

Maternal and Perinatal Outcome in Hypertensive Disorders of Pregnancy - A Retrospective Study

Padmaja Joshi¹, Manasi Kathaley^{2*}, Swapnali Borade³, Rucha Dashrathi⁴

¹Assistant Professor, ²Professor, Department of Obstetrics and Gynaecology, Dr. Vasantrao Pawar Medical College Hospital and Research Centre, Nashik – 422003, Maharashtra, India; drpadmajajoshi78@gmail.com, manasihk65@gmail.com

^{3,4}PG Resident, Department of Obstetrics and Gynaecology, Dr. Vasantrao Pawar Medical College Hospital and Research Centre, Nashik – 422003, Maharashtra, India; swapnalirb@gmail.com, ruchad4@gmail.com

Abstract

Background: It was a retrospective observational study to know demographic factors, maternal and perinatal outcome in patients of hypertensive disorders of pregnancy admitted in a medical college and tertiary health care center. **Introduction:** Hypertensive disorders of pregnancy are one of the important cause of maternal morbidity and mortality in India. Hypertensive Disorders of Pregnancy (HDP) account for nearly 18% of all maternal deaths worldwide. Delivery at early gestational age in patients of HDP is associated with high perinatal morbidity and mortality resulting from prematurity. **Method:** Total number of 120 cases of hypertensive disorders of pregnancy admitted in our hospital was included in the study after satisfying inclusion and exclusion criteria. We studied demographic factors as well as maternal and perinatal outcome. **Results:** Majority of the patients i.e. 40% were in the age group of 21-30 yrs. 61% of patients were primi gravida and 25% of patients were second gravida. Maximum number of patients had gestational age \geq 32weeks at the time of delivery. 26.6% patients, 73.4% patient's and 12.5% patients were diagnosed as gestational hypertension, preeclampsia and eclampsia respectively. There was high incidence of HELLP and eclampsia in 12.5% each, DIC in (5%), APH in (4.1%), renal complications in (3.3%) and CNS complication were seen in 0.8%. 67.5% patients were delivered by vaginal route, 32.50% patients required LSCS. Majority of patients i.e., 60% underwent preterm delivery, 34% delivered at term. Maternal mortality occurred in 8 patients (6.67%). HELLP and DIC were the leading causes of death. 70% patients had good perinatal outcome. There were 25.83% still births and 4.17% neonatal deaths. **Conclusion:** Hypertensive disorders of pregnancy are associated with increased maternal and perinatal morbidity and mortality. Good antenatal care, health education, early diagnosis, early referral to higher center and multidisciplinary approach will reduce morbidity and mortality in mother and baby.

Keywords: Eclampsia, Hypertensive Disorder of Pregnancy, Pre-Eclampsia, Prematurity

1. Introduction

Hypertension is one of the common medical complications of pregnancy known to increase the risk of maternal and perinatal morbidity and mortality¹. Hypertensive disorders of pregnancy include chronic hypertension, gestational hypertension, pre-eclampsia, eclampsia and chronic hypertension with superimposed pre-eclampsia.

Pre-eclampsia is a multisystem disorder of unknown etiology characterized by development of hypertension

to the extent of 140/90mmHg or more with significant proteinuria after the 20th week of gestation in a previously normo tensive and non proteinuric women². Gestational hypertension is characterized by BP140/90mmHg or more diagnosed for the first time in pregnancy without proteinuria^{2,3}. Eclampsia is defined as onset of convulsions in a woman with pre-eclampsia that cannot be attributed to other cause^{2,3}. BP more than 140/90mmHg before pregnancy or diagnosed before 20 weeks of gestation is

*Author for correspondence

included in chronic hypertension^{2,3}. Chronic hypertension with superimposed pre-eclampsia includes new onset proteinuria in hypertensive women but no proteinuria before 20 weeks of gestation^{2,3}.

Hypertensive Disorders of Pregnancy (HDP) account for nearly 18% of all maternal deaths worldwide. Risk of perinatal mortality and morbidity increases in patients of pre-eclampsia and eclampsia⁴. Delivery at early gestation is associated with high perinatal morbidity and mortality resulting from prematurity⁵.

