OPEN ACCESS

Scholars International Journal of Obstetrics and Gynecology

Abbreviated Key Title: Sch Int J Obstet Gynec
ISSN 2616-8235 (Print) |ISSN 2617-3492 (Online)
Scholars Middle East Publishers, Dubai, United Arab Emirates
Journal homepage: https://saudijournals.com

Original Research Article

Study of Feto-Maternal Outcomes in Early Onset Pre-Eclampsia in Women Admitted at Rural Tertiary Care Hospital

Dr. Raksha Rai[1*], Dr. Nidhi Mishra[2], Dr. Prashant Kharde[3], Dr. Vidyadhar Bangal[4]

[1,2]Post Graduate Resident, Dr BVP, Pravara Rural Medical College, Loni, Maharashtra
[3]Professor, Dr BVP, Pravara Rural Medical College, Loni, Maharashtra
[4]Professor and Head of OBGY, Dr BVP, Pravara Rural Medical College, Loni, Maharashtra

DOI: https://doi.org/10.36348/sijog.2025.v08i02.004 | **Received:** 13.01.2025 | **Accepted:** 17.02.2025 | **Published:** 19.02.2025

***Corresponding author:** Dr. Raksha Rai
Post Graduate Resident, Dr BVP, Pravara Rural Medical College, Loni, Maharashtra

Abstract

***Introduction*:** Pre-eclampsia is a pregnancy-specific disorder characterized by hypertension and proteinuria occurring after 20 weeks of gestation, impacting various organ systems like the placenta, kidneys, liver, and cardiovascular system. Early-onset pre-eclampsia, occurring before 34 weeks, poses significant challenges due to its unpredictable progression and heightened maternal and fetal risks. It is linked to higher rates of maternal complications, including multi-organ dysfunction, and obstetric issues like premature birth and fetal growth restriction. Women with a history of early-onset pre-eclampsia face increased risks of cardiovascular disease and metabolic disorders post-pregnancy. The study, conducted at Pravara Rural Hospital, Maharashtra, aims to explore the complexities of early-onset pre-eclampsia and improve maternal and fetal health outcomes. The study aims to investigate maternal and fetal outcomes in early-onset severe pre-eclampsia. ***Materials And Methods*:** A prospective cross-sectional study was conducted at Pravara Rural Hospital, Loni, with 208 participants. Data were analyzed using appropriate statistical tests. Inclusion criteria included patients with gestational age between 24 and 34 weeks, diastolic BP ≥90 mmHg, proteinuria ≥+1, and certain symptoms like persistent headache or blurred vision. Exclusion criteria included patients with co-morbidities or outside the specified gestational age range. ***Results*:** The study revealed high maternal complications, including anemia, abnormal coagulation, and organ dysfunction. Treatment involved magnesium sulfate and antihypertensive drugs. Maternal mortality was 4.32%, with significant fetal mortality (18.88% intrauterine death, 13.33% neonatal death). ***Conclusion*:** Vigilant monitoring and individualized care are critical for improving outcomes in early-onset pre-eclampsia.

Keywords: Preeclampsia, fetal, maternal, outcome.

INTRODUCTION

Pre-eclampsia is a complex condition with an enigmatic etiopathogenesis, significantly contributing to maternal and perinatal morbidity and mortality [1, 2]. This multi system disorder affects the placenta, kidneys, liver, blood, cardiovascular, and neurovascular systems [3], and occurs exclusively during pregnancy, though its exact cause remains unknown [4]. Despite its progressive nature, the definitive treatment for pre-eclampsia is delivery [5]. According to the World Health Organization (WHO), gestational hypertensive disorders complicate up to 10% of pregnancies globally [6]. The more severe manifestation, pre-eclampsia, impacts 3 to 8% of pregnancies worldwide and is a leading cause of maternal and perinatal complications, accounting for 8–10% of all preterm births [7]. By analyzing clinical data and patient outcomes, the study seeks to enhance the understanding of how this condition impacts both maternal and fetal health, ultimately contributing to better management and treatment strategies in similar healthcare settings.

AIMS AND OBJECTIVES

The aim of the study was to find out the maternal and fetal outcome in early onset pre-eclampsia and to note the variable factors associated with maternal and fetal morbidity and mortality.

