

**RESEARCH ARTICLE****CENTRAL INDIA STUDY OF FETOMATERNAL OUTCOMES IN WOMEN WITH PREGNANCY-INDUCED HYPERTENSION****Dr. Supriya B Sud**Associate Professor Dept. of OBGY Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences Sawangi (Meghe)
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ABSTRACT:

Background: Pregnancy-induced hypertension remains a major global cause of maternal and perinatal mortality and morbidity despite medical advancements. Since there are now few effective treatments available, prevention and the discovery of the underlying causes and risk factors are crucial.

Goals and objectives: The current study aims to calculate risk variables, maternal and foetal outcomes, and pregnancy-induced hypertension in pregnant women in maternity hospitals.

Material and Methods: The current study was a multicenter, prospective observational study that included pregnant women older than 20 weeks of gestation. The criteria used to classify gestational hypertension, pre-eclampsia, and severe pre-eclampsia according to ACOG guidelines were BP readings of >140/90 mm Hg with traces of 1+ or more albuminuria.

Results: A total of 432 patients were considered for the study after applying the inclusion and exclusion criteria; the incidence was 7.28%. Age under 25 years old (51.32%), 33-36 weeks pregnant at the time of diagnosis (41.2%), and nullipara patients (48.15%) were the most prevalent characteristics. At the time of initial diagnosis, gestational hypertension (42.13%), non-severe preeclampsia (30.56%), severe preeclampsia (19.44%), and eclampsia (7.87%) were all associated with pregnancy-induced hypertension in the current study. Patients with gestational hypertension in particular advanced to the preeclampsia group, and 4 of these instances experienced postpartum convulsions. The majority of patients (66.20%) were delivered vaginally. In the current study, maternal problems included eclampsia (9.72%), postpartum haemorrhage (8.80%), abruptio placentae (7.87%), and partial HELLP (6.94%). Other delivery methods included emergency LSCS (19.91%), elective LSCS (7.87%), vacuum delivery (4.17%), and forceps delivery (1.85%). Five instances had DIC and severe eclampsia. The majority of newborns (72.59%) had birth weights greater than 2500 g and (90.24%) had APGAR scores below 8 at 5 minutes after birth. IUGR (7.41%), prematurity (14.81%), low birth weight infants (17.13%), respiratory distress syndrome (9.72%), meconium aspiration (6.02%), and NICU hospitalisation (20.83%) were the neonatal problems that were detected. Intrauterine death (1.85%), stillbirth (3.24%), neonatal death (3.24%), and the remaining newborns were released with the mother were the neonatal outcomes reported.

Conclusion: Eclampsia and preeclampsia are still major sources of morbidity and mortality in pregnant women and their unborn children.

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

Introduction

Despite technological breakthroughs in medicine, maternal and neonatal death and morbidity are still mostly caused by pregnancy-induced hypertension worldwide¹. Predicting when these issues would arise could help with prompt treatments, such as

improved surveillance, treatment of symptoms, transfer to a higher care facility, and delivery, if required. These actions could lower morbidity and death from pregnancy-induced hypertension². HELLP syndrome, transient blindness, abruptio

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placentae, disseminated intravascular coagulation (DIC), acute renal failure (ARF), pulmonary oedema, arrhythmias, liver lesions, intracranial or hepatic haemorrhage, adult respiratory distress syndrome (ARDS), hypervolemia, and a chance of recurrent preeclampsia are among the maternal complications associated with pregnancy-induced hypertension³. Premature birth, low birth weight, intrauterine foetal death, and intrauterine growth retardation (IUGR) are the most frequent effects of pregnancy-induced hypertension⁴. Pregnancy-induced hypertension puts women at risk for both acute and chronic utero-placental insufficiency, which can cause antepartum or intrapartum anoxia, foetal mortality, IUGR, and preterm birth. Since there are now few effective treatments available, prevention and the discovery of the underlying causes and risk factors are crucial⁵.

