

A study to evaluate the perinatal outcome in pregnancy induced hypertension

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Abstract

Introduction: Pregnancy-induced hypertension is the general classification for hypertension diseases during pregnancy, which include pregnancy-induced hypertension usually after 20th week of gestation (without proteinuria), pre-eclampsia (with proteinuria), and eclampsia (pre-eclampsia with convulsions). This disease is responsible for high maternal and perinatal morbidity and mortality rates, and is one of the main public health problems. **Material and Methods:** It was retrospective study conducted between March 2013 to March 2016 in the department of pediatrics, Chirayu Medical College and hospital Bhopal. A total of 3015 mothers were delivered in department of obstetrics and gynecology. Out of these 180 were identified as having pregnancy induced hypertension. During the same period 100 mothers without any risk factor were included in the study. **Results:** Out of 180 cases of hypertensive disorders of pregnancy, majority were of preeclampsia (47.22%), then Gestational hypertension 38.88%, percentage of eclampsia (13.88%). Incidence of Pregnancy Induced Hypertension– 5.97%. Incidence of low birth weight in PIH is 57.7%, preterm 44.2% and IUGR 20.4%, Still birth 8 (4.4%), early neonatal death 22 (12.2%), Highest incidence of LBW (88%), Preterm (80%), IUGR (12%) is present in eclampsia group. In control group incidence of LBW is 22% (P<.001)**, Pmaturity-18% (P<.001)**, IUGR-6% P(<.05)*. **Conclusion:** The purpose of this article is to give overview of burden of adverse perinatal outcome in high risk Pregnancy. Thus High risk pregnancy should be identified prospectively and then given special care, perhaps a major impact on overall perinatal loss could be reduced.

Keywords: Antenatal, IUGR, Low birth weight, Pregnancy Induced Hypertension, Risk factors.

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Introduction

Hypertension during pregnancy is a highly variable disorder unique to pregnancy and a leading cause of maternal and fetal/neonatal morbidity and mortality [1–4]. Pregnancy-induced hypertension is the general classification for hypertension diseases during pregnancy, which include pregnancy-induced hypertension usually after 20th week of gestation (without proteinuria), pre-eclampsia (with proteinuria), and eclampsia (pre-eclampsia with convulsions). This disease is responsible for high maternal and perinatal morbidity and mortality rates, and is one of the main public health problems [5, 6]. The most common consequences associated with hypertension diseases Intra-uterine fetal growth restriction (IUGR), intrauterine fetal demise and prematurity and low birth

weight [6]. Antepartum diagnosis of mild, moderate, and severe preeclampsia is based on series of defined criteria occurring after 20 weeks of gestation [7]. Severe PE is defined as a blood pressure greater than 160 mm Hg (systolic) or 110 mm Hg (diastolic) associated with proteinuria greater than or equal to 5 grams per day. Furthermore, pre-eclampsia is regarded as severe in the presence of multiorgan involvement including thrombocytopenia (platelet count less than 100,000/ul), pulmonary edema, or oliguria (less than 500 ml per day). In contrast, mild PE is characterized by an elevated blood pressure less than 160 mm Hg (systolic) or 120 mm Hg (diastolic) with proteinuria greater than 300 mg, but less than 5 g, per day [8]. Ongoing debate on the optimal way to classify disease severity in preeclampsia is likely due to incomplete knowledge of the underlying pathophysiology of disorder, with the clinical and

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laboratory manifestations of preeclampsia representing a common endpoint for a variety of maternal disease states during pregnancy [9].

Material and Methods

Study design: Cohort study

Study period: March 2013 –to March 2016

Study place: The study was carried out in the department of pediatrics, Chirayu Medical College and Hospital Bhopal.

Study population: A total of 3015 mothers were delivered in department of obstetrics and gynecology, out of this 180 were identified as having pregnancy induced hypertension. During the same period 100 mothers without any risk factor were included in the study.

Procedure: The records of the study group were studied retrospectively and the high risk factors in the antenatal period and the fetal outcome were compared.

Statistical analysis: The data was entered in the Microsoft office excel 2007 and analyzed using Epi-info software (available free online).

Results

Table No.1: Distribution of cases in Pregnancy induced Hypertension.

Pregnancy induced Hypertension	Total (n=180)		Incidence Total Deliveries (n=3015)
	No	%	
Gestational hypertension (GSHT)	70	38.38	2.3%
Preeclampsia	85	47.22	2.8%
Eclampsia	25	13.88	0.82%
Total	180		5.97%

Table 1 shows that, Out of 180 cases of hypertensive disorders of pregnancy, majority were of preeclampsia (47.22%), then Gestational hypertension (38.88%), eclampsia (13.88%). Incidence of Pregnancy Induced Hypertension was (5.97%).

Table No. 2: Risk factors Associated with Pregnancy induced Hypertension.

Risk factors	GSHT (n=70)		PREECLAMPSIA (n=85)		ECLAMPSIA (n - 25)		Total (n=180)	
	No	%	No	%	No	%	No	%
Primi	30	42.8	41	48.2	17	68	88	48.5
Age<22y	21	30	42	49.4	3	12	66	36.66
Age >35y	0		4	4.7	9	36	13	7.22
H/o Previous Neonatal loss	5	7.14	7	8.2	3	12	15	8.33

Table-2 shows that most of the mothers with hypertensive disease were Primi (48.5%) & were age<22% (36.66%). Whereas with age >35yrs only 7.22% have hypertension. About 8.3% mothers have previous bad obstetric history.

Table No. 3: Neonatal & Perinatal Out come in PIH according to Low Birth weight, Prematurity, IUGR, Still Birth, Early Neonatal Death & PMR.

