

Original Research Article

AN OBSERVATIONAL STUDY OF NEONATAL OUTCOME IN BABIES BORN TO MOTHERS WITH PREGNANCY INDUCED HYPERTENSION

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Abstract:

Background & Method: The aim of this study is to study neonatal outcome in babies born to mothers with pregnancy induced hypertension. An observational study was conducted in level III NICU of INDEX MEDICAL COLLEGE HOSPITAL & RESEARCH CENTRE , INDORE . Detailed maternal history like age, parity, immunisation status, gestational age, blood pressure recording, proteinuria & presence of seizures. Details of labor, mode of delivery, presence of complications if any during labor. Detailed natal history was taken which included maturity , birth weight , APGAR score , type of delivery , anthropometry , any complication during birth like Meconium Aspiration Syndrome(MAS) , respiratory distress (RDS) , sepsis , need for ventilatory support. Gestational age was assessed by New Ballard scoring system.

Result: Among the total(n = 156), about 69.2% of babies were delivered by caesarean section & 30.8% were delivered by vaginal delivery. This shows a statistical significance of caesarean section(p value-0.001) among these babies born to PIH mothers in our study. RDS is found to be the most common complication accounting for about 39.7% of all babies. Birth asphyxia (26.9%) & sepsis (29.4%) comes next, followed by Meconium Aspiration Syndrome (MAS) (3.8%) being the least common complication.

Conclusion: Pregnancy Induced Hypertension is a maternal pathology involving placental modification which is associated with foetal complications. Since babies born to hypertensive mothers are prone to develop several complications, close monitoring of these babies should be undertaken in an attempt to provide these babies with decreased morbidity & improved growth development & survival.

Keywords: neonatal, outcome, mothers, pregnancy & hypertension.

Study Designed: Observational Study.

1. INTRODUCTION

Hypertensive disorders of pregnancy has remained a significant threat in both developed & developing countries, contributing globally to maternal & perinatal morbidity & mortality.[1,2] In India, the incidence of this threatening condition was 5.38%. Majority of foetal complications occur due to prematurity & hypoxia.[3] Foetal complications are related to the severity of preeclampsia, duration of the disease & degree of proteinuria. Spasm of the uteroplacental circulation leads to foetal distress, accidental haemorrhage, IUGR, IUD, low birth weight, low APGAR score, NICU admissions & early neonatal death. Perinatal morbidity is increased due to spontaneous preterm labor or iatrogenic preterm induction.

Preterm birth is a common complication of infants born to hypertensive mothers, either due to spontaneous onset of labor or due to the obstetric conduct of interrupting the pregnancy due to the compromised maternal and foetal health. Prematurity increases perinatal mortality & morbidity rates with immediate or late sequelae[4].

Preeclampsia is defined by new-onset hypertension & either proteinuria or end-organ dysfunction after 20 weeks of gestation in previously normotensive women. It involves multiple organ systems & is unique to pregnancy. Preeclampsia complicates 2–10% of pregnancies & represents one of the most common causes of maternal mortality & severe maternal morbidity. The offspring of mothers with preeclampsia are also at increased risk of neonatal morbidity & mortality [5]. Hence, the early detection & management of the disease are necessary to decrease its global burden

Purpose of the study :

This study is important because it seeks to assess , examine and evaluate the impact of pregnancy induced hypertension on the neonates and its outcome with the aim of suggesting various measures for reducing perinatal and maternal morbidity and complications and to improve foetal health in a tertiary health care centre

2. MATERIAL & METHOD

The study was conducted in all neonates born to mothers with gestational hypertension, preeclampsia or eclampsia admitted in level III NICU of Index Medical College Hospital & Research Centre, Indore, M.P. from Jan 2021 to Nov 2021.

Data Collection and Analysis:

All neonates included in the study had the following done:

Detailed maternal history like age, parity, immunisation status, gestational age, blood pressure recording, proteinuria & presence of seizures , mode of delivery, presence of complications if any during labor like leaking per vaginum , bleeding per vaginum , obstructed labor . . Details of baby Detailed natal history was taken which included maturity , immediate cry , birth weight , APGAR score ,gestational age , type of delivery , anthropometry , any complication during birth like Meconium Aspiration Syndrome(MAS) ,

respiratory distress (RDS) , sepsis , need for ventilatory support , cephalhematoma , RDS , dullness , apneic spell , cyanosis , asphyxia , shock like features if present were noted . Gestational age was assessed by New Ballard scoring system . Thorough clinical examination of the neonates was done within 24 hours of birth . Head circumference was taken after 48 hours .

INCLUSION CRITERIA

Neonates born to mothers with

- Gestational Hypertension
- Preeclampsia
- Eclampsia

EXCLUSION CRITERIA

- Infant of Diabetic Mothers
- Babies of mother with chronic hypertension
- Babies of mother with known systemic illness such as chronic renal problem, connective tissue disorders, thyrotoxicosis etc.
- Babies of mother who received drugs other than antihypertensive medications.
- Babies of TORCH positive mothers
- Babies with congenital malformations

STATISTICAL ANALYSIS

Data was entered in excel sheet; Statistical analysis of the data was performed by statistical software SPSS. Outcome variables were categorized as normal or abnormal & their prevalence were expressed as percentage & p value of < 0.05 was considered significant.

