

FETO-MATERNAL OUTCOME IN SEVERE PREECLAMPSIA

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Abstract

Background & Materials and Methods: Pre-eclampsia is a pregnancy-induced hypertensive disorder seen after 20 weeks of gestation with multi-system involvement. In healthy nulliparous women, the prevalence of preeclampsia ranges between 2% and 7% It is a major cause of perinatal and maternal morbidity and mortality in healthy nulliparous women. As it is a multisystem disorder that leads to certain complications like placental Abruption, HELLP syndrome, Eclampsia, DIC, Pulmonary edema, adult respiratory distress syndrome (ARDS), and Acute renal failure leading to high maternal morbidity and mortality. A high incidence of perinatal morbidity and mortality is primarily related to premature birth, uteroplacental insufficiency, and low birth weight. The aim of the study is to evaluate the Feto-Maternal Outcome of severe Preeclampsia. Cases with severe preeclampsia (B.P reading of $\geq 160/110$ mmHg with 1+ or more albuminuria) between 28week still delivery, antepartum & Intra Partum eclampsia were included in the study. A total number of 112 cases were included in the study. study variables were a mode of delivery, maternal morbidity-mortality & perinatal morbidity-mortality **Result:** This study analyzed 112 patients with severe preeclampsia. Out of the 112 patients in the present study, maximum (44.64%) cases were in the age group of 26 to 30 years, most (57.14%) of them were Primigravida, and most of the cases were between 32-36 weeks of pregnancy. The incidence of preeclampsia was higher in unregistered (60.71%) cases. The majority of the patients had headache 44.64% as a chief complaint, followed by pedal edema (32.14%), vomiting (18.75%), Convulsion (9.82%), Oliguria (9.82%), Epigastric pain (7.14%), Generalized edema (3.57%), and blurred vision (4.46%) respectively. In our study, the most common mode of delivery (57.14%) was cesarean delivery. (42.85%) of patients delivered vaginally. Out of all normal deliveries, (16.96%) of patients delivered Spontaneously, around (20.32%) of all deliveries are preceded by labor induction, and (3.57 %) of patients needed Instrumental assistance (Vacuum extraction) during the second stage of labor. The most common maternal complication in the present study was PPH (16.07%), followed by eclampsia (9.82%) and abruption placenta (9.82%), HELLP (3.57%), DIC (1.78%), Pulmonary edema (0.89%), Renal dysfunction (1.78%), and neurological dysfunction in (1%) of cases. In our study, antepartum eclampsia was the most common one. Neonatal outcomes as preterm babies (73.21%), low birth weight (25%), and IUGR (17.85%). NICU admission is required in (43.75%) of babies with reported Perinatal mortality as (16.07%). **Conclusion:** Preeclampsia & eclampsia continue to be significant causes of maternal & fetal morbidity & mortality It is important to recognize early warning symptoms& signs so that life-threatening complications can be prevented. Provision of quality maternal health care services, increasing patient awareness about various warning symptoms,

investigations, timely referral of patients to higher centers, the early use of antihypertensive drugs, timely delivery & intensive monitoring in the intrapartum & postpartum period can result in improvement in maternal & perinatal outcome.

INTRODUCTION

Hypertension is the most common medical disorder encountered during pregnancy.^[1] Pre-eclampsia is a pregnancy-induced hypertensive disorder seen after 20 weeks of gestation with multi-system involvement. In healthy nulliparous women, the prevalence of preeclampsia ranges between 2% and 7%.^[2,3] Preeclampsia is a major cause of perinatal and maternal morbidity and mortality.^[4] Hypertensive disorders of pregnancy account for nearly 18% of all maternal deaths worldwide.^[5]

Preeclampsia is considered severe if there is severe gestational hypertension in association with abnormal proteinuria or if there is hypertension in association with severe proteinuria (at least 5g per 24-hour period). In addition, preeclampsia is considered severe in the presence of multi-organ involvement such as pulmonary edema, seizures, oliguria (less than 500 mL per 24-hour period), thrombocytopenia (platelet count less than 100,000/mm³) abnormal liver enzymes associated with right upper quadrant pain or persistent epigastric pain, persistent central nervous system symptoms (headaches, altered mental status, blurred vision or blindness).^[6] Risk factors for Preeclampsia are nulliparity, multifetal gestation, obesity, family history of preeclampsia-eclampsia, preeclampsia in a previous pregnancy, maternal age above 40, abnormal uterine doppler studies at 18 and 24 wk, pregestational diabetes mellitus, presence of thrombophilia, hypertension or renal disease, maternal smoking, and certain genetic factors.^[7]

