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Study of Maternal and Fetal Outcome of Pregnancy Induced Hypertension at a Tertiary Care Centre: An Observational Study

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Abstract
Background: *Pregnancy-related hypertensive disorders are a significant cause of adverse maternal and fetal outcomes, especially in developing areas of the world. The present study was undertaken to assess the maternal and fetal outcomes in pregnant women with pregnancy induced hypertension (PIH).*
Method: *This prospective, analytical hospital-based study was conducted on total 370 pregnant women between 21-40 weeks of gestation attending OPD as well as admitted patients in tertiary care centre during a period of 18 months from January 2021 to June 2022.*
Results: *The mean age of patients was 24.3±3.88 years. Majority of patients were primigravida (62.16%), presented between 32-37 weeks (75.14%). Doppler changes were seen in 25.98% of study subjects. Maximum patients (75.14%) received oral anti-hypertensives, while 24.86% received oral + IV anti-hypertensives. 55.14% patients received MgSO4, and 71.89% received steroids. Maximum (74.59%) subjects delivered with LSCS. Majority of patients were stable (53.14%) in post-partum period. Amongst the maternal complications post-partum hemorrhage was commonest (13.24%). Maternal mortality was 1.62%. Most of the neonates had APGAR score between 7-10 (56.22%), birth weight between 1.5 to 2.5 kgs (75.14%). The commonest fetal outcome was pre-term birth (65.95%) followed fetal growth restriction (18.65%). NICU admission was required among 50.27% subjects. The mean duration of hospitalization was 6.06±1.61 days.*
Conclusion: *Here in this study most of the primigravida with extremes of age were found to have severe pre-eclampsia and eclampsia so creating the awareness of the rural population for early ANC registration and prompt referral from periphery to tertiary centre with prophylactic management given at primary health centre.*
Keywords: *Pregnancy induced hypertension; Primigravida; Anti-hypertensives; Antepartum hemorrhage; APGAR score; Pre-eclampsia; Eclampsia*

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I. Introduction

The most common medical complication of pregnancy affecting almost 7 to 15% of all gestations and accounts for quarter of all antenatal admissions is hypertensive disorders of pregnancy [1]. Pregnancy induced hypertension (PIH) is a multi-organ disorder unique to pregnancy typically characterized by blood pressure ≥140/90mmHg and proteinuria after 20 weeks gestation. The broad classification of PIH is gestational hypertension, pre-eclampsia, and eclampsia [2]. According to World Health Organizations (WHO) systemic review on maternal mortality worldwide, hypertensive disease remains leading cause of direct maternal mortality. However, together with hemorrhage and infection hypertension forms deadly triad that contributes to morbidity and mortality during pregnancy and childbirth [3].

The acute elevation of blood pressure in pregnancy had several maternal complications like convulsions, abruptions, HELLP syndrome, hepatic and renal failure, retinal detachment and also rises the risk of heart attacks, cardiac failure, cerebrovascular accidents of the mother [4]. Fetal complication is mainly due to the abnormal blood circulation from the mother to the fetus, which reduces the oxygen transfer to the fetus leading to condition like IUGR, premature delivery, fetal hypoxia to stillbirth, and higher rate of neonatal death [5].

In spite of the very high incidence of the hypertensive disorder, even today the cause of the disease remains an unsolved one. Medical management of the hypertensive disease does not prevent the fetal prognosis, but studies have proven that early detection of the disease and treatment decreases both the hypertensive crises in the mother and reduces fetal complications [6]. Whereas delivery appears to be the only definitive and curative treatment [7]. The present study was conducted to evaluate the feto-maternal outcome in women with hypertensive

disorders of pregnancy who delivered in our hospital. Although many such studies have been published earlier and our study is just an addition to the existing literature but for us it helped to set up a protocol to prevent such untoward consequences.

II. Materials and Method

Atter obtaining Institutional Ethical Committee approval and written informed consent from all the patients, this prospective, analytical hospital-based study was conducted in the Department of Obstetrics and Gynecology at tertiary health care centre during a period of 18 months from January 2021 to June 2022. A total of 370 pregnant women between 21-40 weeks of gestation attending OPD as well as admitted patients in tertiary care centre were included in the study.

Study Design: Prospective, Analytical Hospital based study.

Study area and Source of data: Department of Obstetrics and Gynecology at tertiary health care centre.

Duration of study:18 months (January 2021 to June 2022)

Study Population: Patients attending OPD as well as admitted patients intertiary care centre.

