e-ISSN: 0975-1556, p-ISSN:2820-2643

Available online on www.ijpcr.com

International Journal of Pharmaceutical and Clinical Research 2023; 15(2); 550-556

Original Research Article

One Year Cross-Sectional Study of Maternal and Perinatal Outcome in Severe Pre-Eclampsia

Jyoti Kumari[1], Madhu Priya[2], Pallavi Singh[3]

[1]Senior Resident, Department of Obstetrics and Gynaecology, Sri Krishna Medical College and Hospital, Muzaffarpur, Bihar.

[2]Senior Resident, Department of Obstetrics and Gynaecology, Sri Krishna Medical College and Hospital, Muzaffarpur, Bihar.

[3]Associate Professor, Department of Obstetrics and Gynaecology, Sri Krishna Medical College and Hospital, Muzaffarpur, Bihar.

Received: 29-12-2022 / Revised: 19-01-2023 / Accepted: 06-02-2023

Corresponding author: Dr Madhu Priya

Conflict of interest: Nil

Abstract

Background: Pre-eclampsia is a major global contributor to maternal and neonatal morbidity and mortality. The majority of referrals to tertiary care centres are for pre-eclampsia. This study's goal is to determine how patients with severe pre-eclampsia will fare maternally and perinatally.

Methods: The Department of Obstetrics and Gynecology at SKMCH, Muzaffarpur, Bihar, conducted this prospective study from January 2022 to December 2022. There were 240 women in total who had developed severe pre-eclampsia after 34 weeks of pregnancy. Women with a history of many pregnancies, anaemia, pre-existing hypertension, epilepsy, diabetes, or vascular or renal causes were not allowed to participate. After a thorough history, examination, and investigation, patients were handled in accordance with the established protocol. The preferred medication for treating convulsions was magnesium sulphate, while labetalol or oral nefidipine was used to regulate blood pressure.

Results: Out of 240 occurrences of severe pre-eclampsia, most (70%) included women in their 20s and 30s who were also mostly primigravida (79.16%). The most frequent presenting symptom in the current study was edoema (80.8%), which was followed by headache (40.8%). 56.6% of women with severe pre-eclampsia gave birth naturally while 43.5% underwent caesarean sections, most often as a result of a botched induction or a stalled labour. In patients with severe pre-eclampsia, maternal complications such as PPH, eclampsia, acute renal failure, HELLP syndrome, pulmonary edoema, and maternal fatalities were observed in 1.66% of cases. In our study, patients with severe pre-eclampsia experienced low birth weight in 80% of cases, foetal growth restriction in 20%, intrauterine foetal death in 5% of patients, and perinatal mortality in 12% of cases.

Conclusion: Patients with severe pre-eclampsia and eclampsia are more likely to experience maternal and perinatal problems. Preventing severe pre-eclampsia and eclampsia requires good antenatal care, early diagnosis, and fast treatment.

Keywords: Severe Preeclampsia, HELLP Syndrome, Maternal Mortality.

Introduction

Pre-eclampsia is the most prevalent form of pregnancy-related hypertension, which is a serious public health concern worldwide [1]. Pre-eclampsia is known to occur 4–18% of the time in poor nations [2], with hypertensive diseases accounting for the second-most stillbirths and early newborn mortality in these nations [3].

Pre-eclampsia is a pregnancy-related illness that manifests in the second half of pregnancy and is marked by severe proteinuria and hypertension [4]. Blood pressure of 160 mm/hg systolic or 110 mm/hg diastolic, proteinuria of 5 gm or more in a 24-hour urine sample, oliguria, cerebral or visual abnormalities, pulmonary edoema, impaired liver function, or thrombocytopenia are all signs of severe pre-eclampsia [5].

When a woman has pre-eclampsia and a new-onset grand mal seizure, such condition is known as eclampsia. Seizures happen in 44% of cases postpartum, 38% of cases antepartum, and 18% of cases during labour [6].

