

**Original article:**

**Retrospective study on fetomaternal outcome in gestational hypertension, pre eclampsia and eclampsia in a tertiary care centre**

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**ABSTRACT**

**BACKGROUND:** Hypertensive disorders of pregnancy are a leading cause of maternal and perinatal mortality and morbidity worldwide. In India, they account for the third most important cause of maternal mortality. The objectives of this study were to evaluate maternal and perinatal outcome and complications in cases with Gestational hypertension, pre-eclampsia without severe symptoms and pre-eclampsia with severe symptoms and eclampsia.

**METHODS:** A retrospective study was conducted over a period of 6 months in the Department of Obstetrics and Gynaecology, tertiary health care centre at King George Hospital, Visakhapatnam.. A total of 520 pregnant women with hypertension were enrolled in this study with inclusion and exclusion criteria. Necessary information such as detailed clinical and obstetric history, clinical examination, investigation and fetal outcome was noted by using preformed proforma. Data was entered and analysed by using MS EXCEL.

**RESULTS:** 62.30 % of cases were in the age group of 20-25 yrs, nearly 67.69% were primigravidae and the majority were referred from peripheral hospitals. Liver function tests were deranged in 12.11% of the patients and 6.5% had abnormal renal function tests. 30.96%of the cases had a preterm delivery and 7.1% of the babies needed NICU admission. There were 28 neonatal deaths.

**CONCLUSIONS:** Accessible Healthcare and Health education and awareness regarding antenatal checkups for all women lead to early detection of pre-eclampsia. Prompt treatment and management of its complications will certainly improve the maternal and fetal outcome.

**INTRODUCTION:**

Hypertensive disorders complicate about 10% of all pregnancies worldwide. Hypertension along with haemorrhage and infection form a deadly triad accounting for a major share of maternal morbidity and mortality. The WORLD HEALTH ORGANISATION systematically reviews maternal mortality worldwide and in developed countries. 16% of maternal deaths were reported to be due to hypertensive

disorders. In India, hypertensive disorders account for the third most important cause of maternal mortality.

For classifying and defining hypertensive disorders of pregnancy, the NATIONAL HIGH BLOOD PRESSURE EDUCATION PROGRAM (NHBPEP) and ACOG (2013) evidence based recommendation has been taken into consideration.

In spite of advances in medicine, Gestational hypertension, Pre eclampsia and Eclampsia continue to remain leading causes of maternal and perinatal mortality and morbidity throughout the world. Severe Preeclampsia can lead to multiple life threatening complications like Eclampsia, Cerebral haemorrhage, Hepatic failure, Acute renal failure, Pulmonary edema, ARDS (acute respiratory distress syndrome), DIC (disseminated intravascular coagulation), HELLP syndrome (Hemolysis, Elevated liver enzymes, low platelet count), Retinopathy

Currently no other test is reliable, valid (or) economical and most have met with poor sensitivity and poor positive predictive value. Various strategies used to prevent (or) modify the severity of pre-eclampsia have been evaluated but non of them have been found to be convincing (or) reproducible. Maternal and Perinatal mortality and morbidity in Gestational hypertension, Pre-eclampsia, Eclampsia can only be prevented by access to quality antenatal care, early diagnosis and recognition of risk factors, careful monitoring and timely interventions.

The present study was undertaken in Tertiary care referral hospital (KING GEORGE HOSPITAL), Visakhapatnam with the aim of evaluating the maternal and perinatal outcome and Complications of Gestational hypertension, Pre-eclampsia and Eclampsia.

**Methodology:**

This research was a 6 month retrospective study of Gestational hypertension, Pre-eclampsia, Severe Pre-eclampsia and Eclampsia cases in King George Hospital, Visakhapatnam from December 2018 to May 2019. A total of 520 women with Gestational hypertension, Pre-eclampsia without severe features and Pre-eclampsia with severe features and Eclampsia were included in the study and their case records were retrospectively analysed.

• **INCLUSION CRITERIA:**

BP recording of  $>/140/90$  mm Hg with traces or 1+ or more albuminuria was the criteria followed for categorising Gestational hypertension, pre-eclampsia and severe preeclampsia. Eclampsia was presence of seizures in women with pre-eclampsia which could not be attributed to other causes.

• **EXCLUSION CRITERIA:**

Patients with chronic hypertension before 20 weeks of gestation, chronic renal disease, connective tissue disorders were not included in the study.