This study was conducted to study the various demographic characteristics, maternal and perinatal outcome in patients admitted in our hospital.

2. Methodology

A retrospective observational study was conducted in the department of OBGY at Dr. Vasantrao Pawar Medical College and Research center from 1st January 2016 to 31st December 2016. Total 120 patients with Hypertensive disorder of pregnancy were included in the present study after satisfying the inclusion and exclusion criteria. **Inclusion Criteria:** Patient with BP \geq 140/90 mmHg after 20 weeks of gestation admitted in our tertiary care centre. **Exclusion Criteria:** 1. Multifetal gestation 2. Hypertension due to renal disorders 3. Hypertension with other medical complications like heart disease, epilepsy etc. BP was recorded in right arm with the patient in lying down position by occluding brachial artery at the level of heart. Two BP readings taken 4 hours apart with the value \geq 140/90 mmHg were considered as hypertension. Proteinuria of 30mg/dl (1+ dipstick) protein in a random urine sample was considered significant proteinuria. Onset of convulsions in a woman with pre-eclampsia that cannot be attributed to other causes was considered as Eclampsia. Patient with BP reading \geq 140/90mmHg without significant proteinuria was considered as gestational hypertension. Maternal outcome was assessed by maternal age, parity, history of hypertension in previous pregnancy, gestational age at the time of delivery, complications like HELLP, Eclampsia, DIC, APH, Renal complication, CNS complications and maternal mortality. Perinatal outcome was assessed in relation with time of delivery, mode of delivery, gestational age at the time of delivery, birth status, birth weight and perinatal mortality.

After completeness was checked, data was coded, entered and analyzed using computer data analysis software programme (SPSS version 23). Data was represented

by graphical representation like Bar Diagram, multi bar diagram, pie chart. Association was measured by using Chi-square test.

3. Results

Total number of 120 patients with HDP admitted from 1st January 2016 to 31st December 2016 was included in the study. In our study maximum number of patients were in the age group of 21-25 years i.e., 49 patients (40%) (Table 1).

Population distribution of patients of HDP was almost equal in urban and rural setting (Table 1). Majority of patients were primigravida 74 (61.67%) and second commonest were second gravida 30(25%) (Table 1). 17 (14.17%) of patients had history of hypertension in previous pregnancy (Table 1)

Table 1. Distribution of study participants as per sociodemographic factors

VARIABLES	NUMBER OF PATIENTS (%)
1) Age(in years)	
<20	30(25%)
21-25	48(40%)
26-30	26(21.67%)
31-35	11(9.17%)
>35	5(4.17%)
2) Population	
Urban	61(50.83%)
Rural	59(49.17%)
3) Parity	
Primigravida	74 (61.67%)
Gravida2	30(25%)
Gravida3	11(9.17%)
Gravida4	5(4.17%)
4) Previous history of hypertension	
Yes	17(14.17%)
No	103(85.83%)

Table 2. Distribution of study participants as per gestational age & type of hypertension

VARIABLES	NUMBER OF PATIENTS (%)
1) Distribution according to gestational age (in wks)	
25-28	11(9.17%)

29-32	20(16.67%)
33-36	40(33.33%)
>36	49(40.83%)
(* 36 -37 weeks 1 patient)	
2) HDP	NUMBER OF PATIENTS (%)
1)Gestational Hypertension	32(26.6%)
2) Pre-eclampsia	88(73.4%)
3)Eclampsia	15(12.5%)

Maximum number of patients were having gestation age > 32 weeks at the time of delivery. Out of 120 patients, 32 patients (26.6%) were diagnosed as gestational hypertension and remaining 88 patients (73.4%) were diagnosed as pre-eclampsia out of these 15 patients (12.5%) had eclampsia (Table 2).

