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Study of Prevalence of Hypertensive Disorders of Pregnancy and Their Maternal and Perinatal Outcome at Government General Hospital, Srikakulam

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Abstract
Background
Hypertensive disorders of pregnancy are one of the important causes for adverse maternal and foetal outcome. A proper understanding of this medical disorder in pregnancy is essential to reduce the maternal and foetal complications associated with it.
Aim
To analyse the incidence of hypertensive disorder complicating pregnancies among pregnant women attending antenatal care at RIMS Government hospital, Srikakulam and study the maternal and perinatal outcome in terms of morbidity and mortality among these women.
Methods
It is a prospective and observational study. The study was performed among a total of 3476 pregnant women who have delivered at Government Hospital, Srikakulam from Jan 2018 to Dec 2018. A total number of 276 pregnant women with hypertensive disorders complicating pregnancy were analyzed and the outcome of the hypertensive disorders in terms of maternal and perinatal morbidity and mortality were studied. Data was collected regarding antenatal care-booked and unbooked cases, age, parity, gestational age, mode of delivery and maternal complications. Perinatal outcome including birth weight, NICU admissions and perinatal deaths were recorded. Data was analysed and tabulated using SPSS version 24.
Results
The total number of deliveries during this period was 3476 and 276 women had hypertension complicating pregnancy giving an incidence of 7.94%. Normal vaginal deliveries were seen in 113 cases (40.96%) and instrumental delivery in 13 cases (4.71%). The caesarian section rate was 54.34%. The number of cases with postpartum hemorrhage was 6 cases (2.17%). Placental abruption was in 4 cases (1.44%). Pulmonary oedema in 1 case (0.36%), HELLP in 1 case (0.36%) seen. There is one maternal death due to HELLP Syndrome. The number of cases with birth weight less than 2 Kg were 52 cases (18.84%). Growth restriction was 24 cases (8.69%). NICU admission was required for 66 cases (23.91%). Early neonatal deaths occurred in 12 cases (4.34%). Number of still births in 7 cases (2.53%). Number of intrauterine deaths in 6 cases (2.17%).
Conclusion
Hypertension in pregnancy is associated with adverse maternal and perinatal outcome. Good antenatal care and early referral can reduce complications.
Keywords
Hypertension in Pregnancy, Pre-Eclampsia, Eclampsia, Maternal Mortality and Morbidity, Perinatal Mortality and Morbidity.

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I. Introduction

Hypertensive disorders represent the most common medical complication of pregnancy, affecting between 7-15% of all gestations, and account for approximately a quarter of all antenatal admissions. According to World Health Organization (WHO), Hypertensive disease remains a leading cause of direct maternal mortality. Hypertensive disorders are also responsible for the substantial morbidity for the pregnant women. Long term impact of hypertension in pregnancy in the form of chronic hypertension and increased life time

cardio vascular risk is also present. Hypertensive disorders also carry significant risk for the baby in the form of still births, foetal growth restriction, low birth weight (LBW), spontaneous or Iatrogenic preterm delivery respiratory distress syndrome and admission to neonatal intensive care. Hypertensive disorders of pregnancy remain as one of the leading causes for maternal and perinatal morbidity and mortality**.** Hypertensive disorders in pregnancy are classified as follows-

1. Gestational hypertension.
2. Pre-eclampsia and Eclampsia.
3. Chronic hypertension.
4. Pre-eclampsia super imposed on chronic hypertension. Hypertension disorder of pregnancy complicates 5 to

8% of pregnancies and is a major cause of maternal and perinatal morbidity and mortality.[1] Among the hypertensive disorders, the pre-eclampsia, Eclampsia and superimposed on chronic hypertension, are the dangerous conditions. Incidence of gestational hypertension in India ranges between 11-13%.[2] Eclampsia is the convulsive form of pre-eclampsia. This condition effects between 1 in 2000 and 1 in 3448 pregnancies in western world but the incidence may be higher in developing countries.[3] WHO estimates the incidence of pre-eclampsia to be seven times higher in developing countries (2.8% of live births) than in developed countries (0.4%).[4] Approximately 70% of hypertensive disorders are due to gestational hypertension and pre-eclampsia, whereas 30% are due to pre-existing or undiagnosed hypertension. Incidence ranges from 61% in primi and 39% in multigravida. Increases perinatal morbidity & mortality by 10-15%.