Aims & objectives: The goal of the current study was to determine risk variables, maternal and foetal outcomes, and pregnancy-induced hypertension in pregnant women in maternity hospitals.

MATERIAL AND METHODS

The current investigation was a multi-center, prospective observational study that was carried out in the central Indian department of obstetrics and gynaecology. The research was done from March 2021 to August 2021. The current study received permission from the institutional ethical committee.

Inclusion criteria: According to ACOG standards, the following criteria were used to classify gestational hypertension, pre-eclampsia, and severe pre-eclampsia: all pregnant women with a gestational age of more than 20 weeks and a blood pressure reading of >140/90 mm Hg with traces of 1+ or more albuminuria. Patients were initially diagnosed, gave birth in maternity hospitals, and underwent follow-up care for six weeks after delivery.

Exclusion criteria: Patients with connective tissue, chronic renal illness, and chronic hypertension

before 20 weeks of pregnancy Patient lost to follow-up; follow-up not finished until six weeks after delivery.

The patient provided written informed consent to participate in the current investigation. Pregnant women with hypertension caused by pregnancy were admitted for examination. Age, parity, booking status, gestational age at diagnosis, exam results, radiographic, and laboratory investigations, among other information, were noted. All patients had tests like complete blood count, platelet count, coagulation profile, renal function tests, and liver function tests, as well as bedside urine protein estimation. In a few instances, ultrasound with Doppler was performed after the patients' conditions had stabilised. When treating pregnant patients, the department adhered to its established standard operating procedure. For the treatment and prevention of hypertension, tab labetalol and tab nifedipine were utilised. The diastolic blood pressure should be maintained between 90 and 100 mmHg. The follow-up was ongoing. Senior obstetricians made decisions on the timing and style of delivery during follow-up visits based on factors such the viability of the cervix, gestational age, prior obstetric history, etc. Partographs were used to track intrapartum occurrences. Details including the technique of birth, the medical care provided, any difficulties (both maternal and foetal), and eventually the result for both the mother and the foetus were noted. Following that, the patients were monitored until they were released from the hospital. Descriptive statistics were used in the statistical analysis.

RESULTS

A total of 432 patients were considered for the study after applying the inclusion and exclusion criteria; the incidence was 7.28%. Age under 25 years old (51.32%), 33-36 weeks pregnant at the time of diagnosis (41.2%), and nullipara patients (48.15%) were the most prevalent characteristics.

Table 1: maternal characteristics

| Characteristics | No of patients | Percentage |
|--------------------------------------|----------------|------------|
| Maternal age | | |
| ≤20 years | 74 | 17.13 |
| 21-25 years | 152 | 35.19 |
| 26-30 years | 138 | 31.94 |
| 31-35 years | 46 | 10.65 |
| ≥35 years | 22 | 5.09 |
| Gestational age at time of diagnosis | | 0.00 |
| ≤ 28 weeks | 36 | 8.33 |

| | | |
|-------------|-----|-------|
| 29-32 weeks | 80 | 18.52 |
| 33-36 weeks | 178 | 41.20 |
| ≥37 weeks | 138 | 31.94 |
| Parity | | 0.00 |
| 0 | 208 | 48.15 |
| 1-2 | 160 | 37.04 |
| 3 or more | 64 | 14.81 |

In the current study, the incidence of gestational hypertension, non-severe preeclampsia, severe preeclampsia, and eclampsia was reported at the time of initial diagnosis. These numbers were 42.13 percent, 30.56%, 19.44%, and 7.87%, respectively. After birth, the prevalence of patients with pregnancy-related hypertension altered to include gestational hypertension (28.7%), non-severe preeclampsia (37.5%), severe preeclampsia (24.07%), and eclampsia (9.72%). Patients with gestational hypertension in particular advanced to the preeclampsia group, and 8 of these individuals experienced postpartum convulsions.

