

**A RETROSPECTIVE STUDY OF MATERNAL AND PERINATAL OUTCOME IN SEVERE PRE-ECLAMPSIA AND ECLAMPSIA IN A TERTIARY CARE HOSPITAL**

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**Abstract**

**Introduction:** Hypertensive disorders are the most common medical disorders encountered in pregnancy approximately 7% to 10% of all pregnancies. Hypertensive disorders are associated with foetal growth restriction, perinatal asphyxia, Iatrogenic prematurity, still births, preterm delivery, perinatal death, neonatal mortality and affects vital maternal organ system such as hepatic, renal, cardiorespiratory, cerebral and haematologic leading to maternal morbidity and mortality .The aim of the study was to assess the prevalence of severe pre-eclampsia, eclampsia and HELLP syndrome in our Hospital and its maternal and foetal outcome

**Materials and Methods:** This is retrospective study done in Department of Obstetrics and Gynaecology ,Government General Hospital, Guntur over a period of six months (July 2023 to December 2023).All women presenting with severe pre- eclampsia, pre-eclampsia with imminent features, eclampsia and HELLP syndrome attending Labour room , Government General hospital Guntur were included in this study. Women with gestational HTN, non-severe pre-eclampsia, chronic HTN were excluded. Ethical approval was obtained from institutional ethical committee. Out of all the total deliveries, 130 were studied. All detailed data such as demographic data, maternal age, parity, mode of delivery, obstetrical history, obstetric outcome, maternal complications, and foetal outcome were recorded.

**Results:**130 cases were recorded out of 3007deliveries. Among these, 66 cases were severe pre-eclampsia (50.76%),33 cases were imminent eclampsia(25.38%),27 cases were Eclampsia(20.76%), four cases were HELLP syndrome(3%).The total prevalence was4.32% in our study. Majority of them were primigravida(61.53%) and belong to an age group of 20 to 25 (60%).Majority of them were delivered by caesarean section (67.69%).Most complications were seen in the eclampsia group. Prematurity was seen in 60.75% and LBW seen in 40.57%. 10 cases were IUD and 15 were neonatal deaths.

**Conclusion:** It is one of the important causes of maternal and perinatal morbidity and mortality probably resulting from inadequate and suboptimal antenatal care and lack of education and awareness amongst people belonging to low socio-economic status. The high prevalence of hypertensive disorders complicates the maternal and foetal outcome. Antenatal surveillance, early detection, prompt treatment and early intervention and timely termination of pregnancy could reduce the maternal morbidity and mortality.

**Keywords:** severe pre-eclampsia, HELLP, Eclampsia, maternal outcome, perinatal outcome.

## INTRODUCTION

Hypertensive disorders complicate up to 10 % of pregnancies. Hypertensive disorders include preeclampsia, gestational hypertension, and chronic hypertension .As a group they are one member of the deadly triad – along with haemorrhage and infection that contributes to maternal morbidity and mortality.<sup>(1)</sup>

Classification of hypertensive disorders according to ACOG (2013,2020)

- 1.Preeclampsia and eclampsia syndrome
- 2.Chronic hypertension of any aetiology
- 3.preeclampsia superimposed on chronic hypertension
- 4.Gestational hypertension in which definitive evidence for the preeclampsia syndrome does not develop and hypertension resolves by 12 weeks postpartum .<sup>(1)</sup>

Pre-eclampsia is a disorder of pregnancy associated with new-onset hypertension and associated proteinuria which occurs most often after 20 weeks gestation and frequently near term. As per the new ACOG guidelines these features have been included in the diagnostic criteria for pre-eclampsia with severe features :

Any one of the following :

- 1.Severe range of BPs ,Systolic BP of 160mm Hg or higher, or diastolic BP of 110mm Hg or higher .
- 2.Thrombocytopenia(platelet count <1 lakh/cumm).
- 3.Impaired liver function
- 4.Severe persistent right upper quadrant or epigastric pain
- 5.Renal insufficiency
- 6.Pulmonary oedema
- 7.New onset headache or with visual disturbances<sup>(2)</sup>

Eclampsia is an extremely severe form of pre eclampsia.It is characterised by new onset of focal or multifocal tonic-clonic convulsions or coma occurring in pregnancy or postpartum which is not attributable to another cause.<sup>(2)</sup>

HELLP Syndrome – Severe form of pre-eclampsia characterised by Haemolysis, elevated liver enzymes twice the upper normal limit and thrombocytopenia <sup>(2)</sup>

Pre-eclampsia is associated with foetal growth restriction(FGR),low birth weight, spontaneous or iatrogenic preterm delivery, respiratory distress syndrome (RDS),admission to neonatal intensive care and cerebral palsy. About 8 to 10% of all preterm births result from hypertensive disorders. Half of the women with severe pre-eclampsia give preterm birth. Foetal growth restriction arising from placental disease is common, with 20-25% of preterm births and 14-19% of term births in women with pre-eclampsia, being less than the 10<sup>th</sup> centile of birth weight for gestation.<sup>(2)</sup>

GESTOSIS score is used for screening and prevention ,early diagnosis and management of preeclampsia.