Table 3. Distribution of study participants as per maturity of foetus at delivery & mode of delivery

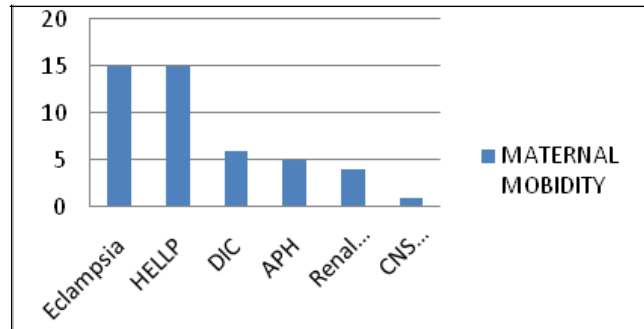
1)Maturity at the time of delivery	Number of patients (%)
Pre-term	72 (60%)
Full term	41 (34.17)
Post term	7 (5.83%)
2)Mode of delivery	Number of Patients (%)
Vaginal route	81 (67.5%)
LSCS	39 (5.83 %)

Out of 120 patients 72 (60%) underwent preterm delivery. 41 (34.1%) patients delivered at term and 7 patients delivered had prolonged pregnancy (Table 3). 81 (67.5%) Patients delivered by vaginal route and 39 (32.50%) patients required LSCS (Table 3).

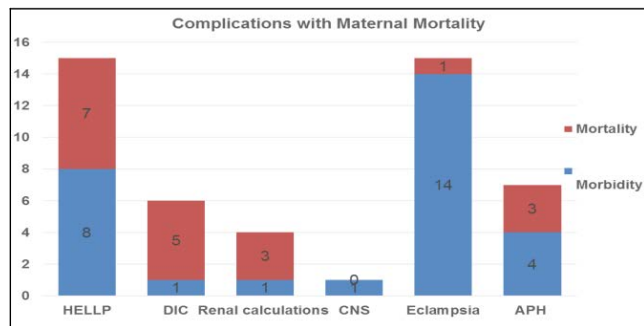
Maternal complications were seen as eclampsia in 15 (12.5%) HELLP in 15(12.5%), DIC in 6(5%), APH in 5 (4.1%), Renal complication in 4 (3.3%), CNS complication in 1 (0.8%) (Graph 1).

4. Discussion

Despite advances in medical practice, HDP has remained one of the leading causes of maternal mortality throughout the world. It is a common problem in developing countries because of illiteracy, poor antenatal care, lack of health awareness and poverty.

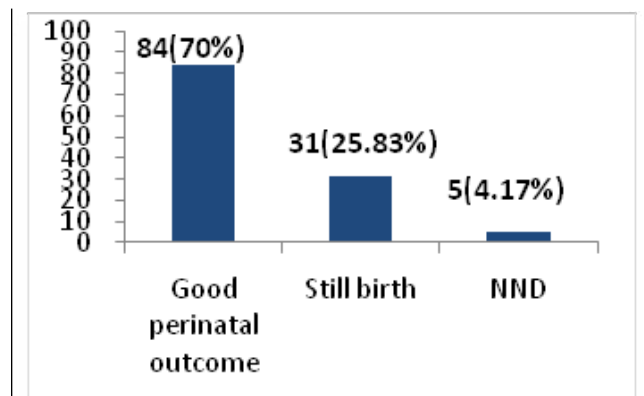


Graph 1. Maternal Morbidity



Graph 2. Complications with maternal mortality.

Maternal mortality was observed in 8 patients (6.67%). All patients were in postpartum period, causes of death were HELLP in 7 patients, followed by DIC in 5 patients, renal complications in 3 patients, APH in 3 patients and eclampsia in 1 patient (Graph 2). The incidence of (maternal mortality was more in patients with systolic BP >140 mmHg. But we could not find any association between systolic BP and maternal mortality 84 (70%) patients had good perinatal outcome. We found still births in 31 patients (25.83%) and NND in 5 patients (4.17%) (Graph 3). In all 5 cases, the birth weight was <2.5 kg (Table 4).



Graph 3. Perinatal outcome.

