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Original Research Article

Hypertensive disorders in pregnancy as primary and associated indications for caesarean section

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ABSTRACT

Background: Hypertensive disorders in pregnancy (HDP) are a group of conditions characterized by high blood pressure during pregnancy. This can include gestational hypertension, preeclampsia, eclampsia, and chronic hypertension with superimposed preeclampsia. The HDP elicits various adverse outcomes like preterm delivery, placental abruptions and increased rate of caesarean delivery. Hence, the present study was carried out to evaluate the frequency and associated indication of caesarean section (CS) in HDP.

Methods: A retrospective study was carried out on 110 pregnant women with HDP for a period of one year. The patient's details like mode of delivery and the indication of CS delivery were recorded.

Results: The most common HDP was gestational hypertension in 76 (69.1%) and the mean age of the patients was 24.24 ± 4.42 years. Out of 110 HDP cases, 97 had delivered through CS with a rate of 88.2%. The main indication for caesarean delivery was previous LSCS in 22 (22.68%) of the patients, followed by gestational hypertension in 18 (18.56%), severe preeclampsia in 11 (11.34%) and preeclampsia in 8 (8.25%).

Conclusions: HDP are a significant factor in the negative outcomes experienced by both mothers and their babies. Routine pregnancy check-ups, early detection, immediate multifaceted treatment, and optimal time for delivery are crucial in reducing the frequency of complications and maternal mortality. Timely referral and management of these cases at specialized neonatal centers can significantly decrease perinatal mortality rates.

Keywords: HDP, Gestational hypertension, Preeclampsia, Caesarean delivery

INTRODUCTION

Hypertensive disorders of pregnancy (HDP), which includes preeclampsia or eclampsia, prenatal hypertension, and chronic hypertension, occur in approximately 13-15% of the cases globally.¹ The diagnostic criteria for hypertension in pregnancy consist of two consecutive measurements of systolic blood pressure ≥ 140 mmHg and/or diastolic blood pressure ≥ 90 mmHg, obtained during duration of 4 to 6 hours. Preeclampsia is a condition characterized by a sudden increase in blood pressure and the evidence of urinary protein (≥ 300 mg/24 h or $\geq 1+$ with dipstick) during the 20th week of pregnancy or after giving birth.² It affects around 2 to 8% of pregnant women and contributes to mortality and morbidity for

mothers and neonates.³ A recent meta-analysis study conducted in India showed a pooled prevalence of HDP and it is estimated to be 11%.⁴

CS is a crucial surgical obstetric surgery that effectively prevents the morbidity and mortality of both the mother and the newborn. But the CS is indicated only for medically necessary reasons.⁵ In the recent years, there has been substantial increase in the CS delivery rates globally.⁶ Annually, there are around 18 million caesarean deliveries worldwide, which make up over 19.1% of all births.

The percentage of these numbers has risen from a mere 7% in 1990 and is expected to reach over one-third (29%) of all births by 2030.⁷

Various factors have been identified as influencing the rates of CS both globally and in India. These factors include various mother characteristics, such as maternal age at marriage and delivery, high BMI, high socioeconomic status, media influences, neonatal weight, women living in urban areas, frequency of antenatal visits and delivery at private healthcare facilities. Several studies indicate that maternal preferences, influenced by concerns about extended labor and the pain associated with vaginal delivery, as well as beliefs in auspicious timing, may potentially contribute to the decision to have a caesarean surgery.⁷

Wide range of maternal complications is associated with the CS delivery. Several of the complexities linked to preeclampsia result in the need for prompt labor induction or surgical delivery, leading to premature birth. Globally, the incidence of preterm births and medically indicated preterm births are increasing and preeclampsia is one of the important risk factors for these neonatal morbidity.⁸ Multiple studies have indicated an increased likelihood of CS among pregnant women who had HDP, and delivered macrosomia babies (>4000 gm).⁹

Studies also indicate that there has been increased occurrence of CS in women diagnosed with preeclampsia.¹⁰ In addition, having a CS in the first pregnancy elevates the risk of preeclampsia in the second gestation.¹¹

METHODS

This was a retrospective study carried out on 110 pregnant women for a period of one year from January 2023 to January 2024 at the department of obstetrics and gynaecology, Al-Ameen medical college hospital, Vijayapura, Karnataka.

Case sheets were retrieved from the medical record department, and the required data was collected, which included patient with SBP >140 and DBP >90 mmHg with or without albumin with or with imminent signs after 20 weeks of gestation, patient with chronic hypertension. The patients were categorized to different classes of HDP such as preeclampsia and gestational hypertension

Outcome variables

The main important variable in this study was pregnancy outcomes. The parameters associated with the pregnancy outcome were, caesarean delivery, low birth weight (<2500 gm) and preterm delivery (born <37 weeks of gestation). The other variables such as maternal age, parity, pregnancy type, previous LSCS and comorbidities were also evaluated.

Statistical analysis

The results are represented as frequency and percentage. The data analysis was done using SPSS v 24.

RESULTS

In our study we had 110 patients with HDP of which 13 patients went into spontaneous labour and deliver vaginally and remaining 97 underwent CS. The mean age of the patients was 24.24 ± 4.42 years and majority of the women were in the age range 21-25 years in 49 (33.6%). The mean gestational age was 38.18 ± 2.38 weeks and the mean systolic and diastolic blood pressure during admission was 145.08 ± 16.47 and 93.76 ± 11.40 mmHg. Regarding obstetric score, 57 (51.8%) were multigravida and 53 (48.2%) was primigravida. Out of 110 patients 93 (84.5%) cases were booked and 17 (15.5%) of the cases were unbooked. The results were shown in Table 1.

Table 1: Demographics and clinical characteristic of pregnant women with HDP, (n=110).

