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A Study on gestational hypertension and fetal outcome among patients with gestational hypertension in a tertiary care centre.

Mounika Kuppili [1] MBBS, Seetha P.M. [2] MBBS, MD, DGO, Kavya Arja [3] MBBS.

1 Postgraduate, Department of Obstetrics & Gynaecology, Sree Mookambika Institute of Medical Sciences, Kulasekharam, Kanyakumari District, Tamil Nadu.

2 Professor, Department of Obstetrics & Gynaecology, Sree Mookambika Institute of Medical Sciences, Kulasekharam, Kanyakumari District, Tamil Nadu.

3 Postgraduate, Department of Obstetrics & Gynaecology, Sree Mookambika Institute of Medical Sciences, Kulasekharam, Kanyakumari District, Tamil Nadu.

Corresponding Author:

Dr Mounika Kuppili, MBBS , Postgraduate, Department of Obstetrics & Gynaecology, Sree Mookambika Institute of Medical Sciences, Kulasekharam, Kanyakumari District, Tamil Nadu.

E-mail: mounica.mini@gmail.com

ABSTRACT:

Background: Gestational Hypertension is defined as blood pressure level of ≥140/90 mmHg recorded on two different occasions measured at 4-6hours interval between each measurement at ≥20weeks of gestation. Hypertension at <20weeks is called as Chronic hypertension. The rise in systolic and diastolic blood pressure is critical in determining whether or not someone has Gestational Hypertension. Gestational Hypertension with proteinuria is called Preeclampsia and Preeclampsia associated with seizures is called eclampsia. **Materials and Methods:** A total of 70 pregnant women who presented to Sree Mookambika institute of medical sciences hospital with Gestational Hypertension were enrolled using the following inclusion and exclusion criteria. **Inclusion criteria:** Women with ≥20 weeks of gestation(primi/multigravida) and with blood pressure recording of ≥140/90 mmHg, diagnosed as gestational hypertension and are willing to participate in this study. **Exclusion criteria**: Women with <20 weeks of gestation, chronic hypertensives, antenatal women without any comorbidities and those who are not willing to participate in this study. **Results**: Gestational hypertension was more prevalent among nulliparous 40(57.1%).Out of 30 multiparous women,13(43.3%)have past history of gestational hypertension,7(23.3%)had previous preterm delivery and 21(70%)had previous lower segment caesarean section. The clinical presentation in mothers with gestational hypertension shows that 32(45.7%)had epigastric pain and 15(21.4%)had vomiting followed by headache,

dizziness, edema of feet, blurring of vision 10(14.2%),convulsion 2(2.8%)and no complaint 11(15.7%). **Conclusion**: Gestational hypertension is a frequent medical condition that occurs during pregnancy. We discovered that gestational hypertension is more common in young nulliparous women of 19-24years of age. Gestational hypertension causes a variety of clinical manifestations which can help in early diagnosis.

Keywords: Blood pressure, pregnancy induce hypertension, fetal outcome, gestational hypertension, preeclampsia, eclampsia, hypertensive disorders in pregnancy

Introduction

Gestational Hypertension is defined as a blood pressure level of ≥140/90 mmHg recorded on two different occasions measured at a 4 to 6hours interval between each measurement at ≥20weeks of gestation. Hypertension at <20weeks is called as Chronic hypertension. The rise in systolic and diastolic blood pressure is critical in determining whether or not someone has Gestational Hypertension. Gestational Hypertension with proteinuria is called as Preeclampsia and Preeclampsia associated with seizures is called as eclampsia. Gestational hypertensive problems impact 6%–8% of all pregnancies, with a wide range of severity depending on geographic location. According to clinical classification, we divide pregnant women into mild and severe hypertensive disorders of pregnancy. Gestational hypertension is divided into mild gestational hypertension (140/90–159/109 mmHg) and severe gestational hypertension (160/110 mmHg or higher). Risk factors for gestational hypertension are teenage pregnancy, primi gravida, previous history of gestational hypertension. This study was done to determine the clinical presentation and fetal outcome among patients with gestational hypertension patients. As a result, we can make an early diagnosis and therefore reduce morbidity and mortality among gestational hypertension patients.