The prevalence of preeclampsia is higher in women with twin gestation and those with a previous history of preeclampsia.^[8,9]

The rate of progression depends on gestational age at the time of diagnosis; the rate reaches 50% when gestational hypertension develops before 30 weeks gestation.^[10]

Preeclampsia is a multisystem disorder leading to some complications. Severe preeclampsia is associated with an increased risk of maternal mortality (0.2%) and maternal morbidities (5%) such as eclampsia, pulmonary edema, ARDS (adult respiratory distress syndrome) acute renal or hepatic failure, liver hemorrhage, DIC (disseminated intravascular coagulopathy), HELLP syndrome (Haemolysis, elevated liver enzymes, low platelets) and stroke. These complications are usually seen in women who develop preeclampsia before 32 weeks gestation and in those with a preexisting medical condition.^[11-13]

Fetal complications are mainly due to uteroplacental insufficiency leading to IUGR (Intrauterine growth

restriction), Stillbirth, Low birth weight babies, IUFD (Intrauterine fetal death), and prematurity.

Delivery is the ultimate cure for severe preeclampsia & eclampsia, because of the worsening of fetal & maternal status. Proper obstetric care is one of the cornerstones of the management, undue delay in the delivery of the fetus & placenta may adversely affect fetal & maternal outcomes, Hence, the abdominal route of delivery when the vaginal route is not imminent will help in improving the maternal/fetal outcome.^[14] the rate of cesarean delivery is increased because of increased rates of induction of labor.^[8]

MATERIALS AND METHODS

This is an observational descriptive study conducted in the Department of Obstetrics & Gynecology in SRVS Medical College, Shivpuri from October 2021 to October 2022 to Data. were taken from the labor room after appropriate written informed consent.

Mode of delivery, maternal morbidity-mortality & perinatal morbidity-mortality were the study variables. Cases with severe preeclampsia between 28 weeks to till delivery, antepartum & Intrapartum eclampsia were included in the study. Cases with imminent delivery were excluded from the study.

A total number of 112 cases were included in the study. On admission patient's detailed demographic, obstetric, personal, medical, and family history was taken. General physical examination and systemic, abdominal, and pelvic examinations were carried out. All necessary investigations done. Anti-hypertensive and anti-convulsant treatment was started wherever needed. Obstetrics management was done according to the standard protocol. The decision to induce labor or cesarean section was done after balancing risks & benefits for the mother & fetus.

The primary outcome was measured in terms of maternal mortality, and maternal morbidity. Characteristics were acute renal failure, pulmonary edema, disseminated intravascular coagulation (DIC), HELLP syndrome, and abruption. Parameters for fetal & neonatal outcomes were birth weight, APGAR score, live or stillbirths, & any other complications.

Inclusion criteria

B.P reading of $\geq 160/110$ mmHg with 1+ or more albuminuria was the inclusion criteria for severe preeclampsia. Eclampsia was the presence of seizures in women with preeclampsia 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 & mild preeclampsia were not included in the study.

RESULTS

This study analyzed 112 patients with severe preeclampsia

Out of the 112 patients in the present study, the maximum (44.64%) cases were in the age group of 26 to 30 years, most (57.14%) of them were Primigravida and most of the cases were between 32-36 weeks of pregnancy (56.25%). The incidence of preeclampsia was higher in unregistered cases (60.71%). [Table 1]

Table 1: Demographic and antenatal background

Age	No.of cases	Percentage
< 20	20	17.85
21-25	26	23.21
26-30	50	44.64
31-35	9	8.03
> 35	7	6.25
Total	112	100
Parity	No. of cases	Percentage
Primi	64	57.14
Multi	48	42.85
Total	112	100
Registration	No. of cases	Percentage
Registered	44	39.28
Un-Registered	68	60.71
Total	112	100
Gestational age	No.of cases	Percentage
28-32weeks	20	17.85
32-36weeks	63	56.25
≥36weeks	29	25.89
Total	112	100

