Original Research Article

Evaluation of maternal and perinatal outcomes in elective termination of severe preeclampsia between 28 to 34 weeks in a tertiary care hospital - A retrospective study

D. Jyothsna Rani[1*], L. Jhansi Rani[2], P. Poornima[3]

[1]Postgraduate (M.S OBG), Andhra Medical College, Visakhapatnam, India
[2]M.D, D. G. O, Professor of OBG, Andhra Medical College, Visakhapatnam, India
[3]M.S OBG, Assistant Professor, Andhra Medical College, Visakhapatnam, India
[*]Corresponding author email: **jyothsnadas17@gmail.com**

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Abstract

Background: Preeclampsia is a pregnancy specific hypertensive disorder with multisystem involvement. It remains an important cause of maternal and neonatal morbidity and mortality. The management of severe preeclampsia remote from term is often a difficult situation.

Objective: The study was to evaluate the maternal and perinatal outcomes in elective termination of severe preeclampsia from 28 to 34 completed weeks.

Materials and methods: A retrospective study was carried out on 79 antenatal women with severe preeclampsia from June 2018 to May 2019 at King George Hospital, Visakhapatnam. Cases with initial BP recording of > 160/110 mm of Hg and urine albumin >1+ were included in the study, investigations and management were carried out according to hospital protocols and maternal and perinatal outcomes were analyzed.

Results: There were 79 cases during the study period, majority i.e. 71 cases (90%) were unbooked, nearly 54% were primigravidae. 62% women were in the age group of 20-25 years. 63 (79.7%) women were terminated between 32-34 weeks. Antenatal corticosteroids and $MgSO_4$ prophylaxis were given to all women. Uncontrolled Blood pressure, abnormal Doppler studies, fetal distress were

the most common indications for termination. Vaginal delivery was done in 56% women and lower segment caesarean section in 44%. There were 5 stillborns and 16 perinatal deaths. 48% of the babies were born with birth weight of < 1.5 kg. 48% of babies needed NICU admission. There were no maternal deaths.

Conclusion: Regular antenatal checkups for all women will lead to early detection of preeclampsia. Early referral to a tertiary care centre will improve feto-maternal outcome.

Key words

Severe preeclampsia, Maternal mortality, Perinatal mortality.

Introduction

Hypertensive disorders of pregnancy complicate 5-10% of all pregnancies [1] and contribute greatly to maternal morbidity and mortality. Of the hypertensive disorders, Preeclampsia syndrome either alone or superimposed on chronic hypertension is the most dangerous. The incidence of severe preeclampsia before 34 weeks complicates 0.3% of all pregnancies. Both maternal and perinatal morbidity and mortality are reported to be higher in early onset preeclampsia (before 34 weeks gestational age). Severe preeclampsia occurring before 34 weeks can cause both acute and chronic complications in mother and fetus [2]. Management with immediate delivery leads to high neonatal mortality and morbidity rates and prolonged hospitalization in the neonatal intensive care unit because of prematurity. Conversely, attempts to prolong pregnancy with expectant management may result in fetal death or asphyxial damage in utero and increased maternal morbidity. The risk of prolonging pregnancy is associated with worsening maternal endothelial dysfunction and continued poor perfusion of major maternal organs with the potential for severe end organ damage to the brain, liver, kidneys, placenta, fetus, and hematologic and vascular systems. Fetal risks include progressive intrauterine growth restriction and fetal demise associated with abruption or uteroplacental insufficiency [3]. Termination of pregnancy remains the definitive treatment for prevention of complications.

Materials and methods

This was a retrospective descriptive study conducted in the Department of Obstetrics and Gynecology, King George Hospital, a tertiary care teaching hospital, Visakhapatnam from June 2018 to May 2019. All women who met the criteria for severe preeclampsia between 28 to 34 weeks, who gave informed written consent to participate in the study were included.

The criteria for diagnosis of severe preeclampsia were Systolic BP of ≥160 mm of Hg, Diastolic BP of ≥ 110 mm of Hg, Persistent headache, visual disturbances, Upper abdominal pain, Oliguria, S. Creatinine >1.1 mg/dl, Thrombocytopenia <1 lakh/cumm, S. Transaminases double the baseline, Fetal growth restriction,Pulmonary edema, Gestational age of <34 weeks.