A proforma was used to record information on maternal age, parity, booking status, gestational age at diagnosis, mode of delivery, treatment given, complications- both maternal and fetal and finally the maternal and fetal outcome. Investigations and management were carried out in accordance with the standardised department protocol. Investigations that were routinely done for all the cases were complete hemogram, platelet count, liver function tests, renal function tests, coagulation profile, 24 hr urine protein. Ultrasonography with Doppler was done after stabilising the condition of the patients in selected cases.

Antihypertensive drugs used were Tab ALPHA METHYL DOPA, Cap NIFEDIPINE, and Tab LABETALOL both orally and parenterally, singly (or) in combination as needed. Magnesium sulphate was the anticonvulsant of choice used both as prophylactic and treatment according to the ZUSPAN regimen . Preterm delivery was defined as delivery before 37 weeks of gestation.

Neonatal mortality was estimated by number of newborns needing NICU admission. The data was compiled and analysed.

**RESULTS:**

Out of 520 patients in the present study Gestational hypertension, Pre-eclampsia without severe symptoms, Pre-eclampsia with severe symptoms and Eclampsia were observed in different age groups ranging from 18-40, maximum cases 324 were in the age group of 20-25 yrs. There were 11 patients over the age of 35 years.

Table 1: Distribution according to the investigations done.

<b>Investigations</b>	<b>Number of cases</b>	<b>%</b>
1.Elevated liver enzymes	63	12.11
2.Normal range of liver enzymes	457	87.88

Table 2: Distribution of cases according to Gestational age at presentation

<b>GESTATIONAL AGE</b>	<b>NUMBER OF CASES</b>	<b>%</b>
37 week to >/ 40week	359	69.03
34 week to 36 week6days	102	19.61
<34 week	59	11.34

Table 3: Distribution of cases according to anti-hypertensives drugs in management.

<b>DRUGS USED</b>	<b>NUMBER OF CASES</b>	<b>%</b>
NIFEDIPINE	302	58.07
LABETALOL	128	24.61
NIFEDIPINE + LABETALOL	90	17.30

NIFEDIPINE was the most commonly used drug in the present study, either singly or in combination. ALPHA METHYLDOPA was used when patients presented with chronic hypertension with superimposed pre eclampsia before 28 weeks of gestation but in all cases it was used in combination with NIFEDIPINE. LABETALOL was used singly as well as in combination with NIFEDIPINE.

Table 4 : Distribution of cases according to mode of delivery.

<b>MODE OF DELIVERY</b>	<b>NUMBER OF CASES</b>	<b>%</b>
Normal vaginal delivery	238	44.76
LSCS	271	52.11
Instrumental	10	0.19
Hysterotomy	1	00.07

Table 5 : Distribution of cases according to Indications for Caesarean section.

<b>INDICATION</b>	<b>NUMBER OF CASES</b>	<b>%</b>
Previous caesarean section	<b>172</b>	33.06
Non re-assuring fetal status	19	3.6
Failed induction	31	5.9
CPD, Contracted Pelvis	31	5.96
Doppler abnormalities	44	8.46
Oligohydramnios	59	11.34
Abruption	4	00.7

Previous Caesarean Section was the commonest indication for caesarean section as these patients presenting with severe Pre-eclampsia or Eclampsia were not given trial of labour and caesarean section was done after stabilising the patient.

In some cases, there was an overlap of indications like Doppler abnormalities along with Failed induction of labour and Abruption with non re-assuring fetal status.

Atonic PPH was the commonest complication in 34 patients and it was managed with Oxytocin and Prostaglandin F2 Alpha, Bilateral uterine artery ligation was needed in 18 cases.

Table 6: Distribution of cases according to maternal complications and outcome.

COMPLICATIONS	NUMBER OF CASES	%
ECLAMPSIA:	66	12.69
APE(57)		10.96
IPE(5)		0.9
PPE(4)		0.76
ABRUPTIO PLACENTA	8	0.15
Partial HELLP	25	4.80
HELLP	6	0.11
PPH	34	6.53
DIC	2	00.8
Pulmonary edema	2	00.38
Renal dysfunction	3	00.57
ARDS	4	00.76
PRES	6	0.11
Septicaemia	3	00.57
Required ventilation	15	2.88
Transient cortical blindness	4	00.76
Brain haemorrhage	3	00.57
Death	7	01.3

Out of the 520 patients, 429 (82.5%) cases received prophylactic and therapeutic Magnesium sulphate. Partial HELLP syndrome was noted in 25 patients. Near miss cases were 10 out of which 6 patients had HELLP syndrome. These near miss cases were managed by a multidisciplinary team. There were 7 maternal deaths.