Table 2: Different types of pregnancy induced hypertension (n=432).

| 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 | 182 | 42.13 | 124 | 28.70 |
| Non-severe Preeclampsia | 132 | 30.56 | 162 | 37.50 |
| Severe preeclampsia | 84 | 19.44 | 104 | 24.07 |
| Eclampsia | 34 | 7.87 | 42 | 9.72 |

The majority of patients (66.20%) were delivered vaginally. Other delivery methods were vacuum delivery (4.17%), forceps delivery (1.85%), elective LSCS (19.91%), and emergency LSCS.

Table 3: Mode of delivery

| Mode of delivery | No. of cases | % |
|------------------------|--------------|-------|
| Vaginal | 286 | 66.20 |
| LSCS - Emergency | 86 | 19.91 |
| LSCS – Elective | 34 | 7.87 |
| Instrumental – vacuum | 18 | 4.17 |
| Instrumental – forceps | 8 | 1.85 |

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%) were the maternal problems seen in the current study.

Table 4: Maternal complications

| Complication | No. of cases | % |
|--------------------|--------------|------|
| Eclampsia | 42 | 9.72 |
| PPH | 38 | 8.80 |
| Abruptio placentae | 34 | 7.87 |
| Partial HELLP | 30 | 6.94 |
| Renal dysfunction | 12 | 2.78 |
| HELLP | 6 | 1.39 |
| DIC | 10 | 2.32 |
| Pulmonary oedema | 4 | 0.93 |

The majority of newborns (72.59%) had birth weights greater than 2500 g and (90.24%) had APGAR scores below 8 at 5 minutes after birth. IUGR (7.41%), prematurity (14.81%), low birth weight infants (17.13%), respiratory distress syndrome (9.72%), meconium aspiration (6.02%), and NICU hospitalisation (20.83%)

were the neonatal problems that were detected. Intrauterine death (1.85%), stillbirth (3.24%), neonatal death (3.24%), and the remaining newborns were released with the mother were the neonatal outcomes reported.

Table 5: Perinatal outcome in eclamptic patients

| Neonatal characteristics | No of patients | Percentage |
|-------------------------------|----------------|------------|
| Birth weight (grams) | | |
| ≤1000 | 6 | 1.39 |
| 1001-1500 | 22 | 5.09 |
| 1501-2500 | 90 | 20.83 |
| >2500 | 314 | 72.69 |
| Apgar score at 5 minutes | | |
| 1-2 | 14 | 3.41 |
| 3-7 | 26 | 6.34 |
| ≥8 | 370 | 90.24 |
| Neonatal outcome | | 0.00 |
| IUGR | 32 | 7.41 |
| Prematurity | 64 | 14.81 |
| Respiratory distress syndrome | 42 | 9.72 |
| Meconium aspiration | 26 | 6.02 |
| Intrauterine death | 8 | 1.85 |
| Still birth | 14 | 3.24 |
| NICU admission | 90 | 20.83 |
| Low birth weight babies | 74 | 17.13 |
| Neonatal death | 14 | 3.24 |

DISCUSSION

The first two of the three major factors that contribute to maternal morbidity and mortality— infection, haemorrhage, and hypertension—have been mostly under control. Additionally, they can be changed to accommodate different treatment approaches. Only hypertensive diseases of pregnancy are still challenging to diagnose and treat collectively⁶. Chronic hypertension and the group of hypertensive disorders specific to pregnancy, such as gestational hypertension, preeclampsia, and eclampsia, are included in the category of hypertensive disorders in pregnancy. From mildly raised blood pressure that has no clinical consequence to severe hypertension with multiple organ failure, pregnancy-induced hypertension can affect everyone. Maternal age is regarded as a significant risk factor and is frequently observed at the extremes of the normal reproductive age⁷.