Out come	Gestational Hyper- tension (n = 70)		Preeclampsia (n =85)		Eclampsia (n = 25)		Total (n =180)		Control (n =100)		P- value
	No	%	No	%	No	%	No	%	No	%	
LBW	29	41.4	53	62	22	88	104	57.7	22	22	<0.001**
Prematurity	16	22.8	44	51.7	20	80	80	44.4	18	18	<0.001**
IUGR	7	10	26	30	3	12	36	20.4	06	6	<0.05*
Still Birth	1	1.4	4	4.7	3	12	8	4.4	1	1	-
Early N D	2	2.8	10	11.76	10	40	22	12.2	3	3	-
PMR	43/1000		164/1000		520/1000		166/1000		40/1000		P<0.001*

Table- 3 Shows Incidence of low birth weight in PIH is 57.7%, preterm 44.2% and IUGR 20.4%, Still birth 8 (4.4%), early neonatal death 22 (12.2%), Highest incidence of LBW (88%), Preterm (80%), IUGR (12%) is present in eclampsia group. In control group incidence of LBW is 22% (P<.001)***, Prematurity-18% (P<.001)***, IUGR-6% P (<.05)*. The perinatal mortality rate in PIH is 166/1000 & in control group is 40/1000. (P<.001)**highly significant.

Table-4: Distribution of Morbidities in PIH.

Morbidities	Gestational Hypertension 69		Preeclampsia (81)		Eclampsia (22)		Total (173)		Control (100)	
	No	%	No	%	No	%	No	%	No	%
Birth Asphyxia	15	21.7	28	34.5	18	81.8	61	35.2	10	10
HIE	2	2.8	4	4.9	5	22.7	11	6.35	2	2
Septicemia	15	21.7	14	17.2	12	54.5	41	23.6	8	8
Meningitis	1	1.7	5	6.17	1	4.5	7	4	-	-
RDS	1	-	2	2.4	1	4.5	4	2.3	1	1
IVH	1	1.4	4	4.9	3	13.6	8	14.6	-	-
NNHB	12	17.3	10	12.3	12	54.5	34	14.6	5	5
CHD	-	-	1	1.2	-	-	2	11.5	-	-
TOF	-	-	-	-	1	4.5	-	-	-	-

Table 4 shows that out of total 173 live births in PIH, 61 (35.26%) suffered from Birth Asphyxia. Out of which 6.35% developed HIE. Incidence of septicemia is 23.6%, NNHB is 19.6%.

Meningitis 4%, IVH in 14.6%. Percentage of Birth asphyxia is highest 81.8% in Eclampsia. Major morbidity in PIH is Birth Asphyxia & septicemia.

Discussion

Out of total 3015 deliveries in the hospital, 180 (5.97%) were found to have PIH, Majority of them were due to preeclampsia (47.2%), gestational hypertension (38.8%) and eclampsia (13.8%).

Incidence of maternal hypertension in the present study is comparable with previous studies [10-13] Deorari [12] et al in his study reported preeclampsia 79%, eclampsia 9.5%. J Nadkarni [15] et al in 2001 found preeclampsia 50.4%, eclampsia 10.6%.

Hypertension disorder in pregnancy predisposes women to acute and chronic utero-placental insufficiency resulting in ante or intrapartum anoxia that may lead to fetal death, IUGR and preterm delivery [15].

In the present study, the percentage of LBW infants in PIH is 57.7%, percentage of LBW infants in preeclampsia is 62% and in eclampsia is 88%, while in gestational hypertension it is 41.4%. Deorari [12] et al found LBW in 45.2% in preeclampsia and 70% in eclampsia. In the present study, the percentage of LBW infants in 100 control cases was 22% (P< 0.0001).

In the present study, total prematurity in PIH cases was 44.2%. High incidence of prematurity is seen in

eclampsia and it is the main cause of poor perinatal outcome. In the present study, the incidence of prematurity in 100 control cases was 18% (P< 0.0001). Similar findings were observed in the studies conducted by Chinchu et al and Sibai et al [15, 16].

IUGR in present study is 20.4% in PIH. In gestational hypertension IUGR is seen in 10%, in preeclampsia 30% and in eclampsia 12%. In the present study, the incidence of IUGR in 100 control cases was 6% (P< 0.05). Similar findings were observed in the studies conducted by Chinchu et al [16] and Deorari et al [12].

In the present study, out of total 180 cases there were 8 (4.4%) still births. Still birth rate was highest in eclampsia. Similarly, Yadav et al observed still birth rate of 4.8% in his study [13].

In the present study, overall perinatal mortality rate (PMR) in infants of mothers with hypertension is 166/1000. PMR was highest (520/1000) in eclampsia. In the present study, the PMR in 100 control cases was 40/1000 (P< 0.001). Clifford et al [18] reported PMR of 400/1000 in eclampsia in his study, whereas J Nadkarni [10] reported PMR of 159/1000 in eclampsia in his study.

In the present study, birth asphyxia was seen in 35.2%, septicemia in 23.6%, respiratory distress syndrome (RDS) in 2.3%, Hypoxic ischemic encephalopathy in 6.3%, meningitis in 4%. All the complications were more in eclampsia and preeclampsia group. Sibai et al [17] found 60% birth asphyxia in eclampsia, RDS in 27.5%. Deodari¹¹ et al found 21.7% birth asphyxia in eclampsia and J Nadkarni [15] found 14% birth asphyxia, 7.5% sepsis, 7.3% RDS and 1.2% meningitis in eclampsia.

Conclusion

Prevention of prematurity, treatment of morbidities & prevention of infection among infants should be done to reduce the PMR and improve perinatal outcome. The purpose of this article is to give overview of burden of adverse perinatal outcome in high risk Pregnancy. Thus High risk pregnancy should be identified prospectively and then given special care, perhaps a major impact on overall perinatal loss could be reduced.

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