In general, 1 in 1000 pregnancies result in HELLP syndrome [7] and 4-12% of individuals with severe pre-eclampsia or eclampsia already have the condition. In order to designate a sickness characterised by hemolysis, increased liver enzyme levels, and low platelet count, Weinstein invented the abbreviation HELLP in 1982 [8].

The WHO estimated that preeclampsia deaths over 60,000 women worldwide year [9]. Pre-eclampsia and eclampsia are responsible for 24% of all maternal deaths in India, and these complications are primarily linked to cerebral haemorrhage, adult respiratory distress syndrome, disseminated intra vascular coagulation, pulmonary edoema, cardiac failure, HELLP syndrome, and renal failure [10].

Preterm delivery, intrauterine growth restriction (IUGR), stillbirths, and low birth weight infants are some examples of foetal morbidities [10,11]. Preeclampsia is a multi-system illness in which the discharge of one or more substances harms the vascular endothelial cells all throughout the maternal circulation, resulting in multi-system dysfunction [12].

Delivering the patient is the only way to fully treat pre-eclampsia and avoid any potential maternal complications. However, the fetus's best interests are not always served by delivery. The goal of postponing delivery in these pregnancies is to deliver a more mature foetus and, to a lesser extent, to achieve a more favourable cervix in order to reduce perinatal morbidity and death [13–15].

Eclampsia causes a significant rate of maternal death and morbidity in India. The percentage ranges from 8 to 14%. The incidence of eclampsia can be decreased by better antenatal care, early rearrangement, and treatment of severe pre-eclampsia [18,19]. Perinatal mortality ranges from 14.6% to 47.4% [16,17].

Being a tertiary care facility, ours receives numerous complex patients from nearby nursing homes and maternity clinics as emergencies. The goal of the current study was to determine the mortality and morbidity rates for mothers and babies in cases of severe pre-eclampsia.

Material and Methods

The current study involved 240 pregnant patients with severe pre-eclampsia who were above 34 weeks along when they were admitted to the Obstetrics and Gynecology department of Sri Krishna Medical College and Hospital, Muzaffarpur, Bihar, between January 2022 and December 2022.

Patients with known cases of kidney or liver illness, diabetes, heart disease, numerous pregnancies, gestational hypertension, chronic hypertension, or any other cause of convulsions than eclampsia were not

included in the study. Authors were able to ascertain the results of each pregnancy by examining the patients in the labour ward and neonatal intestinal care unit.

At the time of admission, the patient or patient's attending physician, if appropriate, provided a complete history on age, parity of gestation, signs and symptoms, obstetrics, and family history. Systemic, abdominal, and pelvic examinations were performed in addition to a general physical examination. All patients had tests such as a complete blood count with an absolute platelet count, liver function tests, renal function tests, coagulation profiles, fundoscopies, and urine examinations.

After the patient had stabilised, an ultrasound was performed at the time of admission. The administration of obstetrics was carried out in accordance with departmental procedure, and individual choices were made regarding the time and method of birth. According to Pritchard's protocol, eclamptic patients received magnesium sulphate together with either nifedipine or labetalol as antihypertensive medications.

According to the unit's guidelines, obstetric management was carried out (spontaneous/induced labour) and patients were delivered either vaginally or via caesarean section. From the time of delivery on, a pediatrician looked after the newborn. A physician and anaesthetist worked together to manage the patients with uncontrolled hypertension.

For six weeks, all the moms were monitored for any indication of a change in blood pressure as well as any additional eclampsia complications. Early neonatal period monitoring for problems was performed on all newborns. Data was gathered and examined at the conclusion of the study.

Results

In this analytical investigation, 240 pregnant women with severe pre-eclampsia participated. The majority of them (70%) were in their 20-30 years. 10% of the population was >30%. (Table – 1). The majority of our patients (79.16%) were first-time mothers (Table – 2). 81.66% of women who had severe pre-eclampsia had birth before 37 weeks gestation (Table – 3).

