

**Maternal and Perinatal Outcomes in Hypertensive Disorders in Pregnancy****B Ramya Sri Sai<sup>1</sup>, K Vandana<sup>2</sup>, Munni SK<sup>3</sup>**<sup>1</sup>*Postgraduate, Department of Obstetrics and Gynaecology, Alluri Sitarama Raju Academy of Medical Sciences, Eluru, West Godavari District, Andhra Pradesh, India*<sup>2</sup>*Professor and HOD, Department of Obstetrics and Gynaecology, Alluri Sitarama Raju Academy of Medical Sciences, Eluru, West Godavari District, Andhra Pradesh, India*<sup>3</sup>*Assistant Professor, Department of Obstetrics and Gynaecology, Alluri Sitarama Raju Academy of Medical Sciences, Eluru, West Godavari District, Andhra Pradesh, India***Received: 19-11-2021 / Revised: 17-12-2021 / Accepted: 12-01-2022****Abstract**

**Introduction:** Preeclampsia refers to the new onset of hypertension and proteinuria after 20 weeks of gestation in a previously normotensive woman. Pregnant women with preeclampsia are at an increased risk of adverse maternal, fetal and neonatal complications. The objective of the study is, therefore, to determine the maternal and perinatal outcome of preeclampsia without severity feature among women managed at a tertiary referral hospital in ASRAM, eluru. **Materials and Methods:** All patients beyond 20 weeks with pre-eclampsia admitted to ASRAM Hospital during two-year study period were enrolled in the study. Sample size is 100. The objective of this study was to analyze the type and rate of maternal and perinatal complications in preeclampsia. Women with preexisting renal disease, chronic hypertension, anemia, heart disease, epilepsy, thrombophilias, hemolytic disease, preexisting liver disease were excluded from the study. Obstetrics management was done as per existing protocol in the department. Magnesium sulphate was the drug of choice to control convulsions. Blood pressure was controlled by either tablet alpha methyl dopa or nifedipine or both. **Results:** Preeclampsia cases accounted for 100 (4.9%) of total deliveries. Majority (86.52%) were unbooked cases between 20 -25 years of age (63.48%) and were primigravida (60.44%) belonging to low socioeconomic status (73.91%). Commonest maternal complication in present study was eclampsia (34.56%) Total maternal deaths accounted for 14. Most common cause for maternal mortality was eclampsia with HELLP (9.64.28%). Total perinatal deaths accounted for 164 and most common cause for perinatal death was prematurity (47,28.65%). **Conclusion:** Preeclampsia is major leading cause for poor maternal and fetal outcome. Regular antenatal checkup, early diagnosis, early interventions, early referral to tertiary centers, optimum timing and mode of delivery and awareness among patients will reduce both maternal and perinatal morbidity and mortality.

**Keywords:** Maternal mortality, Preeclampsia, Perinatal mortality.

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**Introduction**

Preeclampsia complicates about 5-8 % of all hypertensive disorders of pregnancies.<sup>1,2</sup> As per WHO systematically reviewed maternal mortalities 2009, 16% of maternal deaths are due to hypertensive disorders of pregnancies in developed countries.<sup>3</sup> Preeclampsia is defined as hypertension (BP  $\geq$  140/90 mm Hg on 2 occasions 6 hours apart) appearing after 20 weeks of gestation with proteinuria.<sup>4</sup> As Boyd stated preeclampsia remain "die Krankheit der Therin" -The disease of theories. Currently accepted hypothesis includes defective placentation with abnormal trophoblastic invasion of uterine blood vessels, oxidative stress with release of vasoactive substances like oxidized LDL and Triglycerides, increased thromboxane and / or cytokines, immunological intolerance to the fetus and genetic abnormalities which trigger vascular and organ dysfunction.<sup>5</sup> Preeclampsia is a multisystem disorder leading to many complications like Abruption, Eclampsia, HELLP syndrome, DIC, Pulmonary edema, Acute renal failure, Adult respiratory distress syndrome leading to maternal deaths.<sup>6,7</sup> Fetal morbidities include preterm delivery, IUGR (intra uterine growth retardation), still birth, low birth weight babies.<sup>8</sup> At present there is no single cost-effective and reliable screening test for preeclampsia and no well-established measures for primary prevention. The ultimate treatment of

preeclampsia is to deliver the fetus as early as possible to prevent maternal complications. In some cases, it is necessary to delay the delivery in interest of the fetus to prevent prematurity and thus to reduce perinatal morbidity and mortality. Regular antenatal check-ups, careful monitoring and appropriate management are essential elements in prevention of preeclampsia deaths.<sup>9</sup> This study is undertaken to analyse the cases of preeclampsia and to know the maternal and perinatal outcome.