Table 2: Presenting signs and symptoms

Signs and symptoms	Number	Percentage
Headache	50	44.64
Pedal edema	36	32.14
Vomiting	21	18.75
Convulsion	11	9.82
Oliguria	11	9.82
Right upper quadrant pain and epigastric pain	8	7.14
Blurred vision	5	4.46
Generalized edema	4	3.57
Altered mental status	2	1.78

The majority of the patients had headache 44.64% as a chief complaint, followed by pedal edema (32.14%), vomiting (18.75%), Convulsion (9.82%), Oliguria (9.82%), Epigastric pain (7.14%), Generalized edema (3.57%), and Blurred vision(4.46%) respectively.

Table 3: Mode of delivery

Mode of delivery	No.of cases	Percentage	
Vaginal Delivery 48 (42.85%)	Spontaneous vaginal delivery	19	16.96
	Induced vaginal delivery	25	22.32
	Instrumental vaginal delivery	4	3.57
Caesarian section	64	57.14	
Total	112	100	

Total cases are appearing 1122/May be 48 for vaginal delivery so % will change

In our study, the most common mode (57.14%) of delivery was cesarean delivery. (42.85%) of patients delivered vaginally. Out of all normal deliveries, (16.96%) of patients delivered Spontaneously, around (20.32%) of all deliveries are preceded by labor induction, and (3.57 %) of patients needed Instrumental assistance (Vaccum extraction) during the second stage of labor.

Table 4: Maternal complications

Complication	No.of cases	Percentage
PH	18	16.07
Eclampsia	11	9.82
Abruptio placentae	11	9.82

HELLP(hemolysis, elevated liver enzymes, and low platelets)	04	3.57
DIC	02	1.78
Renal dysfunction	02	1.78
Pulmonary edema	01	0.89
Neurological dysfunction	01	0.89
ARDS	00	00

The most common maternal complication in the present study was PPH (16.07%), followed by eclampsia (9.82%) and abruption of the placenta (.9.82%). HELLP was seen in (3.57%) DIC in (1.78%), Renal dysfunction in (1.78%), Pulmonary edema in (0.89%), and neurological dysfunction were found in (0.89) of cases.

Table 5: Type of Eclampsia

Mode of delivery	No.of cases	Percentage
Antepartum	5	45.45
Intrapartum	2	18.18
Postpartum	4	36.36
Total	11	100

In our study, antepartum eclampsia was the most common one.

Table 6: Perinatal outcome

Fetal Outcome	No.of cases	Percentage
Preterm	82	73.21
LBW (Weight less than 2.5kg)	28	25
SGA/IUGR	20	17.85
IUD	7	6.25
Fresh stillbirth	3	2.67
Low APGAR Score	58	42.85
Shift to nursery (NICU)	49	43.75
Neonatal mortality	8	7.14
Perinatal mortality (8+3+7)	18	16.07

Preterm birth (73.21%) was the maximum in our study followed by low birth weight (25%) and IUGR (17.85%). (43.75%) babies required NICU admission. Perinatal mortality was (16.07%).

DISCUSSION

Severe pre-eclampsia remains a major cause of maternal morbidity and mortality and is also associated with increased perinatal problems. Despite intensive research over the years, the exact reason for pre-eclampsia with severe features remains unknown.

In the present study, Out of the 112 patients, maximum (44.64%) cases were in the age group of 26 to 30 years (Table 1). Similar findings were observed by Pillai SS et al¹⁵ where 42% of the cases were in the age group of 26-30 years.

In our study, 57.14 % were Primigravida [Table 1] and preeclampsia was more common in primi gravida (57.14%). As gravida increased incidence of pre-eclampsia decreased which was in correlation with the following studies done by Gawde et al¹⁶, Singh et al¹⁷ and Ahmed et al¹⁸ in their studies cases of primigravida were 48%, 58.9%, and 60% respectively.

The incidence of preeclampsia was higher in unregistered cases (60.71%). The incidence of severe preeclampsia and eclampsia are higher among unregistered patients as reported by many studies.^[15-20]

The majority of the patients had headache 44.64% as a chief complaint, followed by pedal edema

(32.14%), vomiting (18.75%), Convulsion (9.82%), Oliguria (9.82%), Epigastric pain (7.14%), Generalized edema (3.57%), and Blurred vision (4.46%) respectively. [Table 2]. In a study done by Patel AJ et al, 21 headaches were the most common chief complaint (45%) and oliguria was the least presented chief complaint (10%). These findings are in correlation with our study.