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

Age in years	No. of cases (n=240)	Percentage %
<20	48	20%
20-30	168	70%
>30	24	10%

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

Gravida	No. of cases (n=240)	Percentage %
Primi gravida	190	79.16%
Multigravida	50	20.83%

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

Gestational age in weeks	No. of cases n=240	Percentage %
34-37	196	81.66%
38-40	40	16.66%
>40	4	1.66%

Table 4: Presenting feature in severe Pre-Eclampsia

Presenting feature	No. of cases	Percentage %
Pedal Oedema	194	80.8%
Headache	98	40.8%
Vaginal bleeding	24	10%
Visual defects	56	23.33%
Convulsions	28	11.66%
HELLP Syndrome	12	5%
Epigastric pain	18	7.5%

80.8% of women complained of pedal edoema, followed by headaches, 40.8%, visual impairments, 23.3%, and convulsions, 11.6%. (Table – 4). 56.6% of pregnant women with severe pre-eclampsia gave birth vaginally (Table – 5).

70% of mothers with severe pre-eclampsia displayed prematurity. Low birth weight was seen in 80% of cases, foetal growth restriction in 20% of cases, and IUFD 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=240	Percentage %
Vaginal delivery	136	56.66%
Cesarean section	104	43.3%

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

LSCS n=102	Indications	No. of cases n=102
Primary caesareansection	Failed induction	38(36.5%)
	Fetal distress	18(17.3%)
	Unfavorable cervixwith deteriorating maternal status	10(9.6%)
	CPD	10(9.6%)
	Others	4(3.8%)
Repeat cesarean section		24(23%)

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

Outcome	No. of cases	Percentage %
Preterm	168	70%
IUGR	48	20%
Need for resuscitation	48	20%
NICU Admission	64	26.6%
APGAR<7	56	23.3%
IUFD	12	5%
Still birth	6	2.5%
Early neonatal deaths	10	4.1%

HELLP syndrome with DIC (0.83%), postpartum haemorrhage (5.8%), eclampsia (9.1%), and liver dysfunction (5%) were the most frequent complications identified in individuals with severe pre eclampsia. According to Table 8, pulmonary edoema (ARDS) was the cause of 2% of maternal deaths in cases of severe preeclampsia. According to Table-9, treatment for severe preeclampsia was administered.

Table 8: Complications in severe Pre-eclampsia

Complications	No. of cases	Percentage %
Eclampsia	22	9.1%
Liver dysfunction	12	5%
Abruption	12	5%
Postpartum hemorrhage	14	5.8%
HELLP Syndrome with DIC	2	0.83%
Pulmonary edema	4	1.66%
Acute renal failure	2	0.83%
Intensive care admission	10	4.16%
Maternal death	4	1.66%

Table 9: Treatment given in severe pre-eclampsia

Treatment given	No. of cases n=240	Percentage %
Nifedipine +Labetalol	40	16.66%
Nifedipine +Labetalol+$MgSO_4$	200	83.33%

Discussion

Pre-eclampsia is the most prevalent form of the hypertensive diseases during pregnancy, which pose a serious public health concern worldwide. It is the main cause of maternal and newborn morbidity and mortality [20,21] and complicates 5–10% of all pregnancies. About 25% of all instances of preeclampsia are severe [22].

70% of the women in this study were between the ages of 20 and 30. Similar conclusions were drawn from reports of the Saxena, *et al*. study [9] and the Nishtar Hospital, Multan [23] studies.

A total of 79.16% were determined to be first-time mothers. 73% of the patients in another study by SR Singhal, *et al*. were primigravidas [24]. 70% of the cases reported by Keltz, *et al*. were primigravidas [25].

81% of instances were between 34- and 37-weeks gestational age, while 16% of patients were carrying term pregnancies. According to Saxena, *et al*., 35% of patients had term pregnancies, while 64% of cases had gestational ages between 31 and 37 weeks [9].