Table 4. Distribution of Neonatal death as per birth weight

Birth Weight	Neonatal Death		Total
	Yes	No	
<=2.5 kg	5 (100%)	56 (66.67%)	61 (68.54%)
>2.5 kg	0 (0%)	28 (33.33%)	28 (31.46%)
Total	5	84	89

In our study, maximum number of patients (74 patients i.e., 61.76%) in HDP was in the age group 21-30 years. In study done by Savita Rani Singhai et al., found similar incidence of patients (71%) in the same age group 21-30 year⁶. In our study, there were more primigravida (61.67%) as compared to multigravida (38.33%). Pre-eclampsia was more common in primigravida. It is due to several factors like teenage pregnancy, early marriage, illiteracy, social ignorance and rituals and lack of family planning adaptation. Study by Meghavini Parmar et al., also found greater risk of HDP in primigravida (64%) as compared to multigravida⁷. History of hypertension in previous pregnancy was observed in 14% of case. This is comparable to P Sridevi et al., where previous hypertension was seen in 15.5% patients⁸. In our study 49 patients (40.83%) of HDP were having gestational age > 36 weeks at the time of delivery, this is comparable with the study done by Meghavini Parmar et al., (43%)⁷.

In our study significant proteinuria was found in 88 patients (73.3%). Similar incidence was found in the study by Parmar MR et al., (87%)⁷. In our study full term deliveries were observed in 41 (34.17%), preterm deliveries in 72 (60%). Similar incidence was observed in study by Parmar MR et al., with 43% fullterm and 57% preterm⁷. Comparable incidence was found in study done by Savita Rani Singhal 66% preterm and 34% term⁶. In our study majority in 81 patients (67.5%) patients delivered by vaginal route 39 (32.5%) patients required LSCS. This is comparable to study of Savita Rani Singhal et al⁶. 65% patients had vaginal delivery, 34% patients had LSCS and 2% patients required hysterotomy. Study done by Parmar et al., also shows vaginal route as preferred route of delivery (83%)⁷.

We found HELLP and eclampsia as major complications in patients with HDP in 15 patients i.e., 12.5% each. Study done by P Sridevi et al., also observed HELLP as major complications in patients of HDP (9% patients)⁸ whereas Parmar MR et al., observed eclampsia as major complication (5.4%)⁷. High complication rate of HELLP

and eclampsia in our study was due to late referral of such patients to our hospital.

We observed 6.67% mortality in patients of HDP admitted to our hospital. HELLP and DIC were leading cause of maternal mortality in our study. Although we found eclampsia as major complication, the mortality rate was less in patients of eclampsia. Study by Parmar MR et al.,⁷ observed mortality rate of 1%, P. Sridevi et al., observed 0.43%⁸. High mortality rate in our study was due to late referral of complicated patient, lack of health awareness and proper antenatal care.

Prematurity was major perinatal complication found in 72 patients i.e., 60%. In study done by P. Sridevi et al., 46.05% patients underwent preterm delivery⁸. High incidence of prematurity in our study was because of late referral of patients to our tertiary care centre. Hence, no adequate time was found to stabilize the patient and manage conservatively till maturity.

We found 84 patients (70%) had good perinatal outcome. 31 patients (25.83%) with still birth and there were neonatal deaths in 5 patients (4.167%). Out of 5 neonatal deaths 4 were < 36 weeks duration, 1 patient was ≥ 36 weeks of gestation. In still births 29 patients (93.55%) were < 36 weeks of gestation and 2 patients (6.45%) were > 36 weeks. In 8 patients with maternal mortality one patient had still birth, one patient had neonatal death. In 6 cases, good perinatal outcome was observed.

5. Conclusion

Hypertensive disorders of pregnancy are associated with increased maternal and perinatal morbidity and mortality. It is more prevalent in primigravida. High index of suspicion is required in young primigravida. Good antenatal care, nutrition, health education, early diagnosis, good control of BP, early referral to higher center, multi-disciplinary approach will reduce morbidity as well as mortality in mother and baby.

6. References

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