### **AIMS AND OBJECTIVES**

The aim of the study was to assess the prevalence of severe pre-eclampsia, eclampsia and HELLP syndrome in our Hospital and its maternal and foetal outcome.

### **MATERIALS AND METHODS**

The study was conducted in a tertiary care centre in the Department of Obstetrics and Gynaecology in Government General Hospital, Guntur from July 2023 to December 2023.

All women presenting with severe pre- eclampsia, pre-eclampsia with imminent features, eclampsia and HELLP syndrome attending Government General hospital Guntur were included in this study. Approval was taken from institutional ethical committee. Data analysed under the criteria, Maternal parameters included -Age, parity, gestational age at the onset of the disease, type of Hypertensive disorder, antenatal, intrapartum, and postpartum events, mode of delivery and maternal complications. Foetal parameters include –abortions, term/preterm birth, birth weight, FGR, APGAR, NICU admissions and early neonatal deaths.

**STUDY DESIGN:** A Retrospective study.

**STUDY PERIOD:** Six Months [July 2023 to December 2023].

**SAMPLE SIZE:** 130 patients

**METHODS:** Data of cases of pre-eclampsia and eclampsia collected from the records of labour ward during the period of six months.

#### **Inclusion Criteria:**

- All antenatal women diagnosed with severe pre-eclampsia, eclampsia, HELLP syndrome and imminent eclampsia.

#### **Exclusion Criteria:**

- Pregnant women who have gestational HTN, non-severe pre-eclampsia and chronic HTN .

### **RESULTS**

In our hospital out of 3007 deliveries,130 cases of severe pre-eclampsia, eclampsia, HELLP syndrome and imminent eclampsia were collected. The prevalence is 4.32% .

**TYPE OF HYPERTENSIVE DISORDERS:**

Out of 130 patients, there were 66 cases of severe pre-eclampsia ,27 cases of Eclampsia,4 cases of HELLP syndrome and 33 cases of imminent eclampsia.

**Table 1: Type of hypertensive disorders**

Type	Number	Percentage
Severe pre-eclampsia	66	50.76%
Eclampsia	27	20.76%
HELLP	4	3%
Imminent eclampsia	33	25.38%

**Table 2:Age distribution**

Majority of them belong to 20 to 25yrs- 78 cases(60%).

Age	Number	Percentage
<20	18	13.85%
20 to 25	78	60%
26 to 30	15	11.53%
>30	19	14.62%

**Table 3: Parity**

Parity	Number	Percentage
Primi	80	61.54%
Multi	50	38.46%

**Table 4:Booked and Unbooked:**

	Number	Percentage
Booked elsewhere and/or Referral cases	103	79.23%
Unbooked	10	7.69%
Booked here	17	13.08%

**Table 5:Mode of Delivery:**

Mode of delivery	Number	Percentage
LSCS	88	67.69%
NVD	42	32.31%

**Table 6:Gestational age at onset:**

Gestational age at onset	Number	Percentage
<34 weeks	90	69.24%
>=34 weeks	40	30.76%

**Table 7: Anti hypertensives used**

On one drug	60	46.15%
More than one drug	70	53.85%

Three cases were given Nitro-glycerine drip to control blood pressure. Pritchard's regimen (Inj.MgSO4) was given in 70 cases (53.85%).

**Table 8: Gestational age at delivery:**

Most of the cases are preterm delivered at less than 37 weeks (60.75%).

Gestational age		Number	Percentage
Term	>37 wks.	51	39.23%
Preterm	34-37 wks.	42	32.31%
	30 - <34wks	29	22.31%
	<30 wks.	8	6.15%

**COMPLICATIONS:** Preterm delivery and prematurity are the most common complication noted in 69 cases (53%).PRES changes on MRI were seen in 25 cases (19.23%).PPH occurred in 20 cases (15.38%).Maternal deaths occurred in 4 cases(3.07%).

FGR and associated oligohydramnios seen in 22 cases (16.92%) . There were 10 cases of IUD (7.69%). Neonatal deaths were 15(11.28%).

Multiple complications were present in some cases.

Maternal deaths occurred in four cases:

- One case of status eclampticus with PRES .
- One case of IUD with abruption with severe anemia with severe pre-eclampsia complicated with acute pulmonary oedema and cardiac failure.
- One case of antepartum eclampsia complicated with pulmonary oedema, DIC, sepsis and acute renal failure.
- One case of postpartum eclampsia with peripartum cardiomyopathy with PRES died due to cardiogenic shock.