In the current study, 80.8% of women with severe pre-eclampsia had pedal edoema, 40.8% had headaches, 10% had vaginal haemorrhage, 23% had ocular symptoms, 12% had convulsions, and 5% had HELLP Syndrome.

In the study by Rekha *et al*., instances showed edoema in 90% of cases, jaundice in 57%, involvement of the neurological system in 42%, visual symptoms in 6.4% of cases, vaginal bleeding in 11.30% of cases, and HELLP syndrome in 2.80% of cases [26].

In the study by Tavassoli *et al*., 70% of the patients had edoema, 46% had headaches, 27% had epigastric discomfort and visual problems, 5.1% had oliguria, and 5% had convulsions [27]. The most frequent symptom across all research groups is edoema.

56.6% of the women in the current study who had severe preeclampsia gave birth vaginally, whereas 43.3% had Caesarean sections. In the Tavassoli, *et al*. study, severe pre-eclampsia caused a caesarean delivery in 47.1% of cases [27]. In a study by Saxena N, *et al*., 51.8% of babies were delivered vaginally and 48.2% underwent caesarean sections [9].

In the current study, unsuccessful induction (36.5%), repeat caesarean section (23%) and foetal distress (17.3%) were the most frequent causes of caesarean birth.

Preterm birth was observed in 70% of patients in the current investigation, along with low birth weight in 80%, foetal growth restriction in 20%, intrauterine foetal death in 5%, and perinatal mortality in 12%.

Low birth weight is observed in 68.4%, IUGR in 27.5%, need for NICU hospitalisation in 17.6%, and need for resuscitation in 21.6% of the Tavassoli, *et al*. study participants [27].

There were 2 maternal deaths in patients with severe pre-eclampsia, and complications of the condition included eclampsia (9.1%), post-partum haemorrhage (5.8%), acute renal failure (0.83%), abruption (5%) and pulmonary edoema (1.6%).

Postpartum haemorrhage was observed in 12.5% of patients and abruption in 25% of cases in the study by Rekha, *et al*. The risk of postpartum haemorrhage was highest in pre eclamptic women [26].

Conclusion

Pre-eclampsia and eclampsia continue to be serious issues in poor nations. It is one of the major contributors to maternal and perinatal morbidity and mortality, most likely as a result of inadequate prenatal care and a lack of knowledge among low socioeconomic class individuals.

For the welfare of the mother and the child, it is imperative that medical services in rural regions be expanded (Both maternal and perinatal).

Improved maternal and foetal outcomes may result from early identification of high-risk individuals by trained personnel, prompt referral to a tertiary care facility, early start of pre-eclampsia treatment, education of mothers regarding fertility, age, and the significance of care during pregnancy, and strengthening of neonatal intensive care.

References

1. Roberts JM, Pearson G, Cutler I, Lindheimer M. Summary of the NHLBI working group on research on hypertension during pregnancy. Hypertension, 2003; 41: 437-45.
2. Khedum SM, Moodley J, Naicker T, Maharaj B. Drug Management of hypertensive disorders of pregnancy. Pharmacol Ther., 1997; 74(2): 221-58.
3. Ngoc NT, Merialdi M, Abdel- Aleem H, Carroli G, Purwar M, Zavaleta N, *et al*. Causes of still births and early neonatal deaths: data from 7993 pregnancies in six developing countries. Bull world Health organ, 2006; 84(9): 699-705.
4. Report of the national high blood pressure education program: working group on high blood pressure in pregnancy. Am J Obstet Gynaecol., 2000; 183: 51-22.
5. Douglas KA, Redman CW. Eclampsia in the United Kingdom. BMJ, 1994; 309: 1395-400.
6. Bedi N, Kamby I, Dhillon B.S, Saxena BN, Singh P. Maternal deaths in India-preventable tragedies. J Obstet Gynaecol Ind., 2001; 51: 86-92.
7. Abraham KA, Conolly G, Farrel J, Walshe JJ. The HELLP syndrome a prospective study. Ren Fail, 2001; 23: 705-13.
8. Weinstein L. Syndrome of hemolysis, elevated liver enzymes and low platelet count: a severe consequence of hypertension in pregnancy. Am J Obstet and Gynaecol., 1982; 142: 195-67.
9. Saxena N, *et al*. Maternal and perinatal outcome in severe preeclampsia and eclampsia. Int J Reprod Contracept Obstet Gynecol., 2016 Jul; 5(7): 2171-2176.
10. Alvarez Navaswes R, Marin R. Severe maternal complications associated with