Inclusion criteria: This includes-
- Pregnant women between 21-40 weeks of gestation.
- Blood pressure>140/90mm of Hg.
- Primigravida and multigravida.
- Single intrauterine pregnancy.
- APH [Abruptio placenta]

Exclusion criteria: This includes-
- Pregnant women <20 weeks of gestation.
- Chronic hypertension.
- APH [Placenta previa]
- Presence of Diabetes mellitus.
- Heart disease.
- Renal disease.

Sampling Method: Universal sampling method is used.

Parameters studied:
- Demographic factors: Age, socio-economic status etc
- BMI, mode of delivery, maternal morbidity
- Blood pressure levels
- Maternal and neonatal outcomes

Data Collection:

A standardproforma was used to collect the data. Information regarding age, socioeconomic status, details about previous conception, antenatal care and booking status was collected. Complete general physical examination, systemic examination, obstetric examination was done. Routine and relevant investigations such as analysis of Urine (microscopy), Hb,Blood grouping, and R h typing, HIV, HBsAg, RBS were all done. Period of gestation was derived from history of LMP and clinical examination. BP monitoring was done and also the mode of delivery was noted whether it was normal delivery or elective c- section or emergency c-section and also the indications for c-section were noted like fetal distress, antepartum haemorrhage, previous c-section etc were noted and fetal outcome like weightof baby, APGAR score, prematurity, Birth asphyxia, NICU admissions were noted.

Operational definitions:
- **Hypertension in pregnancy:** A systolic blood pressure (SBP) ⩾ 140 mmHgand/or a diastolic blood pressure (DBP) ⩾ 90 mmHg [8]

- **Non-severe hypertension:** Any values between SBP 140–159 mmHg and DBP 90–109 mmHg. Sometimes this category as a whole is termed “mild,” orit is further broken down into mild (140–

149/90–99 mmHg) and moderate (150–159/100–109 mmHg) [9].

- **Severe hypertension:** SBP ⩾ 160 mmHg and/or DBP ⩾ 110 mmHg. Severe hypertension in pregnancy has lower thresholds than in non-pregnant adults because pregnant women are known to develop hypertensive encephalopathy at lower blood pressures [10, 11].

- **Maternal outcome:** Mode of termination of pregnancy, morbidities andmortality.

- **Fetal outcomes:** Still births, birth asphyxia, NICU admissions etc.

III. Results

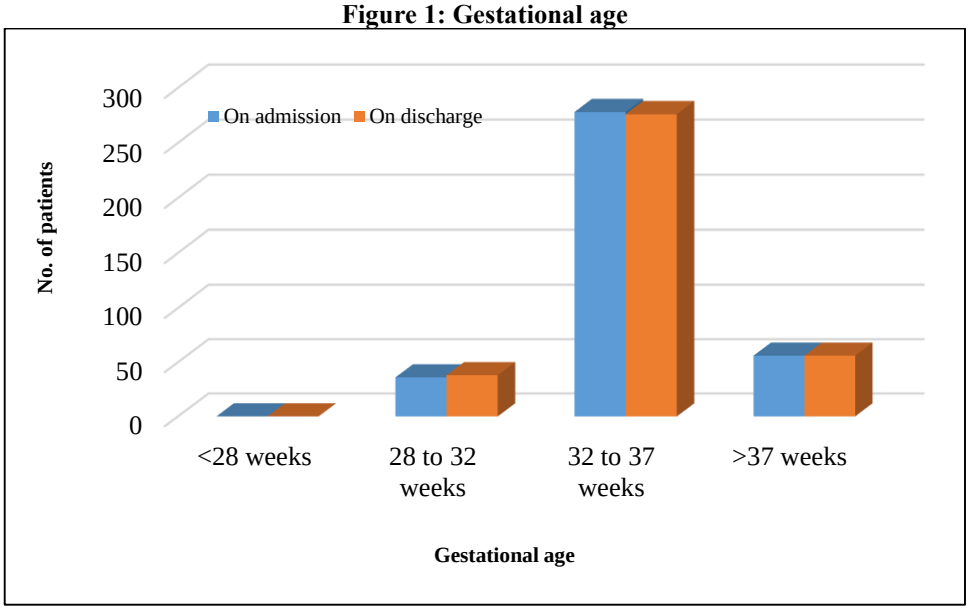
During the study period, a total of 370 pregnant women between 21-40 weeks of gestation were included in the study, majority of them belonged to the age group of less than 25 years (65.14%), primigravida (62.16%), booked cases (91.08%) and belonged to class IV SES scale (62.70%) as shown in table 1. Fundus examination was done among 41; 11.08% cases. Doppler changes were seen among 95; 25.98% study subjects.