3. RESULTS

Table No. 1: Categorisation of newborns delivered by PIH mothers (n=156)

Mode of delivery	Number of cases	Percentage	p value
VAGINAL DELIVERY	48	30.8	0.001 (Significant)
LSCS	108	69.2	
Total	156	100	

Among the total, about 69.2% of babies were delivered by caesarean section & 30.8% were delivered by vaginal delivery. This shows a statistical significance of caesarean section(p value-0.001) among these babies born to PIH mothers in our study.

Table No. 2: categorisation of newborns as per gestational age (n=156)

Gestational Age	Number of cases	Percentage	p value
<37	95	60.9	0.044 (Significant)
≥37	61	39.1	
Total	156	100	

About 60.8% of PIH babies were preterm among the total. Hence prematurity (p value-0.044) which is one another important complication of babies born to PIH mothers is statistically significant in our study.

Table No. 3: DISTRIBUTION OF IUGR AMONG NEWBORNS BORN TO PIH MOTHERS

Type of IUGR	Number of cases (60)	Percentage	p value
Asymmetrical	44	73.4	0.081 (Not Significant)
Symmetrical	16	26.6	
Total	60	100	

In our study, Asymmetrical IUGR (p value- 0.081) in babies born to PIH mothers was found statistically non significant. This is in accordance with the uteroplacental insufficiency occurring in the later periods of gestation leading to asymmetrical IUGR.

Table No. 4: Complications seen in newborns born to PIH mothers

Type of IUGR	Number of babies	Percentage	p value
Birth asphyxia	21	26.9	0.036 (Significant)
RDS	31	39.7	
MAS	03	03.8	
Sepsis	23	29.4	
Total	78	100	

In our study, Respiratory Distress Syndrome(RDS) is found to be the most common complication accounting for about 39.7% of all babies. Birth asphyxia (26.9%) & sepsis (29.4%) comes next, followed by Meconium Aspiration Syndrome (MAS) (3.8%) being the least common complication.

4. DISCUSSION

In our study, about 69.2% of babies were delivered by caesarean section which was statistically significant whereas the remaining were delivered by vaginal delivery. This is in accordance with the study conducted by Sikha Maria Siromani et al[6] in Niloufer Hospital, Hyderabad in which about 70.67% of the PIH group mothers underwent caesarean section. Other studies like J.Nadkarni et al(35.6%), Solange Regina et al[7](66.7%) showed similar results stating an increased incidence of caesarean sections in PIH group of antenatal mothers[6,7,8].

Our study shows that about 60.8% of babies of PIH mothers were preterm (p value-0.044) & this proved a statistical significance in our study. This is comparable with the study conducted by Sikha Maria Siromani et al[6] which showed preterm babies of 63.01% with statistical significance. Nadkarni et al[8] showed 44.3% preterm deliveries while Yadav et al[9] study had 28.85% & Solange Regina study[7] had 10.9%.

Our study states that 42% of babies included in the study are IUGR as identified by Weight for Gestational Age < 10th percentile from the Fentons intrauterine growth curves. This is in statistical significance with PIH which is proven in our study. Out of the 131 IUGR babies in our study 93 babies were asymmetrical IUGR & 38 were symmetrical IUGR. Of the 93 asymmetrical IUGR babies, 39 babies were preterm & 54 babies term. Similarly of the 38 symmetrical IUGR babies, all of them were preterm & there were no term symmetrical IUGR babies. The cumulative preterm IUGR in our study is about 58.78% of the total IUGR babies whereas the remaining constitute the term IUGR babies.

5. CONCLUSION

Pregnancy Induced Hypertension is a maternal pathology involving placental modification which is associated with foetal complications. Since babies born to hypertensive mothers are prone to develop several complications, close monitoring of these babies should be undertaken in an attempt to provide these babies with decreased morbidity & improved growth development & survival.

Caesarean section is indicated in foetal distress, late deceleration occurs with oxytocin challenge test, failure of induction of labour and other indications as contracted pelvis and malpresentations.

Some experts recommend caesarean delivery for fetuses younger than 30 weeks when the cervix is not ripe, but a trial of induction may be considered [8].

Late foetal complications: studies have shown that infants born from preeclamptic pregnancies weighing >2.5 kg show significant increases in systolic blood pressure as children and adolescents [10]. Other late complications include delayed physical development and sensorimotor reflex maturation [11], increased body mass index [10], changes in neuroanatomy and reductions in cognitive function [12], and hormonal changes. In early adolescence, both male and female offspring of preeclamptic pregnancies were

shown to have increases in testosterone, whereas male offspring showed decreases in dehydroepiandrosterone sulfate, testicular volume, and circulating aldosterone [13].

At the community level, efforts should be made to lower the risk factors contributing to the high incidence of preeclampsia and eclampsia. To lessen the complications for both the mother and the foetus that are linked to hypertensive disorders of pregnancy, education and resources should be made available at all levels. Health facilities should be sufficiently equipped to make early detection and handle preeclampsia and other hypertension illnesses, and programmes should be implemented to improve awareness at the community level.

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