MATERIAL AND METHODS

The present descriptive cross-sectional study was conducted to determine the maternal and fetal outcomes in patients with early onset preeclampsia. The study was conducted at the Obstetrics and Gynecology OPD and Labour Room of Pravara Rural Hospital, Loni, focusing on pregnancies complicated by early-onset preeclampsia. The study included 208 participants, selected using purposive sampling. The study spanned a period of two years (2021-2023), during which data were collected and analyzed using descriptive statistical methods. The methodology involved enrolling patients who met the inclusion criteria, with a comprehensive medical history and examinations conducted upon admission. Urine investigations and pregnancy-induced hypertension profiles were performed, and patients were closely monitored with ultrasounds and Doppler assessments. Treatment, including antihypertensives, magnesium sulfate, and steroids, was recorded, along with pregnancy termination details and neonatal assessments in the NICU. Maternal complications were noted, and follow-up continued until discharge or death. Data analysis was conducted using SPSS software, where descriptive statistics, including mean, standard deviation, and graphical representations, were used for detailed presentation.

RESULTS

Age-wise distribution of the patients shown in Table 1. Out of 208 cases, 57.69% (120) belonged to the 25–30 year age group, while 23.07% (48) and 19.23% (40) were from the 20–24 and >30 year age groups, respectively. The mean age of the participants was 27.29 ± 4.10 years. (95% CI 26.73 to 27.85).

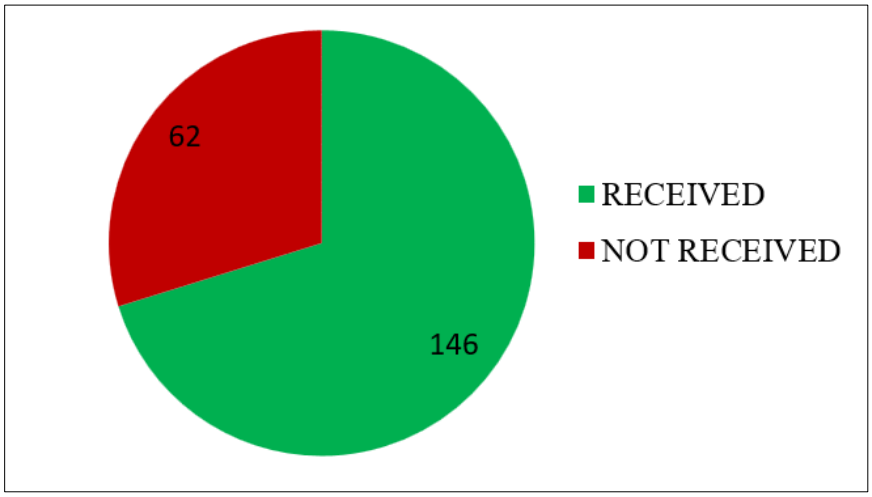
Table 1: Age wise distribution of patients (n=208)

Age (Years)	Number of Cases	Percentage
20 to 24	48	23.07
25 to 30	120	57.69
>30	40	19.23
Total	**208**	**100**
Mean	27.29 ± 4.10	

Table 2: Distribution of patients investigation profile(n=208)

Investigations	Number of Cases	Percentage
Anemia	143	68.75%
Coagulation profile deranged	47	22.59%
LFT Deranged	39	18.75%
KFT Deranged	41	19.71%

Table 2 Show distribution of investigative profile of patients. Out all participants 68.75% (143) were anemic, 22.59% (47) patients had abnormal coagulation profile while 18.75% (39) and 19.71% (41) participants had abnormal LFT and KFT.



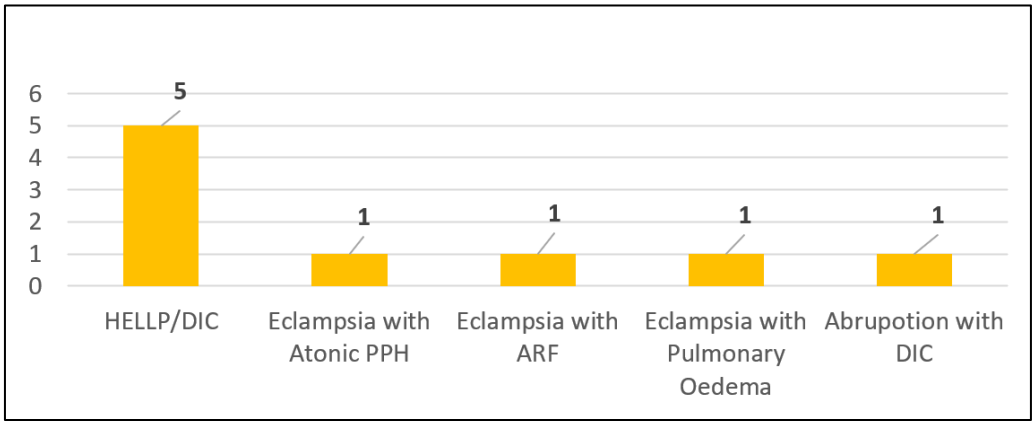
Graph 1: Distribution of Mgso4 therapy

Out of total 208 cases, 146 (70.19%) received MGSO4 therapy. Whereas 29.80% (62) cases did not receive this therapy.