In our study, the most common mode of delivery was cesarean delivery (57.14%) and the total number of vaginal deliveries was (42.85%). Out of all normal deliveries (16.96%), patients delivered Spontaneously, (31.25%) of cases induction was needed, and (3.57%) was Instrumental vaginal delivery. [Table 3]. Pillai SS et al¹⁵ and Akaba et al²² concluded in their study that LSCS (64.54%), and (48.42 to 71.2%). was the more common mode of delivery as compared to vaginal delivery

The most common maternal complication in the present study was PPH (16.07%), followed by eclampsia (9.82%) and abruption placenta (9.82%), HELLP (3.57%), DIC (1.78%), Pulmonary edema (0.89%), Renal dysfunction (1.78%), and neurological dysfunction in (1%) of cases. In our study, antepartum eclampsia was the most common one.

Neonatal outcomes as preterm babies (73.21%), low birth weight (25%), and IUGR (17.85%). NICU admission is required in (43.75%) of babies with

reported Perinatal mortality as (16.07%). [Table 4]. These findings are different from Priyamvadhya et al²³ where the most common maternal complication was 17.6 % severe preeclampsia, 13% PPH, 3.7% abruptio, 3.7% antepartum eclampsia, and 1.9% postpartum eclampsia. Whereas the percentage of severe pre-eclampsia was higher (41.5%) in the study by Singh et al,¹⁷ PPH-16.07% in this study was in correlation with 17.3% in Gawde et al,¹⁶ studies and 10.75% in Aabidha et al studies.²⁰

The percentage of abruptio was 8.9% in a study by Gawde et al,¹⁶ 5% in Patel et al,²¹ studies, 5.4% in Tolu LB et al studies,²⁴ 1.6% in Ahmed et al,¹⁸ studies whereas it was 9.82% in our study. Eclampsia was seen in 5.6% of Ahmed et al,¹⁸ studies, 5.37% of Aabidha et al study,²⁰ 1.22% in Tolu LB et al,¹¹ studies, and 1.4% in Singh et al,¹⁷ studies. But in a study by Patel et al,²¹ it's very high up to 36%. In another study done by Gawali S et al,²⁵ Maternal complications observed were eclampsia (9.72 %), postpartum hemorrhage (8.80 %), abruptio placentae (7.87 %), partial HELLP (6.94 %), HELLP (1.39 %), renal dysfunction (2.78 %), DIC (2.32 %) and pulmonary edema (0.93%). In our study antepartum eclampsia was the most common one (45.45%) followed by intrapartum (18.18%) and postpartum (36.36%) [Table 5]. Preterm birth (73.21%) was the maximum in our study followed by low birth weight (25%) and IUGR (17.85%). 43.75% of babies required NICU admission. Perinatal mortality was found in (16.07%). [Table 6]. Tabitha et al,²⁰ reported that the most common maternal complication was antepartum hemorrhage (13.9%) and the most common neonatal complication was prematurity (23.65%). Another study conducted by Patel AJ et al,²¹ concluded that the most common neonatal complication was prematurity (68.93%). Similar findings were reported by Pillai SS et al,¹⁵ where prematurity was found in 64.54% of cases. Gawde et al,¹⁶ reported prematurity as the most common complication (88.45) followed by low birth weight (28.95%) and IUGR (26%). These findings go in accordance with our study.

CONCLUSION

Preeclampsia & eclampsia continue to be significant causes of maternal & fetal morbidity & mortality It is important to recognize early warning symptoms & signs so that life-threatening complications can be prevented. Provision of quality maternal health care services, increasing patient awareness about various warning symptoms, investigations, early diagnosis and timely referral of patients to higher centers, the early use of antihypertensive drugs, timely delivery & intensive monitoring in the intrapartum & postpartum period can result in improvement in maternal & perinatal outcome. Proper coordination across different specialties including obstetricians, neonatologists, and intensivists can further optimize

maternal and neonatal outcomes. Education & empowerment of women, training of medical and paramedical personnel of primary health care centers & Functional and accessible health care facilities, especially to the socio-economically deprived & rural populations are the need of the hour.

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