Table 7 : Perinatal complications and outcome.

COMPLICATION	NUMBER OF CASES	%
IUGR	53	10
Prematurity	161	30.49
Respiratory distress syndrome	25	4.73
Meconium aspiration	19	3.59
Low birth weight babies	219	41.47
Still birth	5	00.94
NICU admission	38	7.1
Intra uterine death	59	11.17
Neonatal death (Early and late onset)	28	5.3

The number of cases of low birth weight were quite high at 41.47% due to premature indication of labour in cases of Severe Preeclampsia and Eclampsia. NICU admission were needed for 38 patients out of which 25 had RDS (Respiratory distress syndrome). In present study, there were 28 neonatal deaths.

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## DISCUSSION:

Out of 520 cases of hypertensive disorders of pregnancy, Gestational Hypertension, Pre eclampsia with or without severe features and Eclampsia. In the present study, 352 were primi gravidae and 15 were less than 20 years of age. The highest number of cases were in the age group of 20-25 yrs. Severe pre eclampsia more commonly seen in the primigravidae. Other studies notably by Sibar and Cunningham also support these views. Nulliparity as a separate risk factor for severe preeclampsia has been reported in studies by Saxena et al in India by Conde-Agudelo in Latin American women.

About 88.65% of the cases presented at GA >34 weeks, Singhal et al also reported similar findings. Unlike other studies in the present study 18.84% were booked cases but 81.15% of cases were referred from peripheral hospitals. The incidence of severe Pre eclampsia and Eclampsia are higher among unbooked patients. The most common mode of delivery was Lower segment caesarean section in 52.11% of cases and the most common indication was previous 1/more caesarean sections.

The mode of delivery was determined by severity of maternal condition, Bishops score, gestational age, fetal condition, USG and laboratory investigations. Singhal et al reported 33% caesarean section rate. Tufnell et al reported as high as 72% caesarean section rate. Caesarean section rates were 71% and 78% respectively were reported by Miguel m et al and Dissanayaka VH et al. The high rate of caesarean section in the present study is due to more than

33.07% of cases being previous caesarean section and also due to emergency delivery approach taken to prevent further maternal and fetal complications due to Severe pre eclampsia or Eclampsia in cases where the cervix is unfavourable for induction. 10.19% of cases had LSCS for reversed or absent end diastolic flow in umbilical artery. Uteroplacental insufficiency seen in Severe Pre eclampsia and Eclampsia is the major cause of IUGR seen in 10% of the cases in the present study.

Low birth weight was the most common complication among neonates seen in 41.47% of the cases. The high incidence of Low birth weight and premature delivery could be attributed to the early intervention and induction of labour or LSCS done to avert further maternal and perinatal complications.

Main factors affecting perinatal mortality and morbidity were prematurity, IUGR and irregular antenatal visits. Being a tertiary care centre, we have an efficient team of neonatologists and neonatal intensive care unit (NICU) backup

The main factors determining maternal morbidity are associated risk factors like

- Diabetes,
- Anaemia,
- Nulliparity,

- Advanced maternal age,
- Early onset pre eclampsia,
- Severe Preeclampsia and
- previous history of pre-eclampsia.

In this study, post partum haemorrhage was the most common maternal complication seen in 6.53% of cases followed by partial HELLP in 4.80% of cases and Eclampsia in 12.69% of cases.

Various studies have reported Abruptio placenta and HELLP syndrome as the more common complications . A study by Farid M et al had 11% incidence of HELLP Syndrome and 10% incidence of abruptio placenta

- In a 10year study done by Igberase et al the important causes of maternal mortality in Severe pre eclampsia was due to:
- Acute renal failure,
- DIC,
- Pulmonary edema,
- Cerebrovascular accidents.

In the present study, there were 7 maternal deaths and 6 were maternal near miss cases due to HELLP syndrome. These were managed in the Intensive care unit of the hospital by a multidisciplinary team.

#### **CONCLUSION:**

Preeclampsia and Eclampsia continue to be significant causes of maternal and fetal morbidity and mortality. Though prevention is not possible, it is important to recognise early warning symptoms and signs so that life threatening complications can be averted.

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