

Study of fetomaternal outcome in patients with pregnancy induced hypertension at Sangli district

Sudhir Gavali¹, Anita Patil^{2*}, Ujwalla Gavali³

{^{1,2}Assistant Professor, Department of Obstetrics and Gynaecology} {³Associate Professor, Department of Pediatrics}
Prakash Institute of Medical Science & Research, Islampur INDIA.

Email: kishkita@rediffmail.com

Abstract

Background: Despite advances in medicine, Pregnancy Induced Hypertension continues to remain a leading cause of maternal and perinatal mortality and morbidity throughout the world. As effective treatments are currently limited, prevention and identification of the causes and risk factors are of importance. Present study is aimed to estimate risk factors, and maternal and fetal outcomes in pregnant women with pregnancy induced hypertension at maternity hospitals in Sangli District. **Material and Methods:** Present study was multicenter, prospective observational study, conducted in pregnant women with more than 20 weeks gestational age with BP recording of >140/90 mm Hg with traces or 1+ or more albuminuria was the criteria followed for categorising Gestational hypertension, pre-eclampsia and severe pre-eclampsia as per the guidelines of ACOG. **Results:** After applying inclusion and exclusion criteria, total 216 patients were considered for present study, incidence was 7.28 %. Most common characteristics were age below 25 years (51.32 %), 33-36 weeks gestational age at time of diagnosis (41.2 %) and nullipara patients (48.15 %). In present study at time of initial diagnosis, incidence of pregnancy induced hypertension was gestational hypertension (42.13 %), non-severe preeclampsia (30.56 %), severe preeclampsia (19.44 %) and eclampsia (7.87 %). Particularly gestational hypertension patients progressed to preeclampsia group and 4 cases of preeclampsia had postpartum convulsions. Majority of patients were delivered by vaginal route (66.20 %). Other modes of delivery were emergency LSCS (19.91 %), elective LSCS (7.87 %), vacuum delivery (4.17 %) and forceps delivery (1.85 %) In present study Maternal complications observed were eclampsia (9.72 %), postpartum haemorrhage (8.80 %), abruptio placentae (7.87 %), partial HELLP (6.94 %). 5cases had severe eclampsia and DIC. Majority of neonates had birth weight > 2500 grams (72.59 %) and ≥8 APGAR score at 5 minutes after birth (90.24 %). Neonatal complications observed were IUGR (7.41 %), Prematurity (14.81 %), Low birth weight babies (17.13 %), respiratory distress syndrome (9.72 %), Meconium aspiration (6.02 %) and NICU admission (20.83 %). Neonatal outcome noted was intrauterine death (1.85 %), still birth (3.24 %), neonatal death (3.24 %) and rest of neonates were discharged with mother. **Conclusion:** Preeclampsia and eclampsia continue to be significant causes of maternal and fetal morbidity and mortality.

Keywords: Preeclampsia, eclampsia, pregnancy induced hypertension, maternal morbidity

*Address for Correspondence:

Dr Anita Patil, Assistant Professor, Department of Obstetrics and Gynaecology, Prakash Institute of Medical Science & Research, Islampur INDIA.

Email: kishkita@rediffmail.com

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INTRODUCTION

Despite advances in medicine, pregnancy induced hypertension continues to remain leading cause of maternal and perinatal mortality and morbidity throughout the world. Predicting the onset of these complications, could aid in timely interventions such as increased surveillance, treatment of symptoms, transfer to higher care facility and delivery, when necessary, which could reduce morbidity and mortality from the pregnancy induced hypertension.^{1,2} Maternal complications noted in

cases of pregnancy induced hypertension are HELLP syndrome, temporary blindness, abruptio placentae, disseminated intravascular coagulation (DIC), acute renal failure (ARF), pulmonary oedema, arrhythmias, liver lesions, intracranial or hepatic hemorrhage, adult respiratory distress syndrome (ARDS), hypervolemia and risk of recurrent preeclampsia.³ The most common consequences associated with pregnancy induced hypertension are intra-uterine fetal growth retardation (IUGR), intrauterine fetal demise, prematurity and low birth weight. Pregnancy induced hypertension 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.⁴ As effective treatments are currently limited, prevention and identification of the causes and risk factors are of importance. Present study aimed to estimate risk factors, and maternal and fetal outcomes in pregnant women with pregnancy induced hypertension at maternity hospitals in Sangli District.

MATERIAL AND METHODS

Present study was multi-center, prospective observational study, conducted in Department of Obstetrics and Gynecology, at Prakash Institute of Medical Sciences and Research, Sangli District Maharashtra, India. Study was conducted between March 2021 to August 2021. Institutional ethical committee approval was taken for present study.

Inclusion criteria: All pregnant women with more than 20 weeks gestational age with BP recording of >140/90 mm Hg with traces or 1+ or more albuminuria was the criteria followed for categorising Gestational hypertension, pre-eclampsia and severe preeclampsia as per guidelines of ACOG.⁵ Patients diagnosed and later delivered at maternity hospitals and follow up kept till 6 weeks postpartum.