Inclusion criteria included women with Severe preeclampsia between 28 to 34 weeks, Chronic hypertension with superimposed preeclampsia between 28 to 34 weeks.

Exclusion criteria included Preeclampsia without severe features, Gestational age of >34 weeks, Eclampsia at the time of admission.

A proforma was used to record maternal information and outcomes. The data obtained include Booking status, name, age, parity and gestational age. Maternal assessment includes vital data, physical examination of the patient with special attention towards signs of preeclampsia like cerebral or visual disturbances, altered consciousness, epigastric or right upper quadrant pain and decreased urine output.

Investigations like complete blood picture, platelet count, urine protein, liver function tests, renal function tests, bleeding time, clotting time, ultrasound with Doppler were carried out to know the fetal condition, evidence of fetal growth restriction and oligoamnios. All the data was compiled and analyzed.

Anti-hypertensive medication used are labetolol both oral and parenteral and oral nifedipine. $MgSO_4$ prophylaxis was given to all the cases according to zuspan regimen to prevent eclampsia. Injection Betamethasone 12 mg i.m. 2 doses were given to all the cases to improve fetal lung maturity.

Termination of pregnancy was done if there are maternal or fetal complications that are indicative of delivery. Indication for termination, mode of delivery, maternal complications and fetal outcome like birth weight, APGAR at birth, NICU admission details were noted.

The data collected was analyzed using simple statistical measures like percentage.

Results

Out of 6892 deliveries during the study period, severe preeclampsia between 28-34 weeks of pregnancy who were terminated before 34 weeks were 79 cases contributing to 1.1% of total deliveries.

Table - 1: Distribution of cases according to Registration status.

Registration status	No. of cases (n=79)	%
Booked	8	10.1%
Unbooked	71	89.9%

Table - 2: Distribution of cases according to age.

Age (Years)	No. of cases (n=79)	%
< 20 years	1	1.2%
20-25 years	49	62.3%
26-30 years	22	27.8%
30-35 years	5	6.3%
> 35 years	2	2.4%

Table - 3: Distribution according to Gravidity.

Gravidity	No. of cases	%
Primi gravidae	43	54.4%
G2	23	29.1%
G3	5	6.3%
G4 or more	8	10.2%

Table - 4: Gestational age at the time of admission.

Gestational age	No. of cases (n=79)	%
28 weeks	8	10.1%
29 weeks	9	11.3%
30 weeks	11	13.9%
31 weeks	11	13.9%
32 weeks	18	22.7%
33 weeks	22	27.8%

Table - 5: Gestational age at termination.

Gestational age	No. of cases (n=79)	%
< 32 weeks	16	20.3%
32-34 weeks	63	79.7%

Table - 6: Indications for termination of pregnancy.

Indication	No. of cases (n=79)	%
Uncontrolled blood pressure/ impending Eclampsia	42	53.1%
HELLP/ Partial HELLP	12	15.1%
Eclampsia	2	2.53%
Renal dysfunction	8	10.1%
Abnormal doppler	8	10.1%
Abruptio placenta	3	3.7%
Fetal distress	4	5.06%

In this study, out of 79 women with severe preeclampsia between 28 to 34 weeks, 71 cases were Unbooked cases referred from peripheral centres contributing to 89.9% (**Table – 1**).

Majority of women were in the age group of 20-25 years contributing to 62.3%, there were 7 women above the age of 30 years (8.7%). Severe preeclampsia was seen more commonly in primigravidae (54.4%) as per **Table - 2**.

Table - 7: Mode of termination.

Mode of termination	No. of cases	%
Vaginal	44	56%
LSCS	35	44%

Table - 8: Primary vs Repeat LSCS.

LSCS	No. of cases (N=35)	%
Primary	25	71.4%
Repeat	10	28.6%

Table - 9: Indications for primary caesarean sections.

Indication	No. of cases	%
Abnormal doppler	8	22.8%
Failed induction	5	14.2%
Non-reactive CTG/ fetal distress	4	11.4%
Severe IUGR	3	8.5%
Breech	2	5.7%
Precious pregnancy	1	2.9%
Abruptio placentae	1	2.9%
Non progression of labour	1	2.9%

Table - 10: Maternal complications.

Complications	No. of cases (n=79)	%
HELLP/ Partial HELLP	12	15.1%
Eclampsia	2	2.5%
Renal dysfunction	8	10%
Maternal deaths	0	0%

Table - 11: Birth weight.

