcts (n=40)

Severity of Placental Infarcts	Frequency	Percentage
Focal	24	60%
Multifocal	16	40%
Total	40	100%

Table 3: Fetal outcome in non placental infarct (n=90)

Fetal Outcome	Frequency	Percentage
Alive	82	91.11%
Still Birth	8	8.88%
Total	90	100%

Table 4: Fetal outcome in placental infarcts (n=40)

Fetal Outcome	Frequency	Percentage
Alive	28	70%
Still Birth	12	30%
Total	40	100%

Table 5: Correlation between fetal outcome and placental infarct (n=130)

Placental Infarct	Fetal Outcome		p value
	Alive	Still Birth	
Present	28	12	0.004*
Absent	82	8	

* Significant

DISCUSSION

In the earlier studies of the effect of maternal disease on placenta, gross abnormality of the placenta have received undue attention and undeserved status^{7,8}. It is difficult to define the normal placental findings and differentiate if from the abnormal, because of the structural complexity and rapid evolution of the placenta⁹. Fox suggested that placental pathology is quantitative rather than qualitative. Benrischke stressed the significance of placental findings only when these had a bearing on the fetal outcome^{10,11}.

In our study placental infarcts was positive in 31% patients while negative in 69% patients. Tuzovic et al¹² had recorded 29% cases of placental infarcts, Malik et al¹³ had recorded 27% cases of placental infarcts while Bhatia et al had recorded 30% cases of placental infarcts which is similar with our results¹⁴.

Our study shows that 60% patients had focal placental infarcts while 40% patients had multifocal placental infarcts. Similar results were found in study done by Bhatia et al¹⁴ in which 64% cases of focal placental infarcts were recorded while 62% cases were found in study done by Davood et al¹⁵.

In our study 90% fetus were alive but only 10% fetus were still birth. Similar results were found in study done by Bhatia¹⁴ in which infarction was present in 5% of controls and the association of still birth with infarction was highly statistically significant. In another study done by Davood et al 7% babies were still birth¹⁵.

In our study 70% fetus were alive and 30% fetus were still birth among fetus whose placenta showed

infarction. The correlation between fetal outcome and placental infarct was statistically significant with P-value of 0.004 which supports the study of Andres et al¹⁶.

CONCLUSION

From the present study it can be concluded that the hypertensive disorders of pregnancy adversely influence the morphology of the placenta. The pathological changes observed in placentas of patients with hypertensive disorders of pregnancy like infarct adversely influence perinatal outcome. The incidence of adverse perinatal outcomes including intrauterine growth restriction and still birth is higher in hypertensive primigravida mothers with placental infarcts than in hypertensive primigravida mothers with no infarcts.

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CONTRIBUTORS

SR conceived the idea, planned and wrote the manuscript of the study. RR supervised the study. MR helped in the write-up of the manuscript. All the authors contributed significantly to the research that resulted in the submitted manuscript.