

## Neonatal Outcome in Patients with Preeclampsia

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### ABSTRACT

**Background:** Preeclampsia is uniquely a disease of pregnancy that effects 5-7% pregnancies throughout the world. Preeclampsia remains a major cause of perinatal morbidity & mortality, contributing a significant healthcare economic burden.

**Aim:** To evaluate perinatal outcome in neonates born to preeclamptic women.

**Material & methods:** Study was performed on 50 normotensive women & 50 women with preeclampsia coming to the emergencies of Lady Wallingdon & Lady Aithcison hospitals, Lahore. Women with a diastolic BP of 86 – 130 mm Hg. & proteinurea were labeled preeclamptic. Babies born to these mothers were assessed for IUGR, birth weight, gestational age & necessity for admission to ICU. Perinatal mortality was noted.

**Results:** The study demonstrated that 22% babies born to hypertensive mothers were preterm, 24% required admission to ICU & 32% had IUGR. There was a significant decline in the birth weight of these babies. The 5 min. APGAR score was also adversely affected in such babies.

**Conclusion:** The results of this study revealed that neonatal complications mostly appear in pregnancy complicated with hypertension especially in preeclampsia.

**Keywords:** Preeclampsia, IUGR, APGAR score, birth weight, gestational age.

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### INTRODUCTION

Preeclampsia is a disease of pregnancy that is associated with hypertension and proteinuria. It increases perinatal mortality five folds and is the leading cause of maternal mortality in the western world<sup>1</sup>. Hypertension is defined by Obstetricians as systolic blood pressure of 140mm Hg or diastolic blood pressure of 90mm Hg measured at rest on two different occasions at least six hours apart<sup>2</sup>. This hypertension when accompanied by proteinuria of 300mg/24hrs or 300mg/L with or without edema is Preeclampsia<sup>3,4</sup>. The condition is also associated with abnormalities of the coagulation system, disturbed liver function, renal failure, and cerebral ischaemia<sup>5</sup>. Preeclampsia is hypothesized to be an endothelial cell disorder which results in the alteration in endothelial dependent vascular relaxation, leading to an increase vascular resistance and arterial pressure<sup>6</sup>. This results in reduction in uteroplacental perfusion with placenta becoming increasingly ischemic as gestation progresses<sup>7,8</sup>. The resultant placental ischemia leads to histological changes in placenta, fetal hypoxia and intra- uterine growth retardation of the fetus<sup>9,10</sup>. Preeclampsia also produces other potentially lethal complications including placental ablation disseminated intravascular coagulation, intracranial haemorrhage, hepatic and cardiovascular collapse. Intrauterine

foetal demise and prematurity and a lower 5 minutes Apgar score are the other related obstetric problems<sup>11</sup>. The offspring of women with hypertension during pregnancy experience higher rates of low birth weight compared to healthy maternal controls<sup>12</sup>.

### MATERIALS AND METHODS

The study was carried out over a period of six months on pregnant women coming to the emergencies of Lady Wallingdon & Lady Aithcison hospitals in Lahore . 50 normotensive & 50 hypertensive women were included in the study. All these women were examined clinically in the emergency. Their medical history i.e. gestational age, history of past illness, previous pregnancies, and treatment history was recorded on a proforma. The patients were checked for blood sugar, blood urea, creatinine , haemoglobin, proteinuria and liver function tests. Cases with a range of diastolic blood pressure between 86-130 mm Hg, oedema and proteinuria were allocated the preeclamptic group. Patients on any kind of medications or the ones suffering from any concurrent diseases such as hypertension, diabetes mellitus etc. were excluded from the study. In normal pregnancy groups, only cases with blood pressure between 70-85 mm Hg with out oedema and proteinuria were included. Blood pressures of these women were checked half an hour after the arrival in the emergency and later after every half an hour until delivery. Proteinuria was taken as excretion of 300 mg protein or more over 24 h or 2 readings of 1 + /

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more on dipstick analysis of midstream urine (MSU) / catheter specimen of urine (CSU) if 24-hour collection result was not available. Proteinuria of  $> +1$  was considered abnormal. ). Fundoscopy was done by a qualified ophthalmologist for all subjects to assess the ocular involvement. Fetal outcome data were documented with respect to birth weight, still birth, gestational age, neonatal complications, neonatal death rate and overall perinatal loss. Post labour, the new born was resuscitated and intensively monitored by the attending Pediatrician. The 5th minute Apgar score was calculated for all newborns.

