Original Research Article

Maternal and perinatal outcome in severe pre-eclampsia

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Abstract

Back ground: Pre-eclampsia, is a leading cause of maternal and perinatal morbidity and mortality world-wide. Pre eclampsia accounts for majority of referrals in tertiary care center.
Objective: To study the maternal and perinatal outcome in patients with severe pre eclampsia
Materials and methods: This was a prospective study conducted in the Government Victoria Hospital, Andhra Medical College, Visakhapatnam from May 2018 - April 2019. Total 120 women with severe pre eclampsia after 34 weeks of gestation were included. Women with medical complication like anemia, pre-existing hypertension, epilepsy, diabetes, vascular or renal cause, multiple gestations were excluded. Patients were managed as per existing protocol after proper history, examination and investigations. Magnesium sulphate was the drug of choice for controlling convulsions and blood pressure was controlled either by labetalol or oral nefidipine.
Results: Out of 120 cases of severe pre eclampsia, majority (70%) were in the age group 20-30 years and 79.16% primigravida. Edema (80.8%) was the most common presenting feature followed by headache (40.8%) in present study. 56.6% of severe pre eclampsia women were delivered vaginally and about 43.5% delivered by caesarean section, majority in view of failed induction or non-progress of labour .Maternal complication like PPH in 5.8%, eclampsia in 9.1%, acute renal failure in 0.83%, HELLP syndrome in 0.83%, pulmonary edema in 1.66%, and maternal deaths were seen in 1.66% of patients with severe pre eclampsia. In our study low birth weight was seen in 80% cases, fetal growth restriction in 20% and intra uterine fetal demise in 5% in patients with severe pre eclampsia and perinatal mortality seen in 12% cases.
Conclusion: Maternal and perinatal complications are more in severe pre eclampsia and eclampsia patients. Good antenatal care, early diagnosis and prompt treatment can prevent severe pre eclampsia and eclampsia.

Key words

Severe preeclampsia, HELLP syndrome, Maternal mortality.

Introduction

Hypertensive disorder during pregnancy represent a significant public health problem throughout the world and pre-eclampsia is most common of these disorders [1]. In developing countries incidence of pre eclampsia is reported to be 4-18% [2], with hypertensive disorders being second most common obstetric cause of still birth and early neonatal deaths in these countries [3].

Pre-eclampsia is a pregnancy associated syndrome occurring in the second half of pregnancy and characterized by hypertension and significant proteinuria [4]. Pre eclampsia is considered severe if the blood pressure ≥ 160 mm/hg systolic or ≥ 110 mm/hg diastolic, proteinuria of 5 gm or higher in 24 hours urine specimen or oliguria, cerebral or visual disturbances, pulmonary edema, impaired liver function or thrombocytopenia is present [5].

Eclampsia is defined as the presence of new onset grand mal seizure in women with pre eclampsia. In 44% seizures occurs postnatally, in 38% occurs antepartum and 18% in the intrapartum period [6].

HELLP syndrome develops in 1 of 1000 pregnancies overall [7] and in 4-12% of patients already affected by severe pre eclampsia or eclampsia. The acronym HELLP was coined by Weinstein in 1982 to describe a syndrome consisting of hemolysis, elevated liver enzyme levels and low platelet count [8].

WHO estimated that approximately 60 thousand women die each year from preeclampsia world-wide [9]. Pre eclampsia and eclampsia account for 24% of all maternal deaths in India, mainly attributed to complications like accidental hemorrhage, disseminated intra vascular coagulation, pulmonary edema, cardiac failure, HELLP syndrome, renal failure, adult respiratory distress syndrome and cerebral hemorrhage [10].

Fetal morbidities include pre term delivery, intra uterus growth restriction (IUGR), still births, low birth weight babies [10, 11]. Preeclampsia is a multi-system disorder, where release of 1 or more factors damages the vascular endothelial cells throughout the maternal circulation leading to multi system dysfunction [12].

The ultimate treatment for pre eclampsia in order to prevent potential maternal complication is to deliver the patient. However, delivery is not always in best interest of fetus. The rational for delaying delivery in these pregnancies, is to reduce perinatal morbidity and mortality by delivery of more mature fetus and to lesser degree to achieve more favorable cervix [13-15].

In India, maternal mortality and morbidity from eclampsia is very high. The figure ranges from 8-14%. The perinatal mortality ranges from 14.6% to 47.4% [16, 17], the incidence of eclampsia can be reduced by better antenatal care, early reorganization and treatment of severe pre eclampsia [18, 19].

