Section: Obstetrics and Gynaecology

Original Research Article

MATERNAL AND PERINATAL OUTCOME IN SEVERE PREECLAMPSIA AT A TERTIARY CARE CENTER IN SOUTHERN HARYANA- A PROSPECTIVE STUDY

Shipra Misra[1], Divya Mangla[2], Anita Bharti[3], Shilpa Goel[4]

[1]Associate Professor, Department of Obstetrics and Gynaecology, SHKM Government Medical College and Hospital, Nuh, Haryana, India.
[2]Professor, Department of Obstetrics and Gynaecology, SHKM Government Medical College and Hospital, Nuh, Haryana, India.
[3]NHM Consultant, Department of Obstetrics and Gynaecology, SHKM Government Medical College and Hospital, Nuh, Haryana, India.
[4]Professor, Department of Pathology, SHKM Government Medical College and Hospital, Nuh, Haryana, India

Received : 02/07/2025
Received in revised form : 16/08/2025
Accepted : 05/09/2025

Keywords:
Severe preeclampsia, maternal outcome, perinatal outcome.

Corresponding Author:
Dr. Shipra Misra,
Email: doctorshipramisra@gmail.com

DOI: 10.47009/jamp.2025.7.5.31

Source of Support: Nil,
Conflict of Interest: None declared

Int J Acad Med Pharm
2025; 7 (5); 149-153

ABSTRACT

Background: Hypertensive disorder of pregnancy is a leading cause of maternal and perinatal morbidity and mortality worldwide. It is a pregnancy specific syndrome that can virtually affect every organ system of the body. Present study was done to determine the maternal and perinatal outcome in the patients of Severe preeclampsia. **Material and Methods:** This Hospital based Prospective study was carried out on 100 antenatal women admitted with severe preeclampsia at SHKM Government Medical College and Hospital, Nalhar, Haryana from 1 January 2020 to 31 December 2020. On admission detailed history, examination was done and investigations (preeclampsia profile) were sent. Obstetric management was done as per the existing departmental protocol. MRI was done in the patients of severe preeclampsia who developed Eclampsia as the maternal complication. Placenta was sent for histopathological examination to study the histopathological correlation with Severe preeclampsia. Maternal and perinatal complications were noted down in the structured data collecting proforma. **Result:** The majority of patients were primigravida (66%) unbooked (91%), had rural background (82%) and belonged to the age group of 20 to 30 years (70%). In our study majority of patients had Lower segment caesarean section (58%) followed by vaginal delivery in 42%.The common maternal complications were Postpartum haemorrhage(38%),Eclampsia(24%),Antepartum haemorrhage due to Abruptio placentae(18%),Acute Renal Failure(5%),Pulmonary oedema(3%),HELLP syndrome(1%),DIC(1%) and maternal death (5%).PRES (Posterior Reversible Encephalopathy Syndrome) was found on MRI in 12% patients of Eclampsia.Our study observed increased incidence of prematurity (60%) and other perinatal complications like-Low birth weight (42%), Low Apgar score (43%), Meconium aspiration syndrome (18%), NICU admission (17%), Requirement of ventilation (16%), Early neonatal death in 14%),intrauterine fetal death (18%) and the Perinatal mortality of 32%,.Histopathological examination of the placenta of severe preeclampsia patients revealed Calcification in 88%, Infarction in 47%, Hematoma in 18% and Stromal fibrosis in 35% cases. **Conclusion:** In the patients of severe preeclampsia there is high risk of maternal and perinatal life threatening complications. Emphasis should be on early registration and regular ANC visits so as to detect cases of preeclampsia as early as possible in turn preventing its severity and associated complications. Early screening, detection and management of severe preeclampsia according to evidence based protocol can help in reducing the maternal and perinatal morbidity and mortality.