Birth weight (kg)	No. of cases	%
< 1	6	7.5%
1-1.5	32	40.5%
1.5-2	23	29.3%
>2	18	22.7%

Distribution according to Gravidity was as per **Table – 3**. Nearly 50% of the women presented at 32-34 weeks in the present study (**Table – 4**).
In the present study, majority of the women pregnancy was terminated between 32 to 34 weeks (79.7%) as per **Table – 5**.

Table - 12: APGAR at birth.

APGAR	No. of cases	%
8-10	27	34%
6-8	26	32.9%
4-6	13	16.4%
2-4	8	10%
0-2	5	6.3%

Table - 13: Perinatal complications.

Complications	No. of cases
Still born	5
Respiratory distress syndrome	12
Meconium aspiration	2
Very low birth weight (<1.5 kg)	32
Extremely low birth weight (< 1 kg)	6
NICU Admissions	42
Perinatal deaths	14

Most common indications for termination of pregnancy were uncontrolled blood pressure (53.1%), HELLP or partial HELLP (15.1%), renal dysfunction, abnormal Doppler studies, fetal distress and eclampsia in this study (**Table – 6**).

The mode of delivery was vaginal in 44 women and LSCS in 35 women (**Table – 7**). Primary caesarean sections were 25 (**Table - 8**) and the most common indications were abnormal Doppler, failed induction, non-reactive CTG/ fetal distress. Women with previous caesarean section were delivered by repeat caesarean section without trial of labour (**Table – 9**).

There were no instances of maternal death or cerebrovascular accidents noted in this study group. Impending eclampsia, eclampsia, partial HELLP, HELLP, renal dysfunction were the maternal complications developed, which were managed effectively and had good maternal outcome (**Table – 10**).

Most of the babies were with birth weight < 1.5 kg (48%) (**Table – 11**). APGAR >6 was seen in 67% of babies (**Table – 12**). Most of the babies needed NICU admission (53%) because of

prematurity. There were 5 still borns and 14 perinatal deaths due to extremely low birth weight, complications of premature birth, respiratory distress syndrome and meconium aspiration. None of the babies survived with a birth weight of less than 1 kg. 5 babies survived out of 8 terminated due to abnormal Doppler studies (**Table – 13**).

Discussion

Preeclampsia is one of the most important reasons for maternal and perinatal morbidity and mortality. Maternal and perinatal mortality and morbidity increase in severe forms of preeclampsia and delivering the baby is the only treatment [4, 5, 6]. Labor is always acceptable for the mother, but it may not always be ideal for the fetus. Pre-eclampsia accounted for the majority of referrals in the present study. We observed that chances of pre-eclampsia were significantly higher in younger age group (21-25 years) (**Table - 2**).

In most of the studies, fetal jeopardy is the most common cause of termination of pregnancy like Deepak AV, et al. [7] (2017) but in our study it is uncontrolled hypertension inspite of anti-hypertensives is the most common indication.

In a study done by Swamy, et al. [3] in 2012, the maternal complications developed are HELLP, partial HELLP and pulmonary edema, there were no instances of maternal deaths. Similar to the study of Swamy, et al. study there were no maternal deaths in the present study.

Perinatal outcome depends on the gestational age at delivery and birth weight of the fetus, socio-economic status and the quality of neonatal care. The rate of still born and perinatal deaths in the present study is around 24% which may be mostly due to prematurity complications whereas the perinatal mortality in swamy et al study was 13.83%.

In a large multicenter randomized trial ,the MEXPRE latin study [8] compared prompt delivery to expectant management of severe preeclampsia remote from term found that there is no neonatal benefit with expectant management compared to prompt delivery.

The decision for termination of pregnancy in severe preeclampsia should be balanced between maternal morbidity and mortality due to severe preeclampsia and iatrogenic prematurity with the background of laboratory data [9].

Conclusion

Clear protocols for early detection and management of hypertension in pregnancy at all levels of health care are to be followed for better maternal as well as perinatal outcomes.

Regular antenatal checkups for all antenatal women will lead to an early detection of preeclampsia. Early referral to higher centre will improve maternal and perinatal outcome Intensive maternal and fetal monitoring, corticosteroid therapy adequate infrastructure and good neonatal care will improve the outcomes.

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