AIM: To analyse the incidence of hypertensive disorder complicating pregnancies among pregnant women attending antenatal care at Government General Hospital, Srikakulam and to study the maternal and perinatal outcome in terms of morbidity and mortality among these women.

II. Methods

Study Design

Prospective, observational study.

Study Population

All pregnant women having blood pressure recordings of 140/90 or more irrespective of gestational age with or without proteinuria, with or without imminent symptoms of eclampsia admitted to Government general hospital,Srikakulam from Jan 2018 to Dec 2018 were included in the study.

Sample Size

276

The study was performed among total number of 3476 pregnant women who have delivered at Government general hospital, Srikakulam from Jan 2018 to Dec 2018 after obtaining written and informed consent. A total number of 276 pregnant women with hypertensive disorders complicating pregnancy were analyzed and the outcome of the hypertensive disorders in terms of maternal and perinatal morbidity and mortality was studied. Gestational hypertension was defined as hypertension with systolic blood pressure ≥140 mmHg and/or diastolic pressure ≥90 mmHg for the first time after 20 weeks of gestation without proteinuria; **Preeclampsia** was defined as women with gestational hypertension and development of de novo proteinuria (≥0.3g/24h). **Eclampsia** was defined as pre-eclampsia with convulsions.

A detailed history and complete physical examination was done. Investigations sent were- Hb%, PCV, blood group and Rh, VDRL, HIV, HBsAg, PIH profile: serum creatinine, blood urea, serum uric acid, liver function test, fundoscopy, NST, and ultrasound scan. Obstetric management was individualized and managed according to the protocols and guidelines. Data was collected regarding antenatal care-booked and unbooked cases, age, parity, gestational age; mode of delivery, maternal complications. Perinatal details like birth weights, NICU admissions and perinatal deaths were recorded.

III. Results

	No. of Cases	**% of Cases**
Booked	232	84.05 %
Unbooked	44	15.94 %
Total	276	-

Table 1. Antenatal Cases

Hypertensive Disorder	No. of Cases	% of Cases
Gestational Hypertension	185	67.02%
Pre-eclampsia	76	27.53%
Eclampsia	11	3.98%
Chronic HTN	4	1.44%
Total	276	.

Table 2. ***Distribution of Cases***

Type of Eclampsia	No. of cases	% of Cases
Antepartum	10	3.62%
Postpartum	1	0.36%
Total	11	

Table ***3. Type of Eclampsia***

Gravida	No. of Cases	% of Cases
Primi	173	62.68%
Gravida 2	72	26.08%
Gravida 3	27	9.78%
Gravida 4 and above	4	1.44%
Total	276	

Table 4. ***Parity Distribution*** ***of Cases***

Age	No. of Cases	% of Cases
<20 years	19	6.88%
20-24 years	156	56.52%
25-29 years	72	26.08%
30-34 years	24	8.69%
>35 years	05	1.81%
Total	276	

Table ***5. Age Distribution*** ***of Cases***

Gestational Age	No. of Cases	% of Cases
<20 wks.	2	0.72%
20-28 wks.	10	3.62%
29-32 wks.	18	6.52%
33-36 wks.	64	23.18%
37-40 wks.	170	61.59%
>40 wks.	12	4.34%
	276	

Table 6. Gestational Age

Mode of Delivery	No. of Cases	% of Cases
Labour normal	113	40.94%
Outlet forceps	13	4.71%
Primary LSCS	118	42.75%
Repeat LSCS	32	11.59%
Total	276	

Table 7. Mode of Delivery

Indication	No. of Cases	% of Cases
Failed Induction	64	42.66%
Fetal distress	38	25.33%
CPD	15	10%
Severe Oligohydramnios	14	9.33%
Abnormal Doppler	8	5.33%
Abruption	2	1.33%
Placenta previa	2	1.33%
Precious pregnancy	7	4.66%
Total	150	