## RESULTS

One hundred women were included in the study. 50 normotensive women were in control group & 50 preeclamptic patients were in study group with a diastolic B.P. more than 90 mm Hg. The number of preterm births in our study were 11 (22%) in contrast to 2 (4%) in control group. 12 (24%) babies required admission to the ICU & 16 (32%) neonates suffered from IUGR as opposed to 2 (4%) & none respectively in the control group. There were 1 (2%) still born baby in the control group compared to 2 (4%) in study group & 9 (18%) babies died of different causes compared to none in the control group (Table 1). Babies born to both normal & preeclamptic mothers were also assessed for APGAR score at birth.

Table 1: Perinatal Outcome

Parameters	Control group	Study group
Preterm birth	2(4%)	11(22%)
Admission to ICU	2(4%)	12(24%)
IUGR	-	16(32%)
Still born	1(2%)	2(4%)
Dead	-	9(18%)
Alive	49(98%)	41(82%)

Low birth weight prevalence in preeclamptic group was significant (Table 2).

Table 2: Mean Values of Birth Weights of Babies Born to Mother in the Study

Groups	Mean birth weight of babies(kg)
Control group	3.6±0.28
Study group	2.2±0.27***

\* $p < .05$  Significant      \*\* $p < .01$  Considerably significant  
 \*\*\* $p < .001$  Highly significant

Table 3: Apgar Score at 5 Min.

Groups	Mean APGAR score at 5 min	
	<6	>6
Control group	3(6%)	47(94%)
Study group	29(58%)	21(42%)

## DISCUSSION

Preeclampsia has been identified as a major world wide health problem, associated with increased perinatal morbidity and mortality. Hypertensive disorders of pregnancy predispose women to acute or chronic uteroplacental insufficiency, resulting in ante or intrapartum anoxia that may lead to fetal death, intrauterine growth retardation and/or preterm delivery<sup>13</sup>. The percentage of preterm babies was high in our study as seen various earlier studies too<sup>14,15</sup>. Prematurity was the most important factor responsible for increased perinatal morbidity and mortality which is in accordance with earlier reports<sup>16</sup>. 12(24%) babies born to mother in preeclamptic group required admission to ICU in our study. According to another study in Pakistan 26.5% babies were admitted to the ICU for various reasons<sup>17</sup>. We attribute these findings to the late arrival of the patients to the hospitals resulting in post-natal complications like neonatal sepsis, hypoglycemia & sepsis. We observed IUGR in 32% neonates of hypertensive mothers. Our findings were higher compared to other studies<sup>18</sup>. We attribute these results to the severity of hypertension in our patients. According to a study in Pakistan the overall perinatal mortality in hypertensive disorders of pregnancy is 13%<sup>19</sup>. Similar figures were quoted in a study in India<sup>20</sup>. We observed 4% still births & 16% perinatal deaths in babies born to hypertensive mothers in contrast to 1 (2%) still birth in the normotensive group. The factors determining perinatal mortality were lack of regular antenatal checkups, lack of awareness regarding significance of symptoms like decreased foetal movements. Researchers have stressed upon the importance of low birth weight as a cause of infant morbidity & mortality<sup>21</sup>. Lydakos et al in 2001 demonstrated that LBW (low birth weight) is associated with preeclampsia. Their finding is in accordance with the results of their study. The cause of low birth weight can be prematurity or intrauterine growth restriction (Table 2). Mounting maternal blood pressure also adversely affects the APGAR score of the baby. We observed a significant decline in the APGAR score of babies born to hypertensive mothers. Similar findings were observed in other studies.

## CONCLUSION

Hypertensive disorders of pregnancy are associated with high fetal morbidity and mortality. Antenatal care will help in early diagnosis and timely intervention of the cases.

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