Exclusion criteria: Patients with chronic hypertension before 20 weeks of gestation, chronic renal disease, connective tissue. Patient lost to follow up, not completed follow up till 6 weeks postpartum.

A written informed consent for participation in present study obtained from the patient. Pregnant women diagnosed with pregnancy induced hypertension were admitted for evaluation. Details such as maternal age, parity, booking status, gestational age at diagnosis, examination findings, radiological and laboratory investigations were noted. Investigations such as bedside urine protein estimation, complete blood count, platelet count, coagulation profile, renal function tests, liver function tests were done in all patients. Ultrasonography with Doppler was done after stabilising the condition of the patients in selected cases. Pregnant women were managed in accordance with the standardised department protocol. Tab labetalol and Tab nifedipine were used for control and prevention of hypertension. The aim is to keep the diastolic blood pressure between 90 and 100 mmHg. follow up was kept continuously. During follow up visits, time and mode of delivery was decided depending upon favourability of the cervix, gestational age, previous obstetric history, etc. by senior obstetrician. Intrapartum events were monitored with help of partograph. Details such as mode of delivery, treatment given, complications- (both maternal and foetal) and finally the maternal and fetal outcome was noted. The patients were then subsequently followed up till discharge from the hospital. Statistical analysis was done using descriptive statistics.

RESULTS

After applying inclusion and exclusion criteria, total 216 patients were considered for present study, incidence was 7.28 %. Most common characteristics were age below 25 years (51.32 %), 33-36 weeks gestational age at time of diagnosis (41.2 %) and nullipara patients (48.15 %).

Table 1: maternal characteristics

Characteristics	No of patients	Percentage
Maternal age		
≤20 years	37	17.13
21-25 years	76	35.19
26-30 years	69	31.94
31-35 years	23	10.65
≥35 years	11	5.09
Gestational age at time of diagnosis		0.00
≤ 28 weeks	18	8.33
29-32 weeks	40	18.52
33-36 weeks	89	41.20
≥37 weeks	69	31.94
Parity		0.00
0	104	48.15
1-2	80	37.04
3 or more	32	14.81

In present study at time of initial diagnosis, incidence of gestational hypertension, non-severe preeclampsia, severe preeclampsia and eclampsia was noted as 42.13 %, 30.56 %, 19.44 % and eclampsia 7.87 % respectively. Incidence of pregnancy induced hypertension patients changed 24 hours after delivery as gestational hypertension (28.7 %), non-severe preeclampsia (37.5 %), severe preeclampsia (24.07 %) and eclampsia (9.72 %). Particularly gestational hypertension patients progressed to preeclampsia group and 4 cases of preeclampsia had postpartum convulsions.

Table 2: Different types of pregnancy induced hypertension (n=216).

Types of pregnancy induced hypertension	At time of initial diagnosis		After 24 hours of delivery	
	No of cases (n)	Percentage	No of cases (n)	Percentage
Gestational hypertension	91	42.13	62	28.70
Non-severe Preeclampsia	66	30.56	81	37.50
Severe preeclampsia	42	19.44	52	24.07
Eclampsia	17	7.87	21	9.72

Majority of patients were delivered by vaginal route (66.20 %). Other modes of delivery were emergency LSCS (19.91 %), elective LSCS (7.87 %), vacuum delivery (4.17 %) and forceps delivery (1.85 %).

Table 3: Mode of delivery

Mode of delivery	No. of cases	%
Vaginal	143	66.20
LSCS - Emergency	43	19.91
LSCS – Elective	17	7.87
Instrumental – vacuum	9	4.17
Instrumental – forceps	4	1.85

In present study Maternal complications observed were eclampsia (9.72 %), postpartum haemorrhage (8.80 %), abruptio placentae (7.87 %), partial HELLP (6.94 %), HELLP (1.39 %), renal dysfunction (2.78 %), DIC (2.32 %) and pulmonary oedema (0.93 %).

Table 4: Maternal complications

Complication	No. of cases	%
Eclampsia	21	9.72
PPH	19	8.80
Abruptio placentae	17	7.87
Partial HELLP	15	6.94
Renal dysfunction	6	2.78
HELLP	3	1.39
DIC	5	2.32
Pulmonary oedema	2	0.93

Majority of neonates had birth weight > 2500 grams (72.59 %) and ≥ 8 APGAR score at 5 minutes after birth (90.24 %). Neonatal complications observed were IUGR (7.41 %), Prematurity (14.81 %), Low birth weight babies (17.13 %), respiratory distress syndrome (9.72 %), Meconium aspiration (6.02 %) and NICU admission (20.83 %). Neonatal outcome noted was intrauterine death (1.85 %), still birth (3.24 %), neonatal death (3.24 %) and rest of neonates were discharged with mother.