Table 8. Indication for Cesarean Section in Women with Hypertensive Disorders

Maternal Complications	No. of Cases	% of cases
Eclampsia	11	3.98%
Pulmonary oedema	1	0.36%
Placental abruption	4	1.44%
HELLP	1	0.36%
Postpartum haemorrhage	6	2.17%
Total	23	

Table 9. Maternal Morbidity

Perinatal Outcome	No. of Cases	% of Cases
No. of live births	263	95.28%
No. of still births	7	2.53%
No. of intrauterine deaths	6	2.17%
Total	276	

Table 10. Perinatal Outcome

Weights	No. of Cases	% of Cases
<1.5 Kg	10	3.62%
1.5-2 Kg	42	15.21%
2.1-2.5 Kg	100	36.23%
>2.5 Kg	124	44.92%
Total	276	

Table 11. Fetal Outcome in Terms of Birth Weight

	No. of Cases	% of Cases
IUGR	24	8.69%
LBW	56	20.28%
Prematurity	18	6.52%
Birth asphyxia	8	2.89%
Total	106	

Table 12. Perinatal morbidity

IV. Discussion

The prevalence of hypertensive disorder of pregnancy is different according to the geographic regions of the world and ranges from 1.5% in Sweden to 7.5% in Brazil. In India the prevalence of Hypertensive Disorders of Pregnancy has been reported to be 6-8%.[5] The prevalence of hypertensive disorders of pregnancy in this study was 7.94%.

The number of cases of hypertension in pregnancy were more in the booked cases than un-booked cases reflecting the fact that prevalence of the disease is not affected by antenatal care. However good antenatal care and early detection can prevent maternal and perinatal complications associated with hypertensive disorders of pregnancy.

Maximum number of cases were in the age group 20-24 years in the present study. Many authors have identified young age as a risk factor for hypertension during pregnancy.[6,7]

The number of primi gravida were 173 cases (62.68%), Gravida2 were 72 cases(26.08%), Gravida 3 and above 31 cases(11.22%) in the present study. Nulliparity is widely reported as a risk factor for hypertensive disorders in pregnancy.[8,9,10]

In the gestational age group <20 weeks were 2 cases (0.72%). 20-36 weeks were 92 cases (33.32%), between 37-40 weeks were 170 cases (61.59%) in the present study.

In the present study, 40.94% mothers had normal vaginal delivery, 4.71% had instrumental delivery, and higher percentage (54.34%) underwent caesarean section.

Maternal complications in the present study were pulmonary oedema (0.36%), placental abruption (1.44%), Eclampsia (3.98%) ,HELLP (0.36%) and PPH (2.17%). There was one maternal death due to HELLP Syndrome. In a study by Sharma C et al Incidence of PPH was seen in 0.4% of cases and maternal mortality in 0.9% cases.[11]

In present study incidence of preterm delivery noted in 6.52%, intrauterine growth restriction found in 8.69% of births, low birth weight in 20.28%, intrauterine foetal death in 2.17% and still births in 2.53%.

The foetal outcome was noted in the form of preterm deliveries, Apgar score, intrauterine growth restriction, low birth weight, the need for neonatal resuscitation, admission to neonatal intensive care unit and intrauterine foetal demise.

In a study by Bheemabai et al[12] the incidence of preterm delivery was noted in 28.9%, low birth weight in 21.66% and intrauterine foetal demise in 8.3%. The incidence of preterm deliveries was 6.52% in the present study. The reason for the incidence of preterm is probably due to induction of labor for severe pre-eclampsia. In the present study, growth restriction was seen in 24cases (8.69%). The number of cases with birth weight less than 2 Kg were 52 cases (18.83%).

NICU admission was required for 66 babies (23.91%). In the study by Bheemabai et al the NICU admission rate was 23.33% and perinatal mortality was 13.3%.[12] In the present study, early neonatal deaths occurred in 12 cases (4.34%) and the number of stillbirths were 7 cases (2.53%).

V. Conclusion

Hypertension in pregnancy is associated with adverse maternal and perinatal outcome. Good antenatal care and early referral to tertiary care centre can reduce complications. Availability of NICU care improves perinatal outcome and hence delivery in tertiary care centre is preferred.

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