Materials and Methods

This cross-sectional study was conducted in the Department of Obstetrics and Gynaecology at Sree Mookambika Institute of medical sciences, Kanyakumari, India, during the study period of May 2022 to November 2022. A total of 70 pregnant women with gestational hypertension who presented to our hospital were enrolled using the following inclusion and exclusion criteria. Each pregnant woman gave her verbal informed agreement to participate in this study. In the prepared proforma, necessary information such as sociodemographic data, detailed clinical and obstetric history, clinical examination, investigations, and fetal outcome were recorded. Epi Info was used to examine the data, which were entered into MS Excel. A variety of statistical tests were used.

Inclusion criteria

Women with ≥20 weeks of gestation (primi/multigravida) and with blood pressure recording of ≥140/90 mmHg, diagnosed as gestational hypertension and are willing to participate in this study.

Exclusion criteria

Women with <20 weeks of gestation, chronic hypertensives, antenatal women without any comorbidities and those who are not willing to participate in this study.

Results

In this study, a total of 70 pregnant women with gestational hypertension actively participated, and the results are as follow:

Figure 1:

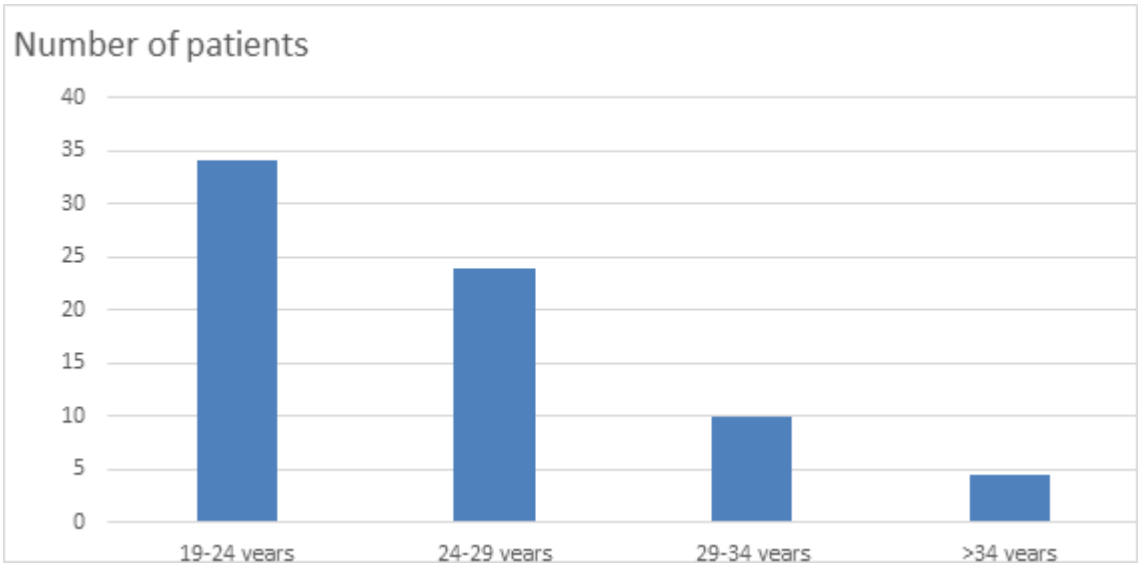


Figure 1 shows 19–24 years old group had the highest percentage of Gestational hypertension 34(48.5%), followed by the 24–29 years old group 24(34.2%) and the 29–34 years old group 10(14.1%) and >34 years old group 2(0.2%).

Table 1: Distribution of gestational hypertension patient as per the obstetric history

Obstetric score	**Number of patients(%)**
Nulliparous	40(57.1%)
Multiparous	30(43.3%)
Past obstetric history of patients (multiparous) with gestational hypertension [n=30]	
Gestational Hypertension	13(43.3%)
Preterm delivery	7(23.3%)
Previous lower segment caesarean section	21(70%)

Abortions	2(6.6%)
Clinical presentation during present pregnancy	
Epigastric pain	32(45.7%)
Vomitings	15(21.4%)
Headache, blurring of vision, edema of feet	10(14.2%)
Convulsions	2(2.8%)
No complaints	11(15.7%)

Table 1: Distribution of gestational hypertension patient as per the obstetric history (Parity) and number of patients(%) is; Obstetric history of: Nulliparous 40 (57.1) Multipara 30 (43.3) Past obstetric history of patients with gestational hypertension (n=30) and number of patients with ; gestational hypertension 13 (43.3) Preterm 7 (23.3) Previous LSCS 21 (70) Abortion 2 (6.6) . Clinical presentation during present pregnancy (multiple responses) and number of patients; Epigastric pain 32 (45.7), Vomiting 15(21.4) , Headache, blurring of vision, edema feet 10 (14.2) Convulsion 2 (2.8) , No complaints 11(15.7).