Table 1: Socio-demographic profile and obstetric characteristics

Parameters		No. of patients	Percentage
Age group in years	<25	241	65.14
	26 to 30	106	28.65
	31 to 35	19	5.14
	36 to 40	04	1.08
Socioeconomic status	Class IV	232	62.70
	Class V	138	37.30
ANC registration status	Booked	337	91.08
	Un-booked	33	8.92
Gravida status	Primigravida	230	62.16
	Gravida 2	66	17.84
	Gravida 3	55	14.86
	Gravida 4	16	4.32
	Gravida 5	03	0.81

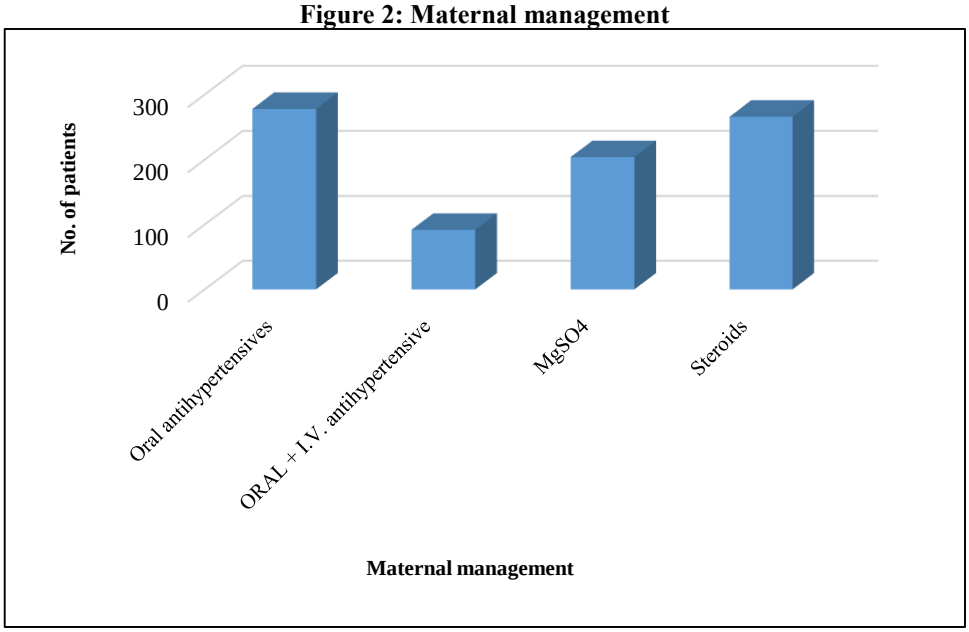
The majority of the study subjects presented between 32 to 37 weeks (75.14%), while 15.14% presented after 37 weeks near term as depicted in figure 1.

Figure 1: Gestational age



Most of the patients received oral anti-hypertensives (75.14%), while 24.86% received oral + IV anti-hypertensives. 55.14% patients received MgSO4, and 71.89% subjects received steroids, (Figure 2).

Figure 2: Maternal management



Out of 370 cases, 276; 74.59% subjects delivered with LSCS, and remining 94; 25.41% subjects delivered with normal vaginal delivery. In majority of cases maternal indications were reported (292; 78.92%), while in 78; 21.08% fetal indications were noted. Maximum subjects were stable (53.14%) in post-partum period. Amongst the maternal complications post- partum hemorrhage was reported among 13.24% study subjects, abruption was reported among 9.46% study subjects. Maternal mortality was seen among 1.62% study subjects, (Table 2).

Table 2: Maternal outcome and complications

Maternal outcomes and complications	No. of patients	Percentage
Stable	197	53.24
Post-partum hemorrhage	49	13.24
Abruption	35	9.46
Acute renal failure	25	6.76
HELLP Syndrome	21	5.68
ICU admission	20	5.41
Visual disturbances	15	4.05
Congestive cardiac failure	02	0.54
Dissseminated intravascular coagulation	02	0.54
Maternal mortality	06	1.62
Post partum eclampsia	02	0.54

Most of the neonates had APGAR score between 7-10 (56.22%), birth weight between 1.5 to 2.5 kgs (75.14%). The commonest fetal outcome was pre-term birth (65.95%) followed fetal growth restriction (18.65%). NICU admission was required among 50.27% subjects as shown in table 3.