Ours being a tertiary care center receives many complicated cases as emergency from peripheral, maternity clinics and nursing homes. The present study was undertaken to find out maternal and perinatal mortality and morbidity rate in severe pre eclampsia.

Materials and methods

The present study was a prospective study carried out on 120 pregnant women of severe pre eclampsia with more than 34 weeks of pregnancy who were admitted from May 2018 to April 2019 in our tertiary care.

Patients with known case of renal and liver disorders, diabetes mellitus, heart disease,

multiple pregnancy, gestational hypertension, chronic hypertension and with any cause of convulsions other than eclampsia were excluded from the study. The outcome of each pregnancy was obtained by examining the patient in labour ward and neonatal intestine care unit.

On admission, detailed history regarding age, parity of gestation, signs and symptoms, obstetrics and family history was recorded from the patient or patient's attended as appropriate. General physical examination, systemic, abdominal and pelvic examination were carried out. Investigations like complete blood count with absolute platelet count, liver function tests, renal function tests, coagulation profile, fundoscopy, urine examination were performed for all patients.

Ultrasound was done at the time of admission after the patient stabilization. Obstetrics management was carried out as per department protocol and the decision regarding timing and mode of delivery was individualized. Eclamptic patients were given magnesium sulphate by Pritchard's regimen; antihypertensive drugs were nifedipine and labetalol singly or in combination.

Obstetric management was done (spontaneous/ induced labour) as per the unit protocols and patients were delivered either by vaginal route or by caesarean section. Neonatal care was provided by pediatrician from delivery onwards. The patients with uncontrolled hypertension were managed in collaboration with physician and anesthetist.

All the mothers were followed up for evidence of change in blood Pressure and to look for other complication of eclampsia for 6 weeks. All the babies delivered were followed up during early neonatal period for complications. At the end of the study, data was collected and analyzed.

Results

It was an analytical study with 120 antenatal women with severe pre-eclampsia. Most of them (70%) were in the age 20-30 years. 10% were in the age group of >30% (**Table – 1**). Majority (79%) of our patients were primi gravida (**Table – 2**). In severe pre eclampsia, 81.66% delivered at gestational age <37 weeks (**Table – 3**).

Table - 1: Age wise distribution of severe Pre-Eclampsia cases.

Age in years	No. of cases (n=120)	%
<20	24	20%
20-30	84	70%
>30	12	10%

Table - 2: Gravida wise distribution of severe Pre-Eclampsia cases.

Gravida	No. of cases (n=120)	%
Primi gravida	95	79.16%
Multigravida	25	20.83%

Table - 3: Relation of gestational age at delivery in severe Pre-Eclampsia.

Gestational age in weeks	No. of cases n=120	%
34-37	98	81.66%
38-40	20	16.66%
>40	2	1.66%

Table - 4: Presenting feature in severe Pre Eclampsia.

Presenting feature	No. of cases	%
Pedal Oedema	97	80.8%
Headache	49	40.8%
Vaginal bleeding	12	10%
Visual defects	28	23.33%
Convulsions	14	11.66%
HELLP Syndrome	6	5%
Epigastric pain	9	7.5%

Majority of women presented with the complaint of pedal edema 80.8%, followed by headache 40.8%, visual defects 23.3% and convulsions 11.6% (**Table – 4**). 56.6% antenatal women with severe pre eclampsia were delivered by vaginal route (**Table – 5**).

Prematurity was seen in 70% of women with severe pre eclampsia. Fetal growth restriction

was seen in 20% of cases, low birth weight was seen in 80% of cases and IUFD was seen in 5% of cases (**Table – 6, 7**).

Table - 5: Mode of delivery in women with severe Pre Eclampsia.

Mode of delivery	No. of cases n=120	%
Vaginal delivery	68	56.66%
Cesarean section	52	43.3%

Table - 6: Indications for Caesarean section in women in severe Pre Eclampsia.

LSCS n=52	Indications	No. of cases n=52
Primary caesarean section	Failed induction	19(36.5%)
	Fetal distress	9(17.3%)
	Unfavorable cervix with deteriorating maternal status	5(9.6%)
	CPD	5(9.6%)
	Others	2(3.8%)
Repeat cesarean section		12(23%)

Table - 7: Perinatal outcome in women with severe Pre-Eclampsia.