Young age at marriage is linked to low economic and educational standards, which in turn leads to poor prenatal attendance, which can be a significant confounding factor. Prevalence of pregnancy-induced hypertension was 8.8% in the study by Chaitra S. et al. A total of 286 pregnant women with high blood pressure had an 80.06 percent diagnosis of prenatal hypertension, a 14.68% preeclampsia, an eclampsia, and a 2.79

percent diagnosis of chronic hypertension. The majority of women were nulliparous (46.85%), while the age group between 21 and 25 was the most common (46.15%). At term, it is more common (49.65%). 71.32% of deliveries by caesarean section and 27.37% through vaginal delivery. The most common morbid result was preterm delivery (28.67%). 14.68% of the infants experienced intrauterine growth restriction, while 26.57% had low birth weights. Similar results were seen in the current investigation⁸⁻¹⁰.

Preeclampsia made up the majority of the 180 instances of pregnancy-induced hypertension in the study by Tiwari A et al., followed by gestational hypertension (38.88% of cases) and eclampsia (13.88% of cases). Low birth weight is more common (57.7%), preterm is more common (44.2%), and IUGR is more common (20.4%) in the PIH population. The highest incidence of LBW (88%), preterm (80%), and IUGR (12%) was seen in the eclampsia group. According to Singh A. et al study of 224 patients, 40.8% of them were scheduled appointments, and 76.8% of the cases were for people between the ages of 21 and 30. About 58.9% of them were primigravida, 82.1% delivered babies before 34 weeks' gestation, and 5.4% were born before 30 weeks. The caesarean delivery rate for patients with severe pre-eclampsia

was approximately 14.2%, compared to 7.2% for those with mild pre-eclampsia¹¹.

There were high rates of prematurity (67.9%), perinatal mortality (12.5%), and birth asphyxia (21.4%). 1.8% of patients had eclampsia, 37.5% of patients had partial HELLP or HELLP, and 3.6% of patients each had DIC and pulmonary edema. The maternal death rate was 1.8%. Similar results were seen in the current investigation. Maternal complications included HELLP syndrome (10%), PPH (8%), infections (3%), ascites (6%), acute renal failure (2%), disseminated intravascular coagulation (DIC) (3%), and maternal death (2%), according to a research by D. P. Meshram et al. Perinatal mortality (27%) and IUGR (18%) were among the foetal problems. In 32 individuals with an abnormal coagulation profile, 84.37% of the women experienced a poor maternal result, and 93.75% experienced a poor foetal outcome¹².

Incidence of pregnancy-related hypertension was reported by Kolluru V et al. to be 7.9% (234 instances) of all deliveries, with gestational hypertension, preeclampsia, and eclampsia accounting for 2.1%, 4.9%, and 0.9% of all deliveries, respectively. There was no maternal mortality, and HELLP syndrome was the most frequent maternal complication (3.4%). There were 3.47% preterm births overall, and 23% of those cases resulted in perinatal mortality. The most frequent foetal problem (33.4%) was IUGR. Preterm birth, low birth weight, a low Apgar score, intrauterine growth restriction, the requirement for resuscitation and/or admission to a neonatal intensive care unit (NICU), and stillbirths are all recognised to be perinatal problems that are linked to hypertensive disorders of pregnancy. Preeclampsia (28.12%), gestational hypertension (65.62%), and eclampsia (6.25%) were the most prevalent conditions in the study by Pandya K et al. Preterm births (43.75%) and LBW (37.5%) were the most frequently seen foetal problems. Due to various factors, 28.12% of infants needed NICU admission, while 6.25% of neonatal deaths were recorded. Currently, screening techniques aid in the early detection of diseases, prompt treatment of hypertensive conditions that complicate pregnancy, and the availability of specialised systemic antenatal care can lessen the effects of such difficulties.

CONCLUSION

Eclampsia and preeclampsia are still major sources of morbidity and mortality in pregnant women and their unborn children. Regular prenatal checks, early diagnosis, prompt referral to a tertiary care hospital, and the availability of specialised care

during labour and after delivery can all help to lower the likelihood of unfavourable maternal and perinatal outcomes.

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