Table 2: Distribution of gestational hypertension patients as per their blood pressure

Classification of gestational hypertension patients on the basis of blood pressure (mmHg)	**Number of patients(%)**
Systolic Blood pressure	
140-160	60(85.8%)
161-180	7(10%)
>181	3(4.2%)
Diastolic Blood pressure	
90-100	60(85.8%)
101-110	8(11.4%)
>111	2(2.8%)

Table 2 shows: Out of 70 gestational hypertensive patients, 60(85.7%) had systolic blood pressure (BP) 140–160 mmHg and 60(85.7%) had diastolic BP 90–100 mmHg respectively,

while 7(10%) had systolic blood pressure (BP) 161-180 mmHg and 8(11.4%) diastolic BP 101–110 mmHg, respectively and 3(4.2%) with systolic BP more than 181 mmHg and 2(2.8%) with diastolic BP >111mmHg .

Figure 2: The clinical presentation during present pregnancy (multiple responses)

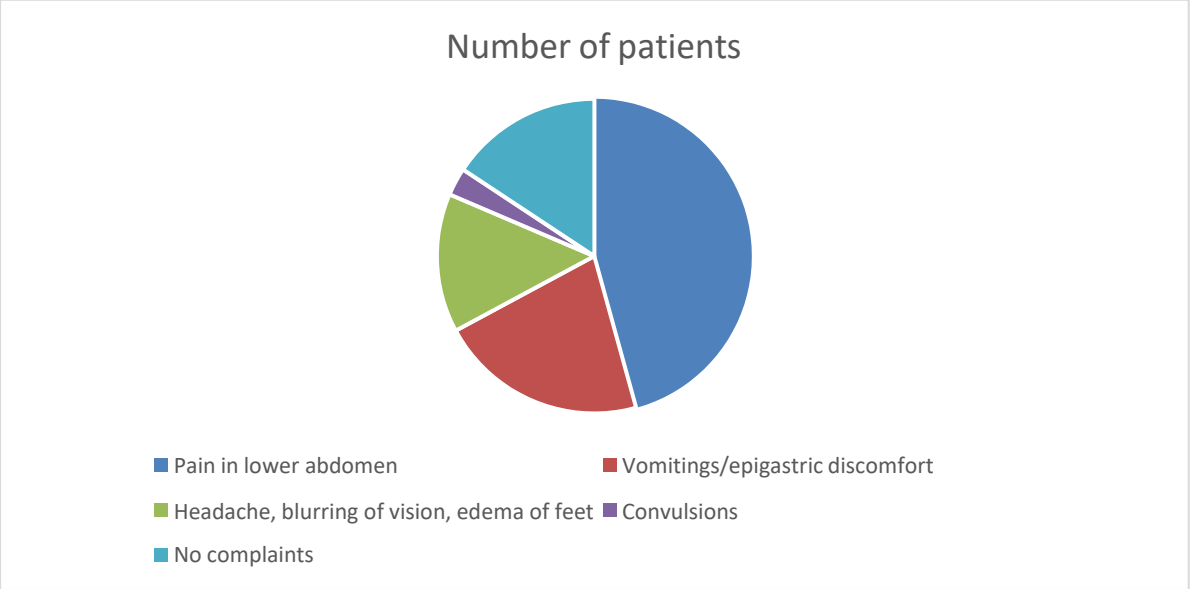
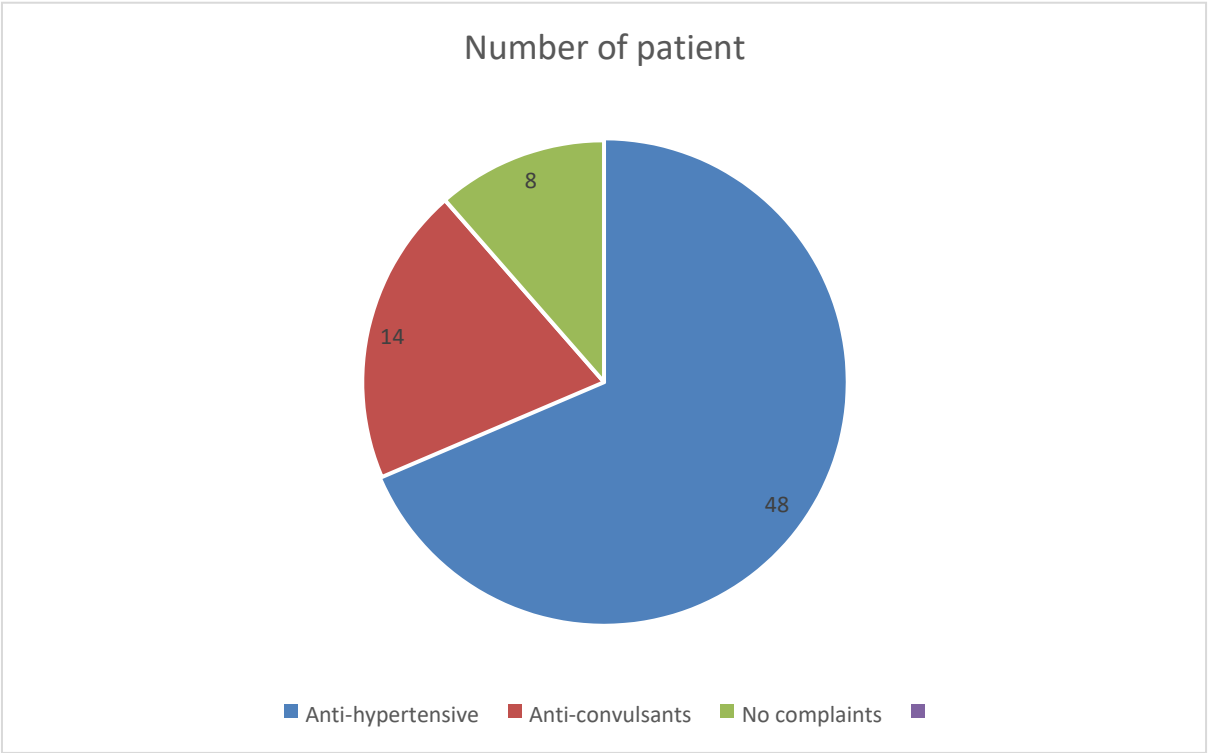


