



"A STUDY OF HEMATOLOGICAL PROFILE OF NEONATES BORN TO HYPERTENSIVE MOTHERS IN A TERTIARY CARE HOSPITAL"

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KEYWORDS :

INTRODUCTION:

Hypertensive disorders of pregnancy complicate about 10% of all gestations.¹ Hypertensive disorders are responsible for significant maternal and perinatal morbidity and mortality. Intracranial hemorrhage is the commonest cause of death associated with hypertension.²

The newborns of hypertensive mothers have significantly higher incidence of somatic growth retardation, low Apgar scores, delayed adaptation, patent ductus arteriosus and gastrointestinal hypomotility and have a spectrum of haematological changes.^{3,5} The haematological changes include polycythaemia, thrombocytopenia, leukopenia, neutropenia.^{3,4,6} The haemoglobin level was found to be higher in some studies and also lower in the other of the neonates of hypertensive mothers as compared to neonates born of normotensive mothers.^{3,5}

In pregnancies complicated by preeclampsia, neonatal thrombocytopenia, typically defined as a platelet count less than 150,000/ μ L, is generally identified at birth or within the first 2-3 days following delivery, with resolution by 10 days of life in most cases. Severity of thrombocytopenia related to preeclampsia is highly variable, with a small percentage of infants developing severe or clinically significant thrombocytopenia (<50,000/ μ L). In addition to the well-described effects of preeclampsia on platelets, neonates delivered to women with preeclampsia have a 50% incidence of neutropenia (defined as absolute neutrophil count less than 1,500).⁷

Various studies have shown that hematological changes in cord blood like anaemia, polycythemia, leukopenia and thrombocytopenia were seen in neonates born to hypertensive mother.^{3,5,7} Hence, the need to study the hematological profile of cord blood in neonates born to hypertensive mothers in Kamineni Institute of Medical Sciences, Marketpally.

OBJECTIVES:

To study the hematological profile of neonates born to hypertensive mothers in a tertiary care center. To determine the effect of maternal hypertension on the hemoglobin, total lymphocytic count, absolute neutrophil and the effect of maternal hypertension on the platelet count in the newborn

METHODOLOGY:

Hospital based prospective observational study was conducted on 50 neonates born to pregnant women with gestational hypertension, preeclampsia or eclampsia syndrome comprised the GROUP-1 and 50 neonates born to normotensive mothers, were randomly selected and taken as GROUP-2 conducted in the Department of Pediatrics, Navodaya medical college, Raichur. Babies born to mothers with gestational hypertension, pre-eclampsia, eclampsia, and babies born to mothers without hypertension (Group-2 or controls) were included in the study. After obtaining written informed consent, all babies included in the study were

subjected to detailed maternal history including age of mother, parity, immunisation status, gestational age, presence or absence of symptoms, onset of symptoms, blood pressure recording and presence of seizures and proteinuria are noted. A detailed clinical examination was performed in all babies in the study. All the findings are recorded in the prestructured proforma. Collected data was analyzed by using descriptive and inferential statistics.

RESULTS:

Table 1: Comparison of mean haematological parameter's

PARAMETER	GROUP-1 (Mean \pm SD)	GROUP-2 (Mean \pm SD)	P value
Hb(gm/dl)	14.82 \pm 2.97	15.02 \pm 1.60	0.67
PCV(%)	46.7 \pm 8.6	46.2 \pm 6.4	0.74
TLC(per cu.mm)	12,952 \pm 5,835	10,664 \pm 3,788	0.022
ANC (per cu.mm)	6532 \pm 3974	5452 \pm 2284	0.099
Pl.count(lakh/cu.mm)	1.87 \pm 0.88	2.4 \pm 0.63	0.001

Table 2: Comparison of haematological parameters in babies, based on severity of maternal hypertension

Investigations	Gestational hypertension (Mean \pm SD) n=35	Pre-eclampsia (Mean \pm SD) n=12	Eclampsia (Mean \pm SD) n=3	P value
Hb (gm/dl)	14.90 \pm 2.59	14.26 \pm 4.17	16.10 \pm 1.41	0.61
PCV(%)	47 \pm 7.3	44.80 \pm 12.51	50.53 \pm 4.28	0.55
TLC(per mm3)	13,005 \pm 6,263	12,175 \pm 4,222	15,433 \pm 7,506	0.69
ANC (per mm3)	6,554 \pm 4,266	6,469 \pm 3,134	6,522 \pm 4,855	0.99
Platelet count (lakh/mm3)	1.87 \pm 0.88	1.71 \pm 0.97	2.54 \pm 1.95	0.35
MCV fL	109.9 \pm 4.8	111.3 \pm 9	111.9 \pm 3.5	0.71
MCH pg	35.2 \pm 3.3	35.38 \pm 3.63	36.63 \pm 2.54	0.80
MCHC gm/dL	31.9 \pm 3.2	32.41 \pm 2.04	33.77 \pm 0.95	0.55
RETIC COUNT %	1.9 \pm 0.9	2.53 \pm 1.8	2.0 \pm 0.0	0.33

Majority of the babies(Group 1) i.e. 35 (70%) were born to mothers with gestational hypertension compared to 12 cases(24%) mothers with pre-eclampsia and babies born to mothers with eclampsia were 3(6%), indicating that mothers with gestational hypertension were predominant in the present study. Males were more in number compared to the female babies in Group-1 as well as Group-2. In the group-1 of 50 cases 31(62%) were male babies and 19(38%) were female babies and in the Group-2 of 50 cases, male babies were 26(52%) and female babies were 24(48%). In the Group-1, 8 babies (16%) were preterm as compared to 3 babies(6%) in group 2 indicating that maternal hypertension may be one of the factors responsible for preterm delivery. 19 babies(38%)

were having Intra uterine growth retardation. In Group-2, out of 50 babies of normotensive mothers, only 4 babies(8%) were having Intra uterine growth retardation in group 1. Anaemia(Hb< 13.6 gm%) was observed prominently in 16 babies(32%) in Group-1 compared to 7 babies(14%) in Group-2. The mean Haemoglobin levels in babies born to hypertensive mothers was 14.82gm/dl compared to 15.02 gm/dl in babies born to normotensive mothers. The mean PCV in babies born to hypertensive mothers was 46.71% compared to 46.20 % in babies born to normotensive mothers. The mean Total lymphocyte count in babies born to hypertensive mothers were 12,952 per mm³ compared to 10,664 per mm³ in babies born to normotensive mothers. There was not a single case of Neutropenia in the Group-1, and only 2% in Group-2 had neutropenia. Mean Absolute Neutrophil Count in babies born to hypertensive mothers was 6532 per mm³ compared to 5452 per mm³ in babies born to normotensive mothers. The mean Platelet Count in babies born to hypertensive mothers were 1.87 lakh/mm³ compared to 2.39 lakh/mm³ in babies born to normotensive mothers and was statistically highly significant.

Mothers with gestational hypertension were predominant. Maternal hypertension may be one of the factors responsible for preterm delivery. Intra uterine growth retardation was more prevalent in babies born to hypertensive mothers. that maternal hypertension had major affect on the platelet count. Anaemia was seen in more number of babies born to mothers with hypertension

CONCLUSION:

Early hematological screening of babies are recommended to facilitate early detection and management of serious neonatal complications describes above, to decrease morbidity and improved growth, development and survival.

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