**Methods**

The present study is a prospective study carried out on 100 antenatal mothers beyond 20 weeks with preeclampsia and admitted to ASRAM hospital, eluru, from August 2020 to August 2021.

**Inclusion criteria**

- All antenatal mothers meeting the criteria of Preeclampsia presenting to antenatal ward, delivery room and high-risk unit.

**Exclusion criteria**

- Preexisting renal disease
- Chronic hypertension
- Anemia
- Heart disease
- Epilepsy
- Thrombophilias, hemolytic disease
- Preexisting liver disease such as viral hepatitis.

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National Institute of Health (NIH) Working Group on High Blood

Pressure for the definitions of preeclampsia.

Preeclampsia is defined as hyper tension diagnosed after 20 weeks of gestation accompanied by proteinuria of >3g/deciliter in 24 hours urinary collection with or without edema.

All the antenatal mothers fulfilling the above criteria were enrolled for the study after taking written informed consent. On admission patients detailed demographic, obstetric, medical, personal, past and family history were taken.

General examination, systemic, abdominal and pelvic examinations were carried out for all patients. Investigations like complete blood picture, liver function tests, renal function tests, coagulation profile, funduscopy and urine examination were done.

Ultrasound with doppler was done. Blood pressure was measured using auscultatory method with a standard calibrated instrument. An appropriately sized cuff was used to ensure accuracy. Koratkov sound 5 was taken to measure diastolic BP. These patients were then followed up to study the maternal and perinatal outcome. Magnesium

sulphate was the drug of choice to control convulsions.

Blood pressure was controlled by either tablet alpha methyl dopa or nifedipine or both. Corticosteroids were given if the gestational age was less than 34 weeks. Obstetric management was done (spontaneous/induced labour) as per unit protocol and patients were delivered either vaginally or by caesarean section. Neonatal care was provided by pediatrician if necessary, from delivery onwards.

Uncontrolled hypertension was managed by physician. Maternal and perinatal complications were noted down. At the end of study, the data was compiled and analysed.

**Results**

Most of the patients having preeclampsia were unbooked (86.52 %) belonging to low socioeconomic status (73.91 %). These patients were either referred from peripheral centers or the patients themselves came after development of complications. Preeclampsia was more common in primigravida (60.44 %) than multigravida (39.56 %)

**Table 1:** Distribution of socio demographic factors.

Factor	Percentage
Antenatal visits	
Booked	14.47
Unbooked	86.52
Socio-economic status	
Lower	73.91
Upper	26.08
Age (years)	
<20	12.17
20-25	63.48
26-30	17.83
31 and above	6.52
Parity	
Primi	60.44
Multi	39.56

46.96 % patients presented with preeclampsia > 36 weeks 43.04 % patients presented with preeclampsia with gestational age between 29-

32 weeks and only 10 % patients presented

**Table 2:** Gestational age at presentation

Age	Percentage
<28	10
29-32	21.30
33-36	21.74
>36	46.96

In the present study renal function was severely affected in preeclampsia. Blood urea >18 mg/dl was noted in 41.30 % cases. Similarly, serum creatinine >0.8 mg/dl in 58.28% and serum uric acid >4.5 mg/dl seen in 52.17 % cases. Liver function tests were deranged in 25.64 %cases of which total serum bilirubin >1mg/dl observed in 19.56 % cases and AST, ALT >40 IU/ml in 6.08 % cases. Severe anemia <6gm/dl was noted in 32 cases (6.90%), reflecting blood loss due to abruptio placenta and severe platelet deficiency <0.5 lacs/mm<sup>3</sup> in 12 cases (2.60%) suggestive of HELLP Syndrome. The most common maternal complication in present study was

eclampsia -159 cases (34.56 %) followed by abruption - 68 cases (14.78 %) followed by Imminent eclampsia -42 cases (9.13 %) HELLP was seen in 23 (5 %) patients. 26 patients developed acute renal failure for which dialysis was required. DIC was seen in 11 (2.39 %) patients for which whole blood and fresh frozen plasma were transfused. 8 patients developed pulmonary edema. Majority of the cases were successfully managed in our hospital. In the present study 14 maternal deaths occurred. The most common cause for maternal death in present study was eclampsia with HELLP and this could probably be due to delayed referral