pre-eclampsia: an almost forgotten pathology. Nefrologia, 2001; 21(6): 565-73.
11. Churchchill D, Perry IJ, Beevers DG. Ambulatory blood pressure in pregnancy and fetal growth. Lancet, 1997; 349: 7-10.
12. Robert JM. Endothelial dysfunction in preeclampsia. Semin Reprod Endocrinal., 1998; 16: 5-15.
13. Multi-disciplinary management of severe pre-eclampsia (PE) expert guidelines 2008, societte francaise de medicine perinatale society francaise se neonatologic. Ann Fr Anaesth Reanim., 2009; 28: 275-81.
14. Pottecher T, Luton D. Prise encharge multidisciplanry de la preeclampsia French, Issyles Moulineaux, France, Elsevir; Masson SAS; 2009.
15. Minire A, Mirton M, Imri V, Lauren M, Aferdita M. Maternal complications of pre-eclampsia. Med Arch., 2013; 67(5): 339-41.
16. Odendaal HJ, Pattinson RC, Bam R, Grore D., Kotze JVWT. Aggressive or expectant management for patients with severe pre-eclampsia between 28-34 weeks gestation a randomized controlled trial. Obstetrics and Gynecology, 1990; 76(6): 1070-5.
17. Duley L. Preeclampsia and the hypersensitive disorder of pregnancy. British Medical Bulletin, 2003; 67: 161-76.
18. World health organization fact sheet 2012.
19. Lack of pre-eclampsia awareness increases risk of infant mortality press release, preeclampsia foundation, 2008.
20. Prichard, Weissman R, Ratnoff OD. Intravascular hemolysis, thrombocytophenia & other hematologic abnormalities associated with severe toxemia of pregnancy. N Engl J Med., 1954; 250: 89-98.
21. Sibai B, Kupfermic M. Pre-eclampsia. Lancet, 2005; 365: 785-99.
22. Sibai BM. Magnesium sulphate prophylaxis in pre-eclampsia. Lesson learned from recent trials. Am J obstet gynecol., 2004:190: 1520-6.
23. Naseer D, Ataullah K, Nudrat E. Perinatal and maternal outcome of eclamptic patients admitted in Nishtar hospital, Multan. J Coll Physician Surg Pak., 2000; 10: 261-4.
24. Singhal S, Deepika, Anusha, Nandha S. Maternal and perinatal outcome in severe preeclampsia and eclampsia. South Asian Federation of Obstetrics and Gynaecology, 2009; 1(3): 25-8.
25. Katz VL, Farmer R, Kuller Ja. Preeclampsia into eclampsia: toward a new paradigm. Am J Obstet gynecol., 2000; 182: 1389-96.
26. Rekha Sachin, Munna Lal Patel, Pushapalata Sachan. Outcome of hypersenstive disorder of pregnancy in the North Indian population. International Journal of Womens health, 2013; 5: 101-108.
27. Tavassoli Fatemeth, Ghasemi Msrziyeh, Ghomian Nayereh. Maternal and Perinatal outcome in nulliparous women complicated with pregnancy hypertension. J Park Med Association, 2010; 09: 707-710.