Table 3: Neonatal characteristics and fetal outcomes

Neonatal outcomes and complications		No. of patients	Percentage
APGAR score	0 to 3	06	1.62
	4 to 6	156	42.16
	7 to 10	208	56.22
Birth weight (Kg)	2.5	75	20.27
	1.5 to 2.5	278	75.14
	1 to 1.5	17	4.59
	<1	00	0.0
Need for NICU Admission	No	184	49.73
	Yes	186	50.27
Fetal outcome	Pre-term birth	244	65.95
	Fetal growth restriction	69	10.65
	Respiratory distress syndrome	36	9.73
	Hypoxia	38	10.27
	Meconium Aspiration syndrome	28	7.57
	Intra uterine fetal death	06	1.62

The majority of the study subjects required hospitalization for less than 5 days (49.19%), followed by 6 to 10 days among 48.65%. only 8 patients required hospitalization for more than 10 days. The mean duration of hospitalization was 6.06 ±1.61 days.

IV. 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 [12].

In the present study, most common age group of presentation with hypertensive disorder of pregnancy was less than 25 year (65.4%) followed by 25-30 years (28.65%) and mean age group was 24.3±3.88 years. Maternal morbidity and neonatal morbidity were high in at extremes of ages. Primigravida were affected in 62.16% of cases, while multi in 32% among the women with had availed antenatal care while 8.92% were unbooked and had not availed any antenatal care. The maternal morbidity and mortality as well as fetal mortality was very high in unregistered cases. These findings are comparable with the previous studies [12-15].

Majority i.e., 75.14% of cases had gestational age between 32 to 37 weeks at the time of admission while 15.14% presented after 37 weeks near term. The most common presenting complained at the time of admission was edema feet followedby headache. We observed that majority of the study subjects belonged to class IV SES scale (62.70%), and 37.3% belonged to class V of SES scale. These findings are in accordance with the study conducted by Aabhidha PM et al [13]. In the present study, fundus examination was done among 11.08% study subjects and doppler changes seen in 25.98% of cases.

The majority of study subjects received oral anti-hypertensives (75.14%), while 24.86% received oral + IV anti- hypertensives. 55.14% patients received MgSO4, and 71.89% subjects received steroids. Prophylactic injection MgSO4 (4gm) iv was given to all the patients of impending eclampsia i.e., 55.4%. Use of anti-hypertensives (Nicardia and Labetalol) effectively controlled blood pressure. Similar findings are reported in study done by Seyom E et al [15]. The caesarean section rate was 74.59%. The most common indication for caesarean section was imminent eclampsia had fetal distress. Among 25.41% subjects, normal vaginal delivery was conducted. These results are comparable with the other studies [12, 13,15]. In most of the cases maternal indications were reported (78.92%), while in 21.08% fetal indications were noted.

Regarding maternal outcomes and complications, the majority of study subjects were stable (53.14%). Post-partum hemorrhage was reported among 13.24% study subjects, Abruption was reported among 9.46% study subjects, Acute renal failure was reported among 6.76% study subjects, HELLP SYNDROME was reported among 5.68% study subjects, ICU admission was reported among 5.41% study subjects, Visual disturbances was reported among 4.05% study subjects, Congestive cardiac failure, Dissseminated intravascular coagulation, Post partum eclampsia was reported among 0.54% study subjects. Maternal mortality was seen among 1.62% of study subjects. Similar results are found in study conducted by Gavali S et al [12]. Aabidha PM et al [13], Seyom E at al [15] and Panda et al [16].

Maximum neonates had APGAR score between 7 to 10 (56.22%), followed by score 4 to 6 (42.16%). 1.62% subjects had APGAR score less than 3 which is comparable with the study done by Gavali S et al [12]. 65.95% of newborns were preterm born, while 34.05% were born at term. 20.27% newborns were of normal birth weight, while majority were low birth weight newborns (75.14%), and 4.59% were very low birth weight. The overall incidence of low-birth-weight babies was almost 75% as similar to Gavali S et al [12] and Aabidha PM et al study [13].