Parameters	N (%)
Age (in years)	
<20	24 (21.8)
21-25	48 (43.6)
26-30	27 (24.5)
>31	11 (10)
Obstetric score	
Multigravida	57 (51.8)
Primigravida	53 (48.2)
Booking status	
Booked	93 (84.5)
Unbooked	17 (15.5)

The various categories of HDP among the pregnant women were shown in Table 2. The most common HDP was gestational hypertension in 76 (69.1%) of the cases followed in preeclampsia in 16 (14.5%) and severe preeclampsia in 14 (12.7%) of the patients respectively.

Table 2: Categories of HDP among the pregnant women, (n=110).

HDP	N (%)
Gestational hypertension	76 (69.1)
Preeclampsia	16 (14.5)
Severe preeclampsia	14 (12.7)
Eclampsia	3 (2.7)
Chronic hypertension	1 (9)

Pattern of delivery among pregnant women with HDP (Table 3). Out of 110 cases, 97 (88.2%) had caesarean delivery, 12 (10.9%) had full term normal delivery and 1 (0.9%) had preterm vaginal delivery (Table 3).

Table 3: Pattern of delivery among the HDP pregnant women, (n=110).

Pattern of delivery	N (%)
Caesarean delivery	97 (88.2)
Full term normal delivery	12 (10.9)
Preterm vaginal delivery	1 (0.9)

The indications for CS delivery among the HDP cases were shown in Table 4. In this study the main indication for caesarean delivery was previous LSCS in 22 (22.68%) of the patients, followed by gestational hypertension in 18 (18.56%), severe preeclampsia in 11 (11.34%) and preeclampsia in 8 (8.25%) of the patients respectively. In our study, HDP contributes to caesarean delivery in majority of the cases.

Table 4: Indications for Caesarean delivery among HDP pregnant women, (n=97).

Indication for caesarean delivery	N	Percentage (%)
Previous LSCS	22	22.68
Gestational hypertension	18	18.56
Severe preeclampsia	11	11.34
CDMR	9	9.28
Preeclampsia	8	8.25
Severe oligohydramnios	8	8.25
NPOL	5	5.15
eclampsia	3	3.09
Twin pregnancy	2	2.06
TMSL	2	2.06
CPD	2	2.06
Breech presentation	2	2.06
Fetal distress	2	2.06
PROM	1	1.03
IUGR	1	1.03
Precious pregnancy	1	1.03

CDMR: Caesarean delivery on maternal request; NPOL-Non-progression of labour; TMSL-Thick meconium-stained liquor; CPD-Cephalopelvic disproportion; PROM-Premature rupture of membranes; IUGR- Intra uterine growth restriction.

DISCUSSION

The definitive treatment for HDP is the delivery of the fetus, either through vaginal delivery or CS. However, there is growing concern about the increasing rate of CS particularly when it is unavoidable due to absolute indications. In cases with relative indications, the goal should be to achieve vaginal delivery without compromising the health of the mother and fetus.

Recently, the incidence of HDP is on noticeable rise during admissions to hospitals for delivery. This spike is particularly significant for chronic hypertension, showing the largest proportional rise, and for gestational hypertension, showing the largest absolute rise. A significant number of HDPs were found to be linked to serious obstetric complications. Eclampsia/severe preeclampsia and chronic hypertension were identified as significant factors contributing to a high incidence of serious obstetric complications during hospitalizations for delivery.¹² In the present study, the most common HDP was gestational hypertension in 76 (69.1%) of the cases followed in preeclampsia in 16 (14.5%) and severe preeclampsia in 14 (12.7%). Similarly in a study done by

Mehta et al among the pregnant women with HDP 65.33% had preeclampsia and 30.66% had gestational hypertension.¹³ In another study done by Gupta et al the most common HDP was gestational hypertension in 59.7% and preeclampsia in 33.3% of the patients respectively.¹⁴

In our study, the mean age of the patients was 24.24±4.42 years and the most common age during presentation was 21-25 years in 49 (33.6%) of the patients. In a study done by Olusanya et al the mean age of the patients with HDP was 29.9±5.2 years and majority of the patients where in the age range of 20-35 years in 82.4% of the patients.¹⁵

In this study the prevalence of caesarean delivery among the HDP cases was 88.2%. Likewise, Das et al found that pregnant women with preeclampsia had a higher rate of caesarean delivery in 72.8% of the cases.¹⁶ They also reported that preeclampsia had higher risk about 7.8 times for the caesarean delivery. In Uddin et al study among the HDP cases, 50.8% had caesarean delivery.¹⁷ In Bromfield study the risk of caesarean delivery increased in severity with hypertensive disorders, particularly preeclampsia and superimposed preeclampsia, which had the highest risk.¹⁸ The odds ratios for preeclampsia and superimposed preeclampsia were 1.61 (95% CI: 1.52-1.71) and 1.99 (95% CI: 1.74-2.28), respectively, compared to not having hypertension. Likewise, in Xavier et al study the incidence of caesarean delivery was higher in preeclampsia, 79.4% followed by 65.2% in gestational hypertension.¹⁹

In this study, the main indications for caesarean delivery among the HDP cases was previous LSCS in 22 (22.68%), followed by gestational hypertension in 18 (18.56%) of the patients. Likewise, in a study done by Adu-Bonsaffoh and Seffah, the main indications for caesarean delivery in HDP cases was previous CS delivery in 38.9% of the patients.²⁰

CONCLUSION

The occurrence of hypertensive disorder of pregnancy has been found to be linked to a higher incidence of CSs, impacting the outcomes of pregnancy. There are several factors that contribute to the increase in the frequency of CSs. These include the mode of previous delivery, the preferences of obstetricians, and the demands of patients. These factors have a significant impact on the outcome.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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