INTRODUCTION

HDP (Hypertensive disorders in pregnancy) is one of the leading cause of maternal morbidity and mortality worldwide and accounts for 14% maternal death.[1] In developing countries HDP leads to high rates of maternal and perinatal morbidity and mortality due to illiteracy, lack of access to healthcare facility, lack of resources, inappropriate diagnosis and delayed referral to higher centre.[2] Preeclampsia and eclampsia accounts for 24% of all maternal death and the neonatal mortality rate of 41 per 1000 live birth in India.[3] Preeclampsia is a pregnancy specific syndrome of vasospasm and endothelial activation throughout maternal circulation leading to reduced organ perfusion with multiorgan dysfunction.[4] Severe pre eclampsia occurs in about 25% of all cases.[5] Eclampsia is defined as the new onset of generalized tonic clonic seizure in a women with preeclampsia. Seizures occur most commonly in postnatal period in 44% cases, 38% in antenatal period and in 18% cases during intrapartum period.[6] Eclampsia and severe preeclampsia are associated with complications like placental abruption, disseminated intravascular coagulation pulmonary edema, cardiac failure, HELLP syndrome, renal failure, aspiration pneumonitis and cerebral hemorrhage, which are major attributable factor for maternal death.[7] Fetal morbidities include preterm delivery, intra uterine growth restriction (IUGR), still births, low birth weight babies.[8,9] The perinatal mortality ranges from 14.6% to 47.4%.[10,11] The definitive treatment is the delivery of the patient. Maternal and perinatal complications can be reduced by providing better antenatal care, early detection of the disorder and prompt treatment of severe preeclampsia.[12,13] The usual markers of rural areas in developing countries like India are poor antenatal care, illiteracy, lack of health awareness and resources which contributes to poor maternal and perinatal outcome in the patients of severe preeclampsia. This prospective study was conducted to highlight the maternal and perinatal outcome in the patients of severe preeclampsia at SHKM, GMC,Nuh which comes under one of the most backward regions of India.

MATERIAL AND METHODS

This Hospital based Prospective study was carried out on 100 antenatal women admitted with severe preeclampsia at SHKM Government Medical College and Hospital, Nalhar,Nuh, Haryana from 1 January 2020 to 31 December 2020. On admission after taking written informed consent detailed history regarding sociodemographic profile, parity, POG, chief complaints, obstetric, medical, surgical, personal, family history were recorded from the patient. General physical examination, systemic, abdominal and pelvic examinations were carried out and investigations (preeclampsia profile) were sent. Obstetric management was done as per the existing departmental protocol. MRI was done in the patients of severe preeclampsia who developed Eclampsia as the maternal complication. Placenta was sent for the histopathological examination to study the histopathological correlation with severe preeclampsia. Maternal and perinatal complications were noted down in the structured data collecting proforma from the included patients.

Inclusion Criteria

All Antenatal women (after 20wks of gestation) who had severe preeclampsia and delivered at SHKM Government Medical College and Hospital over the study period of 1 year were included in the study. Severe Preeclampsia is considered if after 20weeks of gestation there is sustained rise in blood pressure to the level of ≥160 mm Hg for systolic and ≥ 110 mm Hg for diastolic on two blood pressure readings taken 15 minutes apart with or without any of the following features: New onset unremitting headache/visual disturbances, Epigastric/RUQ pain, Persistent oliguria(<500ml/24hrs), Progressive renal insufficiency(serum creatinine>1.1mg/dl) in absence of other renal disease, Deranged LFT > 2× normal: Elevated liver enzymes (ALT or AST >70IU/L) in absence of other liver disease., Thrombocytopenia (platelet count <1,00,000/ microliter), Pulmonary oedema (as per Maternal Safety Bundle for Severe Hypertension in Pregnancy: ACOG Guidelines).

Exclusion Criteria

All antenatal women with the associated medical complications like - Preexisting hypertension, Diabetes, Epilepsy, Cardio-vascular, Renal diseases, Multiple gestation, Severe anaemia.

RESULTS

Table 1: Distribution of Severe Preeclampsia cases as per Demographic profile

Age (Years)	n=100	Percentage (%)
<20	6	6
20-30	70	70
30-40	19	19
>40	5	5
Parity		
Nullipara	66	66
Multipara	20	20
Grandmultipara	14	14
Residence		
Urban	18	18

ISSN (O): 2687-5365; ISSN (P): 2753-6556

Rural	82	82
Education		
Literate	10	10
Illiterate	90	90
Booking status		
Booked	9	9
Unbooked	91	91

Out of 100 patients of Severe preeclampsia majority of patients were primigravida (66%), belonged to the age group of 20 to 30 years (70%). Aditionally it was observed that most of the patients were unbooked (91%), illiterate (90%) and resided in the rural areas (82%).