**Table 3:** Incidence of maternal outcome

Complications	Percentage
Eclampsia	34.56
Imminent eclampsia	9.13
Abruption	14.78
HELLP	5
DIC	2.39
ARF/oliguria	5.65
Pulmonary edema	1.73
Mortality	3.04

The mode of delivery was determined on the basis of fetal condition, gestational age and Bishop's score. Labor was managed based on above factors. In the present study 51.21% cases delivered vaginally and 48.69 % cases delivered by caesarian section. Instrumental

vaginal delivery was done either by outlet forceps or vacuum (6.2 %) The most common indication for caesarian section in the present study was fetal distress (24.10 %) followed by eclampsia (20.53 %) and then failed induction (19.64 %)

**Table 4:** Indications of cesarean deliveries

Causes for cesarean section	Percentage
Eclampsia	20.53
Imminent eclampsia	5.35
Prev LSCS	12.94
Abruption	4.01
Twins	1.78
Severe oligo	4.91
Failed induction	19.64
HELLP	3.57
Fetal distress	24.10
IUGR/Doppler change	3.12

(47.39 %) babies born to preeclamptic mothers had normal APGAR with immediate cry. However, (24.78 %) babies required NICU

admissions. Perinatal mortality was seen in (35.65 %) of which were IUD, were NICU deaths and were fresh still births

**Table 5:** Perinatal outcome

Cause	Percentage
Normal APGAR	47.39
IUGR	3.04
NICU admission	24.78
Fresh stillborn	1.08
IUD	23.69
NICU deaths	10.86
Total perinatal deaths	35.65

Causes of NICU admission  
Severe birth asphyxia  
Term IUGR  
Preterm IUGR  
Preterm  
Meconium aspiration syndrome

### Discussion

Preeclampsia is a reversible multi organ disease for which delivery is the cure. It is responsible for majority of adverse maternal and perinatal outcomes. The incidence of preeclampsia and its associated complications have decreased dramatically in developed countries but not in developing countries where it still stands as one of the major complications in pregnancy. This is attributed to improvement in antenatal care, awareness among patients and proper management in developed countries. During the study period from September 2019 to September 2021 total number of preeclampsia cases were 100. In present study 86.52 % cases were unbooked and 73.91% belonging to low socioeconomic status.

In the present study eclampsia was the most common complication of preeclampsia (34.56 %) followed by abruption (14.78%), imminent eclampsia (9.13%), ARF/Oliguria (5.65%) and HELLP (5%).

In the present study spontaneous vaginal delivery was 13.49 %, induced vaginal delivery was 31.52 % and caesarian section was 48.69 %.

The most common indication for caesarian section in the present study was eclampsia (20.53 %) followed by failed induction (19.64 %) and then previous LSCS (12.94 %).

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) back up.

The perinatal mortality in our study was 35.65 % i.e. IUD's (23.69 %), NICU deaths were (10.86 %) and fresh still births were (1.08%).

The most common cause for NICU admissions were pre-maturity (55.26 %), severe birth asphyxia were (29.82%) IUGR were (6.14%). The high incidence of preterm delivery could be attributed to the early

intervention and induction of labour or LSCS done to avert further maternal and perinatal complications.

### Conclusion

Preeclampsia still remains to be a significant cause for maternal and perinatal morbidity and mortality in developing countries. Though prevention of preeclampsia is impossible, yet its complications can be prevented. Provision of quality antenatal health care services, increasing patient awareness about warning symptoms, investigations, timely delivery and intensive monitoring in the intrapartum and postpartum period have the potential to improve maternal and perinatal outcome. Education and empowerment of women and accessible health care especially to the socioeconomically deprived and rural population is the need of the hour.

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