Regarding fetal outcome, we observed that Pre-term birth was reported among 65.95% study subjects, fetal growth restriction was reported among 18.65% study subjects, respiratory distress syndrome was reported among 9.73% study subjects, hypoxia was reported among 10.27% study subjects, meconium aspiration syndrome was reported among 7.57% study subjects, intra uterine fetal death was reported among 1.62% study subjects. These findings are in accordance with the study conducted by Gavali S et al [12], Aabidha PM et al [13] and Panda et al [16]. The NICU admission rate in present study was 50.27% with most common indications for admission being LBW/ asphyxia and the incidence of intra uterine fetal death was 1.6% which is comparable with the Gavali S et al study [12].

V. Conclusion

Health workers need to be instructed for 100% registration of pregnant women and provide good quality of antenatal care including all essential components specially record of weight, blood pressure and urine analysis with an appropriate system of referral to tertiary care centre. All family physicians and medical officers need to be advised to follow a standard management protocol in a case of preeclampsia and eclampsia with an awareness for prompt referral of women who require to be managed by specialities. A well- equipped obstetric & neonatal intensive care unit manned by a team of consultant with special expertise need to be made available in every tertiary care center. Here in this study most of the primigravida with extremes of age were found to have severe pre-eclampsia and eclampsia so creating the awareness of the rural population for early ANC registration and prompt referral from periphery to tertiary centre with prophylactic management given at primary health centre.

References

[1]. James PR, Nelson-Piercy C. Management of hypertension before, during and after pregnancy. Heart.2004;90:1499-1504.
[2]. Ain SN, Gull S, QulsumR, Khan ZA, Qureshi UA. Prevalence of pregnancy induced hypertension and associated factors in Kashmiri women attending a tertiary care hospital at Srinagar: a cross-sectional study.Int J Reprod Contracept Obstet Gynecol 2023;12:387-90.
[3]. Khan KS, Wojdyla D, Say L, et al. WHO analysis of causes of maternal death: a systematic review. Lancet 2006;367: 1066-1074
[4]. Prakash J, Ganiger VC. Acute Kidney Injury in Pregnancy-specific Disorders. Indian J Nephrol. 2017;27(4):258-270.
[5]. Sharma D, Shastri S, Sharma P. Intrauterine Growth Restriction: Antenatal and Postnatal Aspects. Clin Med Insights Pediatr. 2016;10:67-83.
[6]. Mammaro A, Carrara S, Cavaliere A, Ermito S, Dinatale A, Pappalardo EM, Militello M, Pedata R. Hypertensive disorders of pregnancy. J Prenat Med. 2009;3(1):1-5.
[7]. Cunningham, Leveno, Bloom, Hauth, Rouse, Spong. Hypertensive disorders ofpregnancy. William's Obstetrics 25th edition. McGraw Hill 2022:693-94.
[8]. Report of the National High Blood Pressure Education Program Working Group onhigh blood pressure in pregnancy. Am J Obstet Gynecol 2000; 183: S1–S22
[9]. Visintin C, Mugglestone MA, Almerie MQ, et al. Management of hypertensive disorders during pregnancy: summary of NICE guidance. BMJ 2010; 341: c2207.
[10]. Bernstein PS, Martin JN, Jr, Barton JR, et al. Consensus bundle on severe hypertension during pregnancy and the postpartum period. J Obstet Gynecol Neonatal Nurs 2017; 46: 776–787.
[11]. Varon J, Marik PE. The diagnosis and management of hypertensive crises. Chest2000; 118: 214–227.
[12]. Gavali S, Patil A, Gavali U. Study of fetomaternal outcome in patients with pregnancy induced hypertension at Sangli district. MedPulse International Journal of Gynaecology. November 2021; 20(2): 65-69.
[13]. Aabidha PM, Cherian AG, Paul E, Helan J. Maternal and fetal outcome in pre- eclampsia in a secondary care hospital in South India. J Fam Med Primary Care 2015;4:257-60.
[14]. Un Nisa S, Shaikh A A, Kumar R. Maternal and Fetal Outcomesof Pregnancy-related Hypertensive Disorders in a Tertiary Care Hospital in Sukkur,Pakistan. Cureus 2019;11(8): e5507.
[15]. Seyom E, Abera M, Tesfaye M, Fentahun N: Maternal and fetal outcome of pregnancy related hypertension in Mettu Karl Referral Hospital, Ethiopia. J OvarianRes. 2015, 8:10
[16]. Panda S, Das R, Sharma N, et al. Maternal and Perinatal Outcomes in Hypertensive Disorders of Pregnancy and Factors Influencing It: A Prospective Hospital-Based Study in Northeast India. Cureus 2021;13(3): e13982.

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