**Table 9: Complications**

Complications	Number of cases	Percentage
Abortions	2	1.53%
Preterm delivery	69	53.08%
Abruption	4	3.07%
IUFD	Fresh	5
	Macerated	5
Pulmonary oedema	10	7.69%
FGR and oligo	22	16.92%
PPH	20	15.38%
PRES	25	19.23%
Congestive heart failure	2	1.53%
Ventilatory support	8	6.15%

Status eclampticus	2	1.53%
Aspiration pneumonia	2	1.53%
PPCM	2	1.53%
DIC	2	1.53%
ARF	2	1.53%
Maternal deaths	4	3.07%

**Table 10: Birth weight**

Out of 130 cases, there were 2 cases of abortions and there were 5 cases of twin deliveries.

<b>Birth weight</b>	<b>Number (133)</b>	<b>Percentage</b>
<1kg	10	7.52%
1-1.5kg	20	15.04%
1.6-2.0kg	24	18.04%
>2.0 -2.5kg	36	27.07%
>2.5-3.0kg	28	21.05%
>3.0kg	15	11.28%

**Table 11: APGAR At birth**

<b>APGAR</b>	<b>Number(123)</b>	<b>Percentage</b>
1-4	8	6.50%
5-6	25	20.33%
>=7	90	73.17%

**Table 12: Foetal outcomes**

<b>Foetal outcome</b>	<b>Number (133)</b>	<b>Percentage</b>
IUD	10	7.52%
Neonatal deaths	15	11.28%
Healthy babies	108	81.20%

51 Babies were admitted in NICU and 36 babies were healthy and discharged

Neonatal deaths occurred in 15 babies (11.28%).

### **DISCUSSION**

Hypertensive disorders of pregnancy are common and form one of the deadly triads along with haemorrhage and infection which contribute greatly to maternal morbidity and mortality, foetal and neonatal jeopardy.<sup>(3)</sup>

The prevalence of HDP is different according to geographic regions of the world and this difference can be due to racial difference and Socioeconomic status and some other demographic parameters like age, parity etc. In our study the combined prevalence of severe pre-eclampsia, eclampsia, HELLP was 4.32%. Our study showed 61.54% of primigravida and 38.46% of multigravida, and majority belonging to a age group of 20 to 25 yrs.(60%). In

several studies pre-eclampsia was regarded as disease of first pregnancy, so primigravida is a risk factor for development of pre-eclampsia<sup>(4,5)</sup>.

The mode of delivery was significantly associated with severity of HDP. The rate of caesarean section in our study was 67.69%, which was slightly higher than other studies and also contributing to increased rate of prematurity (60.75%). Most of the cases were referrals or booked elsewhere (79.23%), as this study hospital is a tertiary referral care centre and mostly had early onset of disease (69.23%). Maternal complications seen in present study was abruption (3.09%), pulmonary oedema (27.69%), Postpartum haemorrhage (15.38%), Posterior reversible encephalopathy syndrome (19.23%), Peripartum cardiomyopathy (1.53%). There are 4 cases of maternal mortality.

Foetal complications associated with HDP in our study were foetal growth restriction, preterm delivery, low APGAR scores at birth and need of NICU admission and ventilator support. In the study by Sharma et al they concluded that 27.5% babies had normal outcome while Intrauterine death/ Stillbirth were seen in 13.7%, NICU admission in 41.2%, 6.8% needed ventilator support, neonatal deaths were 3.2%, low APGAR in 30.7% and FGR was seen in 41.2% cases.<sup>(4,5)</sup> The only cure for eclampsia and pre-eclampsia is delivery. The timing regarding this has to be decided by assessing the risk of continuing pregnancy and benefits of delivery. The decision-making process should include parents and a senior obstetrician who will discuss all risk and benefits in detail. There are not much studies which focus on optimal timing and method of delivery in such patients. According to recommendations women with HDP, vaginal delivery is preferred until there is any obstetric indication for LSCS. Caesarean may be preferred in patients with FGR, oligohydramnios, any Doppler changes or severe uncontrolled BP even after medications. Steroid coverage is done in preterm cases. Patients should be counselled regarding long term prognosis and recurrence of disease in future pregnancies. Women with pre-eclampsia have a three- to four- fold increased risk of developing chronic hypertension and an approximately two-fold increased risk of ischaemic heart disease, stroke, and venous thromboembolism.<sup>(6)</sup>

### **CONCLUSION**

Hypertensive disorders of pregnancy are considered to be a major health problem causing increased risk of maternal and perinatal morbidity and mortality mostly in severe pre-eclampsia and eclampsia and HELLP syndrome as compared to gestational HTN, chronic HTN and mild pre-eclampsia. Therefore timely diagnosis, early intervention and prompt treatment, timely termination of pregnancy could reduce the impact of such complications. Routine screening based on GESTOSIS scoring among all pregnant women at early gestational age could be helpful for prevention, early diagnosis and management.

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