Table 2: Distribution of Severe Preeclampsia cases as per Mode of Delivery

Mode of Delivery	n=100	Percentage (%)
Vaginal	42	42
Lower segment Cesarean Section	58	58

In our study the common mode of delivery was Lower Segment Cesarean Section (58%) followed by Vaginal delivery (42%).

Table 3: Distribution of Severe Preeclampsia cases as per Maternal Complications

Maternal Complications	n=100	Percentage (%)
Postpartum Haemorrhage	38	38
Eclampsia	24	24
Posterior Reversible Encephalopathy Syndrome (PRES)	12	12
Placental Abruption	18	18
Acute Renal Failure	5	5
Pulmonary Oedema	3	3
HELLP Syndrome	1	1
DIC	1	1
Maternal Death	5	5

According to the data presented in the [Table 3], Postpartum Haemorrhage was present in majority (38%) of patients, Eclampsia was present in 24%, Posterior Reversible Encephalopathy Syndrome (PRES) in 12%, Placental Abruption in 18%, Acute Renal Failure in 5%, Pulmonary Oedema in 3%, HELLP Syndrome in 1%, DIC in 1% and Maternal Death in 5% patients of severe preeclampsia.

Table 4: Distribution of Severe Preeclampsia cases as per Perinatal Outcome

Perinatal Outcome	n=100	Percentage (%)
Prematurity	60	60
Birth weight-<1.5kg	8	8
Birth weight-1.5kg to 2 kg	24	24
Birth weight->2kg to 2.5 kg	40	40
Birth weight->2.5kg	28	28
Low Apgar score	43	43
Meconium Aspiration Syndrome (MAS)	18	18
Requirement of ventilation	16	16
NICU admission	17	17
Intrauterine fetal death	18	18
Early Neonatal Death	14	14

[Table 4] illustrates that majority of patients had perinatal complications like- preterm delivery (60%), Low birth weight (42%), Low Apgar score in (43%), Meconium aspiration syndrome (18%), requirement of ventilation (16%) and NICU admission was done in 17%. Perinatal mortality was 32%.

Table 5: Histopathological Examination (HPE) of Placenta in the patients of Severe preeclampsia

HPE of Placenta	n=100	Percentage(%)
Calcification	88	88
Infarction	47	47
Hematoma	18	18
Stromal fibrosis	35	35

As depicted in the [Table 5] Histopathological examination of the placenta in severe preeclampsia patients revealed-: Calcification in 88% of patients, Infarction in 47%, Hematoma in 18% and Stromal fibrosis in 35% cases.

DISCUSSION

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

ISSN (O): 2687-5365; ISSN (P): 2753-6556

remains unknown. This Prospective study was done to find the maternal and perinatal outcome in the patients of severe preeclampsia. Out of 100 patients enrolled in the study, majority of the patients belonged to the age group of 20 to 30 years(70%), Patnaik et al,[14] 2019 have reported similar findings, indicating that 70% of women in their study fell within the age range of 20-30 years. Saxena et al,[15] 2016 conducted a study where approximately 71% of the participants were in the age group of 20-30 years. Most of the patients in our study were unbooked (91%), illiterate(90%) and resided in the rural areas (82%).These findings are in good agreement with the study done by Singhal et al,[16] 2009 which reported the incidence of unbooked and rural residence to be 82% and 84% respectively. In our study, majority of the patients were found to be primigravida (66%). Cunningham et al,[17] 2010 conducted a review of multiple studies worldwide and found that the incidence of pre-eclampsia was higher in nulliparous compared to multiparous women. Also Ketz et al,[18] 2000 notably reported the similar observation of 70% women as primigravida.The majority of the patients (42%) had headache, as the chief complaint which is similar to the findings observed in the studies done by Patel AJ et al,[19] 2021 and Singhal et al,[16] 2009 where headache was observed as the main symptom in 45% and 44% patients respectively. In our study the common mode of delivery was Lower Segment Cesarean Section (58%) followed by Vaginal delivery (42%). The high rate of Cesarean Section could be attributed to late referrals of high risk patients due to lack of health awareness and resources. These findings are in good correlation with the study done by Jayshree et al,[20] 2023 which reported that the most common mode of delivery was cesarean delivery (57.14%) followed by vaginal deliveries (42.85%). Similar findings were reported in the studies done by Pillai SS et al,[21] 2017 and Akaba et al 2021.[22] The most common maternal complication observed in our study was Postpartum Haemorrhage (38%) followed by Eclampsia (24%). The Postpartum Haemorrhage could be attributed to the high incidence of unregistered (91%) and grand multiparous cases (14%) observed in our study. A study done by Jayshree et al,[20] 2023 also reported that Postpartum Haemorrhage (16.07%) was the most common maternal complication observed followed by eclampsia (9.82%). In our study majority of the patients had preterm delivery (60%). The high incidence of preterm delivery could be attributed to the early intervention and induction of labour or LSCS done to avoid further maternal and perinatal complications of severe preeclampsia. This is in accordance with the study done by Sowmya et al,[23] 2023 which reported 66% preterm delivery. Almost similar finding of 65.3% preterm delivery reported by Tuffnell et al,[24] 2005. Another study conducted by Patel AJ et al,[19] concluded that the most common neonatal complication was prematurity (68.93%). Similar findings were reported by Pillai SS et al,[21] where prematurity was found in 64.54% of cases. Also prematurity was observed as the most common complication (88.45%) in the study conducted by Gawde et al, 2014.[25] The perinatal mortality reported by Tuffnell et al,[24] Al Inzi et al,[26] Sibai et al,[27] were 4.7%, 14.6%, 1.8% and 7.05% respectively. While in the present study the perinatal mortality was 32%. The high perinatal mortality observed in our study is attributed to prematurity and its complications.