Table 5: Perinatal outcome in eclamptic patients

Neonatal characteristics	No of patients	Percentage
Birth weight (grams)		
≤1000	3	1.39
1001-1500	11	5.09
1501-2500	45	20.83
>2500	157	72.69
Apgar score at 5 minutes		
1-2	7	3.41
3-7	13	6.34
≥8	185	90.24
Neonatal outcome		0.00
IUGR	16	7.41

Prematurity	32	14.81
Respiratory distress syndrome	21	9.72
Meconium aspiration	13	6.02
Intrauterine death	4	1.85
Still birth	7	3.24
NICU admission	45	20.83
Low birth weight babies	37	17.13
Neonatal death	7	3.24

DISCUSSION

Out of the triad of infection, hemorrhage and hypertension, which are the top causes of maternal morbidity and mortality, the first two have been controlled to a great extent. Moreover, they are amendable to available modalities of treatment. Only hypertensive disease of pregnancy, as a group, remains difficult to prognosticate and manage. The hypertensive disorder in pregnancy includes chronic hypertension and the group of hypertensive disorders unique to pregnancy including gestational hypertension, preeclampsia and eclampsia. The spectrum of pregnancy induced hypertension ranges from mildly elevated blood pressures with minimal clinical significance to severe hypertension with multi-organ dysfunction. Maternal age is considered as a major risk factor, commonly seen at extremes of common reproductive age. Young age at marriage which is associated with low educational and economic standards and consequently poor antenatal attendance which can be a major confounder.⁶ In study by Chaitra S *et al.*,⁷ prevalence of pregnancy induced hypertension was 8.8%. Out of 286 hypertensive pregnant women 80.06% were diagnosed as gestational hypertension, 14.68% as preeclampsia, 2.09% as eclampsia and 2.79 % as chronic hypertension. Maximum number of women was nulliparous (46.85%) and 21-25 years was the dominant age group (46.15%). It is more prevalent at term (49.65%). 27.97% had a vaginal delivery while 71.32% had a cesarean delivery. Preterm delivery was the most prevalent morbid outcomes (28.67%). 26.57% of the babies were low birth weight and 14.68% had intrauterine growth restriction. Similar findings were noted in presents study. In study by Tiwari A *et al.*,⁸ out of 180 cases of pregnancy induced hypertension, majority were of preeclampsia (47.22%), then Gestational hypertension 38.88%, percentage of eclampsia (13.88%). 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%) was present in eclampsia group. Singh A *et al.*,⁹ studied 224 patients, 40% were booked, 76.8% cases were of age group 21-30 years. About 58.9% of them were primigravida, 82.1% of presented at gestational age of ≥ 34 weeks and 5.4% were below 30 weeks About 14.2% patients of severe pre-eclampsia were delivered by LSCS,

whereas cesarean rate in mild pre-eclampsia group was 7.2%. Prematurity (67.9%), perinatal mortality (12.5%), birth asphyxia (21.4%) of patients were noted. Partial HELLP and HELLP were seen in 37.5% of patients, eclampsia in 1.8% patients; other complications included DIC and pulmonary edema which was seen in 3.6% of cases each and maternal mortality rate was 1.8%. Similar findings were noted in present study. In study by D. P. Meshram *et al.*,¹⁰ maternal complications were HELLP syndrome (10 %), PPH (8 %), infections (3 %), ascites (6 %), acute renal failure (2 %), disseminated intravascular coagulation (DIC) (3 %), and maternal death (2 %). Fetal complications included IUGR (18 %) and perinatal death (27 %). Out of 32 patients with deranged coagulation profile, 84.37% women had adverse maternal outcome and 93.75% had unfavorable fetal outcome. Kolluru V *et al.*,¹¹ noted incidence of pregnancy induced hypertension as 7.9% (234 cases) of the total deliveries; out of which gestational hypertension, preeclampsia and eclampsia accounting for 2.1%, 4.9% and 0.9% of all deliveries. Commonest maternal complication was HELLP syndrome (3.4%) and there was no maternal mortality. Total number of preterm deliveries were 3.47% and perinatal mortality was seen in 23% cases. IUGR was the commonest fetal complication (33.4%). Hypertensive disorders of pregnancy are known to be associated with several perinatal complications which can be measured in terms of prevalence of preterm delivery, low birth weight, low Apgar score, intrauterine growth restriction, the need for resuscitation and/or admission to a neonatal intensive care unit (NICU), and stillbirths. In study by Pandya K *et al.*,¹² gestational Hypertension was most common (65.62%), followed by Preeclampsia (28.12%) and Eclampsia (6.25%). The most common fetal complications found were preterm births (43.75%) and LBW (37.5%). 28.12% babies required NICU admission due to various reasons whereas 6.25% neonatal deaths were reported. Presently screening modalities help early detection of the diseases and timely intervention of hypertensive disorders complicating pregnancy and provision of specialized systemic antenatal maternal care could reduce the impacts of such complications.

CONCLUSION

Preeclampsia and eclampsia continue to be significant causes of maternal and fetal morbidity and mortality. The adverse maternal and perinatal outcome can be reduced by regular antenatal checkups, early diagnosis, timely referral to tertiary care hospital and availability of specialist care during labour and after birth.

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