Outcome	No. of cases	%
Preterm	84	70%
IUGR	24	20%
Need for resuscitation	24	20%
NICU Admission	32	26.6%
APGAR<7	28	23.3%
IUFD	6	5%
Still birth	3	2.5%
Early neonatal deaths	5	4.1%

The common complication seen in severe pre eclampsia patients were eclampsia (9.1%), liver dysfunction (5%) post-partum hemorrhage (5.8%) and HELLP syndrome with DIC (0.83%). Maternal deaths 2% in severe preeclampsia were due to pulmonary edema (ARDS) as per **Table - 8**. Treatment given in severe pre eclampsia was as per **Table – 9**.

Table - 8: Complications in severe Pre eclampsia.

Complications	No. of cases	%
Eclampsia	11	9.1%
Liver dysfunction	6	5%
Abruption	6	5%
Postpartum hemorrhage	7	5.8%
HELLP Syndrome with DIC	1	0.83%
Pulmonary edema	2	1.66%
Acute renal failure	1	0.83%
Intensive care admission	5	4.16%
Maternal death	2	1.66%

Table - 9: Treatment given in severe pre eclampsia.

Treatment given	No. of cases n=120	%
Nifedipine +Labetalol	20	16.66%
Nifedipine +Labetalol+Mgso4	100	83.33%

Discussion

Hypertensive disorder of pregnancy represents a significant public health problem throughout the world, and pre eclampsia is most common of these disorders. It complicates 5-10% of all pregnancies and is a primary cause of maternal and neonatal morbidity and mortality [20, 21]. Severe pre eclampsia occurs in about 25% of all cases [22].

In this study, majority of women (70%) were in the age group of 20-30 years. Similar findings were obtained from reports of Saxena, et al. study [9], and also from reports of Nishtar hospital, Multan [23].

It was found that 79.16% were primi gravidas. Another study done by SR Singhal, et al. showed the 73% patients were primigravidas [24]. Keltz,

et al. reported 70% of their patients were primigravidas [25].

81% of cases had gestational age between 34-37 weeks and 16% of patients had term pregnancy. Saxena, et al. reported 64% cases had gestational age between 31-37 weeks and 35% of patient had term pregnancy [9].

In the present study, in severe pre eclampsia 80.8% presented with pedal edema, 40.8% with headache, 10% vaginal bleeding, 23% with visual symptoms, 12% with convulsion and 5% with HELLP Syndrome.

In Rekha, et al. study, cases manifested with edema with 90%, jaundice in 57%, nervous system involvement in 42%, visual symptoms in 6.4%, vaginal bleeding in 11.30%, and HELLP syndrome in 2.80% of cases [26].

In Tavassoli, et al. study 70% presented with edema, 46%with headache, 27% epigastric pain with vision defects, 5.1% with oliguria and 5% with convulsion [27]. Edema is the most common manifestation in all study groups.

In the present study, 56.6% women with severe preeclampsia were delivered by vaginal route and 43.3% by caesarian section. In Tavassoli, et al. study, caesarean section was 47.1% in severe pre eclampsia [27]. A study by Saxena N, et al. showed caesarean section rate of 48.2% and vaginal delivery 51.8% [9].

In the present study, the most common indication for caesarean delivery is failed induction 36.5% followed by repeat cesarean section (23%) and fetal distress is 17.3%.

In the present study preterm delivery was seen in 70% cases and low birth weight is seen in 80%, fetal growth restriction in 20%, intra uterine fetal death is seen in 5%, perinatal mortality is seen in 12%.

In the Tavassoli, et al. study, low birth weight is seen in 68.4%, IUGR in 27.5%, need for NICU admission in 17.6% and need for resuscitation 21.6% [27].

In the present study, complication of severe pre eclampsia were eclampsia 9.1%, post-partum hemorrhage 5.8%, acute renal failure 0.83% , abruption 5%, pulmonary edema 1.6% and intensive care is required is 4.16% and there were 2 maternal deaths in patients with severe pre eclampsia.

In Rekha, et al. study, postpartum hemorrhage was seen in 12.5% and abruption in 25% of cases. Women with pre eclampsia had the greatest risk of post-partum hemorrhage [26].

Conclusion

Pre eclampsia and eclampsia still remains a major problem in developing countries. It is one of the important causes of maternal and perinatal morbidity and mortality, probably resulting from inadequate antenatal care and lack of awareness amongst people belonging to low socio economic status.

This situation demands extension of medical services in rural areas for the benefit of both mother and baby (Both maternal and perinatal).

Early detection of high risk individuals by well-trained personals, timely referral to tertiary care center, early initiation of treatment of pre eclampsia, training of mothers about fertility, age and importance of care during pregnancy and strengthening of the neonatal intensive care may lead to improved maternal and fetal outcome.

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