Histopathological examination of the placenta of severe preeclampsia patients revealed Infarction in 47% patients which is similar to the results 48% and 53.1 % observed in the studies done by Vijayalaxmi et al 2015,[28] and Salgadho et al 2008,[29] respectively. Stromal Calcification was observed in 88% patients which is similar to the findings observed in the study done by Ojha kamala et al,[30] 2018. Retroplacental Hematoma was found in 23% patients which was low as compared to the results (38.88%) observed in the study done by Tangirala et al 2015.[31] Stromal fibrosis was present in 35% placentae which is similar to the findings (38%) observed by Kartha et al 2014.[32]

CONCLUSION

Due to illiteracy, lack of screening and health awareness, poor antenatal care and inadequate management there is high Maternal and Perinatal morbidity and mortality in the patients of Severe preeclampsia especially in the backward rural areas of developing countries. Improvement in the maternal and perinatal outcomes of the patients of Severe Preeclampsia can be done by providing quality maternal health care services, regular training of medical and paramedical personnel of Rural health care centers, making health care facilities accessible and implementing proper coordination across different specialties including obstetricians, neonatologists, and critical care intensivists.

Ethical approval was taken from the Institutional Ethical Committee.

Confidentiality of the data was maintained.

No conflict of interest.

REFERENCES

1. Say L, Chou D, Gemmill A, Tuncalp O, Moller AB, Daniels J et al.Global causes of maternal death: a WHO systemic analysis. Lancet Glob Health.2014;2 :e323-33.
2. Knight HE, Self A, Kennedy SH. Why are women dying when they reach hospital on time? A systematic review of the" Third Delay "PLoS One 2013 ;8:e63846.
3. Arora R, Ganguli RP, Swain S , Oumachigui A, Rajaram P . Determinants of maternal mortality in eclampsia in India.Aust N Z J Obstet Gynecol . 1994 ; 34 : 537-9 .
4. Roberts JM. Endothelial dysfunction in preeclampsia. Semin Reprod Endocrinol. 1998;16:5-15
5. Sibai BM. Magnesium sulphate prophylaxis in pre eclampsia. Lesson learned from recent trials. Am J obstet gynecol., 2004:190: 1520-6
6. Sibai BM. Diagnosis, prevention, and management of eclampsia.Obstet Gynecol. 2005;105(2):402-10