Figure 2 shows that the clinical presentation in mothers with gestational hypertension shows that 32(45.7%) had lower abdominal pain and 15(21.4%) had vomiting/epigastric discomfort followed by headache, dizziness, edema of feet, blurring of vision 10(14.2%) , convulsion 2(2.8%) and no complaint 11(15.7%) .

Figure 3: The distribution of gestational hypertension patients as per medication received



According to Figure 3: Only hypertension medicine was given to 48(68.57%) of 70

gestational hypertensive patients, whereas 14(20%) of 70 received both antihypertensive and anticonvulsant medication. Only 8(11.42%) of pregnant women did not get any treatment for gestational hypertension during their current pregnancy.

Figure 4: The fetal outcome in patients with gestational hypertension

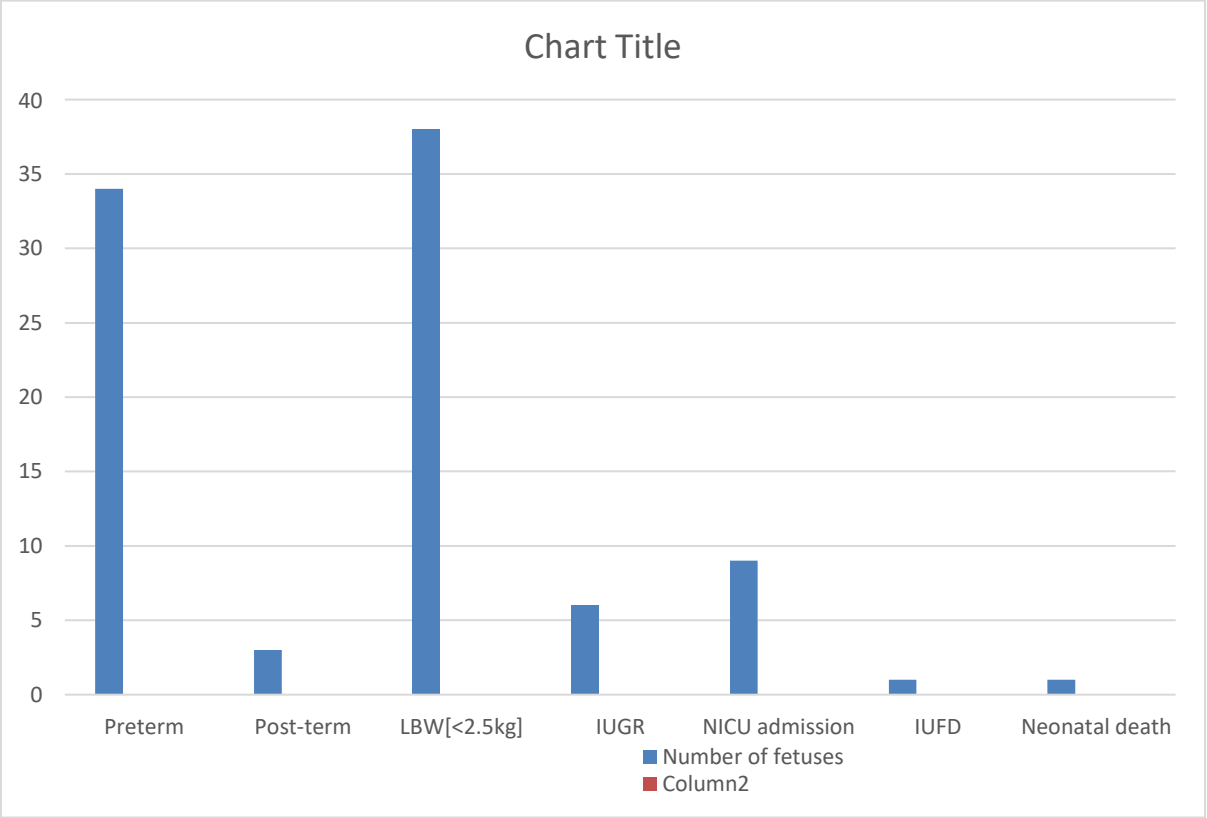


Figure 4 shows that 34(48.57%) of mothers with gestational hypertension had preterm deliveries, while 3(4.28%) had post term deliveries. Low birth weight affects 38(54.28%) of newborns, and IUGR affects 6(8.75%). Due to various reasons, 9 (12.85%) of the 70 babies born needed to be admitted to the neonatal intensive care unit (NICU). Intra uterine fetal demise (IUFD) was 1(1.49%), while infant mortality was also 1(1.42%).

Discussion

The highest prevalence of gestational hypertension was found in the 19–24 years old group (48.57%), followed by the 24–29 years old group (34.28%), the 29–34 years old group (14.28%) and more than 34 years old (0.28%).

According to a study conducted by Gavali et al [1] at a maternity hospital in Sangli district a total 216 patients were considered for 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 the 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 their study Maternal complications observed were eclampsia (9.72 %), postpartum haemorrhage (8.80 %), abruptio placentae (7.87 %), partial HELLP (6.94 %). 5 cases 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.

Study conducted by Mandal et al [2] at Malda medical college, Bengal shows prevalence of 8.2% of total admitted patients, of them 58% were primigravida, 42% multigravida. Primigravida compared to multigravida had a higher tendency to have IUGR. DIC is also slightly more in primigravida but placental abruption and PPH were more in multigravida. Fetal outcome study showed babies born with low birth weight is significantly more in primigravida and higher incidence of severe asphyxiated babies were born in primigravida. More than 40% primigravida were terminated by caesarean section, most of them had emergency indication.

Study conducted by Singh et al [3] at Paropakar hospital, Nepal shows a total of 126 cases of hypertensive disorders of pregnancy were identified among 3819 obstetric cases. The incidence of hypertensive disorders of pregnancy was 3.3%. Among 100 cases who were included in the study, 42 had pre eclampsia and 58 had gestational hypertension. Among 42 preeclamptic patients, 15(35.71%) had low birth weight babies, and 9(15.5%) babies had low birth weight among 58 gestational hypertensive mothers.