ISSN (O): 2687-5365; ISSN (P): 2753-6556

7. Alvarez Navascues R, Marin R. Severe maternal complications associated with preeclampsia: an almost forgotten pathology? Nefrologia.2001;21(6):565-73.
8. Churchchill D, Perry IJ, Beevers DG. Ambulatory blood pressure in pregnancy and fetal growth. Lancet, 1997; 349: 7-10.
9. 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.
10. Alvarez Navaswes R, Marin R. Severe maternal complications associated with pre eclampsia: an almost forgotten pathology. Nefrologia, 2001; 21(6): 565- 73.
11. Duley L. Pre eclampsia and the hypersensitive disorder of pregnancy. British Medical Bulletin, 2003; 67: 161- 76.
12. WorldHealthOrganizationFactSheet;2012
13. Lackofpreeclampsiaawarenessincreasesriskofinfantmortality, pressrelease,preeclampsiafoundation;2008
14. Patnaik US, Devi GR, Anusha K, Suseela AV. Maternal and perinatal outcome in severe preeclampsia. IAIM. 2019; 6(10):43-9.
15. Saxena N, Bava AK, Nandanwar Y. Maternal and perinatal outcome in severe Pre-eclampsia and eclampsia. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2016 Jul 1; 5(7):2171-7
16. Singhal S, Deepika, Anshu, Nanda S. Maternal and perinatal outcome in severe preeclampsia and eclampsia. South Asian Federation of Obstetrics and Gynecology .2009; 1(3): 25-8..
17. Cunningham FG, Leveno KJ, Bloom SL, Spong CY, Dashe JS, Hoffman BL, Casey BM, Sheffield JS. Williams obstetrics. New York: McGraw-Hill Medical; 2014.
18. Katz VL, Farmer R, Kuller JA. Pre-eclampsia into eclampsia: Toward a new paradigm. Am J Obstet Gynecol 2000;182:1389- 96
19. Patel AJ, Patel BS, Shah AC, Jani SK. Maternal and perinatal outcome in severe pre-eclampsia: a study of 120 cases at a tertiary health care center in Western India. Int J Reprod Contracept Obstet Gynecol. 2021;10(3):1011-16.
20. Jayshree Chimrani , Kavita Gupta , Uma Jain, Shikha Jain , Shammi Jain, Gaurav Jain. FETO-MATERNAL OUTCOME IN SEVERE PREECLAMPSIA. Int J Acad Med Pharm 2023; 5 (1); 392-39
21. Pillai SS. The fetomaternal outcome in severe preeclampsia and eclampsia: a retrospective study in a tertiary care centreInt J Reprod Contracept Obstet Gynecol. 2017;6(9):3937-3941.
22. Akaba et al. Prevalence and materno-fetal outcomes of preeclampsia/eclampsia amongst pregnant women at a teaching hospital in northcentral Nigeria: a retrospective cross-sectional study. Clinical Hypertension. 2021;27:20.
23. Sowmya Shivalingappa, Jayanth Shivalingappa, Magdalin Priyadarshini, et a.,l Maternal and Perinatal Outcome in Severe Pre-eclampsia in a Tertiary Care Center. Indian Journal of Obstetrics and Gynecology Volume 11 Number 4, October – December 2023
24. Tuffnell DJ, Jankowicz D, Lindow SW, Lyons G, Mason GC, Russell IF, et al. Outcome of severe pre-eclampsia/eclampsia. Yorkshire 1999/2003. Br J Obstet Gynecol 2005;112:875-80
25. Gawde A, Bhosale UT. A study of maternal and perinatal outcome in preeclampsia. Int J Rec Trend Sci & Tech. 2014;10(2):267-70.
26. Al Inizi ST, Sharara H, Ahmed B. Eclampsia in Qatar: Maternal and fetal outcomes, possible preventive measures. Mid East J Emerg Med 2005;5:1-6.
27. Sibai BM. Eclampsia VI. Maternal perinatal outcome in 254 consecutive cases. Am J Obstet Gynecol 1990;163(3):1049-55.
28. Vijayalakshmi B, Kittali S. Morphological changes of placenta in cases of pre-eclampsia and perinatal outcome. Int J Sci Stud. 2015;3:137-42
29. Salgado SS, Pathmeswaran A. Effects of placental infarctions on the fetal outcome in pregnancies complicated by hypertension. J Coll Physicians Surg Pak. 2008;4:213-6.
30. Ojha Kamala, Rawal Suniti, Jha Abhimanyu. Placental Pathology in Severe Pre-eclampsia and Eclampsia. Nep Med J. 2018;1:32-5. DOI: 10.3126/nmj.v1i1.20397
31. Tangirala S, Kumari D. Placental morphology in hypertensive disorders and its correlation to neonatal outcome. IAIM. 2015;2:35-8.
32. Kartha S, Poothiode U, Jayalakshmy PS. Placental Pathology in Pregnancy Induced Hypertension. Journal of Evolution of Medical and Dental Sciences 2014;3:9272-8.

ISSN (O): 2687-5365; ISSN (P): 2753-6556