Study by Syoum et al [4] at Suhul General Hospital,Ethiopia shows out of 497 women, 328 (66%) of them were from rural districts, the mean age of the women was 25.94 ± 6.46, and 252 (50.7%) were para-one. The study revealed that 252 (50.3%) newborns of hypertensive mothers ended up with at least low Apgar score 204 (23.1%), low birth weight 183 (20.7%), preterm gestation 183 (20.7%), intensive care unit admissions 90 (10.2%), and 95% CI (46.1% -54.9%), and 267 (53.7%) study mothers also developed maternal complication at 95% (49.3-58.1). Being a teenager (AOR = 1.815: 95%CI = 1.057 - 3.117), antepartum-onset hypertensive disorders of pregnancy (AOR = 7.928: 95%CI = 2.967 - 21.183), intrapartum-onset hypertensive disorders of pregnancy (AOR = 4.693: 95%CI = 1.633 - 13.488), and low hemoglobin level (AOR = 1.704: 95%CI = 1.169 - 2.484) were maternal complication predictors; rural residence (AOR = 1.567: 95%CI = 1.100 - 2.429), antepartum-onset hypertensive disorders of pregnancy (AOR = 3.594: 95%, CI = 1.334 - 9.685), and intrapartum-onset hypertensive disorders of pregnancy (AOR = 3.856: 95%CI = 1.309 - 11.357) were predictors of perinatal complications.

Study of Mallick et al [5] at Hi-Tech medical college, Odhisha shows the most common age group of the expectant mothers with hypertension was 21-30 years. Most of the patients had gestational hypertension or pregnancy induced hypertension, while eclampsia was seen in 4.3% of the cases. Preeclampsia was observed in 12.8% and preeclampsia superimposed on chronic hypertension was seen in 5.3%. The most common outcome was preterm delivery in

39.6% of the cases. Low birth weight was seen in 20.9%, IUGR in 13.4%, NICU admission in 23.4%. Mortality was seen in 5.1% of the cases, with 3.9% being in utero and 1.2% within a week of birth.

Study by Panda et al [6] in north east India shows: out of 5460 deliveries, 402 (7.4%) cases had hypertensive disorders of pregnancy, 27.6% had gestational hypertension, 27.6% had mild preeclampsia, 33.6% had severe preeclampsia, and 11.2% had eclampsia. Fifty-four (13.4%) cases required admission in the intensive care unit and 12 (2.9%) ended in maternal deaths. The cause of maternal mortality was cerebral hemorrhage in eight (66.6%) cases and pulmonary edema in four (33.3%) cases. All maternal deaths occurred in women with severe preeclampsia and eclampsia and eclampsia was significantly higher. Maternal deaths were more when systolic blood pressure (SBP) was ≥ 160mmHg, diastolic blood pressure (DBP) was ≥ 110mmHg, significantly more with 3+ proteinuria, but no association was found with age, parity, booking status, socio-economic status, gestational age, or mode of delivery. Patient received treatment with antihypertensives. There were 60 (14.9%) cases of perinatal mortality. Perinatal deaths were more in unbooked cases, significantly more with SBP ≥160 mmHg, DBP ≥110 mmHg and ≥2+proteinuria, but no association was found with parity or mode of delivery. Besides mortality, there was a significant burden of maternal and perinatal morbidity, which was more in women with severe preeclampsia and eclampsia.

Study conducted by Megistus et al [7] on 615 study population, the prevalence of hypertensive disorders of pregnancy was found to be 25.4%, of which the majority (52.5%) was severe pre-eclampsia. Eclampsia accounted for 2.6%, and superimposed pre-eclampsia was 2.6%. The rate of severe pre-eclampsia with HELLP syndrome was 7.1% of all mothers with the hypertensive disorders. The majority of mothers with hypertensive disorders (59.6%) had age range of 25-34 years. About 46% of mothers required interventions to terminate the pregnancy either by cesarean section (42.3%) or instrumental deliveries (3.7%) due to conditions related to Hypertensive disorders. The rate of preterm, low birth weight, and low Apgar at 1^{st} and 5^{th} minutes accounted for 29.5, 24.4, 22.4 and 16.7% of neonates born to mothers with hypertensive disorders, respectively. Over 10.9% of neonates required resuscitation and 11.5% NICU referral. The rate of still birth was 3.8%.

Conclusion

Gestational hypertension is one of the common medical condition that occurs during pregnancy. According to our study, we found that gestational hypertension is more common in young nulliparous women between 19-24 years of age. Gestational hypertension causes a variety of clinical manifestations like epigastric pain, vomiting, blurring of vision, headache, convulsions, dizziness etc., some of which can be helpful in detecting gestational hypertensin early. Gestational hypertension can potentially result in a worsening of the fetal outcome. Early detection and institutional management by giving magnesium sulphate-prophylactic doses before 34 weeks of pregnancy which improves the cognition effect of the baby and can thereby reduce prenatal morbidity and mortality in gestational hypertension patients.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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