Table 3: Distribution of maternal outcome

Maternal Outcome	Number of Case	Percentage
Eclampsia	38	18.26
Abruption	19	9.13
Wound Infection	13	06.25
Post Partum Eclampsia	9	04.32
HELLP	7	03.36
DIVC	4	01.92
ARF	3	01.44
Atonic PPH	3	01.44
Death	9	04.32
Total	**105**	**50.48**

Table 3 shows distribution of maternal morbidity and mortality. Out of all cases 50.48% (105) had experienced maternal morbidity and mortality. Eclampsia and abruption were highest accounting to 38 (18.26%) and 19(9.13%) respectively. There were 9 (04.32%) maternal death in this study.



Graph 2: causes of maternal death

Out of total 208 in 9 (04.32%) cases maternal morbidity observed. Commonest cause of maternal death was HELLP/DIC.

Table 4: Fetal outcome

Fetal Outcome	Number of Babies	Percentage
IUFD	17	18.88
IUGR	11	12.22
RDS	13	14.44
HIE	4	04.44
RDS + HIE	8	08.88
Septicemia	5	05.55
Still Birth	3	03.33
Death	12	13.33
Total	**73**	**100**

Table 4 shows cause of fetal morbidity and mortality. Out of the total 208 deliveries, 73 (35.09%) babies had complications. IUFD (18.88%) was the most common fetal mortality observed. Neonatal deaths were 13.33% (12).

DISCUSSION

Among the 208 cases, 57.69% (120) were in the 25–30 year age group, followed by 23.07% (48) in the 20–24 year group, and 19.23% (40) in the >30 year age group. The mean age of the participants was 27.29 ± 4.10 years (95% CI 26.73 to 27.85). According to research by Aabidha PM (2015) *et al.*, [8] 93 out of 1900 women screened had pre-eclampsia. The age distribution of ninety-three pre-eclamptic patients was as follows: 21-25 years (46.23%), remaining 16.12%, 23.65%, 10.75% and 3.23% fall in 15-20, 26-. 30, 31-35 and > 36 years age category respectively. In study conducted Jikamo B. (2022) *et al.*, [9] conducted prospective cohort study on pre-eclampisa and normotensive women. This study reported the pre-eclampsia women's mean age was 25.42±4.76 years, while the normotensive group's mean

age was 24.6±4.48 years. The mean age both group found to be less than present study. Chauhan JU. 2023 *et al.,* [10] studied 106 pre-eclampsia patients; majority of them i.e 51% participants were from 26 to 30 years age group.

Study outlines the investigative profile of the patients. Of the total participants, 68.75% (143) were anemic, 22.59% (47) had an abnormal coagulation profile, while 18.75% (39) had abnormal liver function tests (LFT) and 19.71% (41) showed abnormal kidney function tests (KFT). Wadhwani P (2020) *et al.,* [11] study the mean hemoglobin level of early onset of preeclampsia patients was 10.92±1.06, 9 cases had deranged LFT while 12 had thrombocytopenia.

Out of total 208 cases, 146 (70.19%) received MGSO4 therapy. Whereas 29.80% (62) cases did not receive this therapy. In Goyal P 2023 *et al.,* [12] study out of 100 patients, 67 (67%) women received MgSO4 out of which 03 developed seizures (1 of them had Postpartum eclampsia). 33 (33%) women did not receive MgSO4, out of which 9 developed seizure. In present study out of 208 cases, 87.98% (183) received oral antihypertensive drugs while 9.13% (19) received drugs by parenteral route and 2.88% (6) received therapy by both routes while All women in the Goyal P 2023 *et al.,* [12] study group received oral antihypertensive and 29 women (29%) required parenteral antihypertensive (Inj Labetalol or Inj. Nitroglycerine) for control of blood pressure.

Study illustrates the distribution of maternal morbidity and mortality. Maternal morbidity and mortality were observed in 50.48% (105) of cases, with eclampsia and abruption being the most prevalent, accounting for 18.26% (38) and 9.13% (19) of cases, respectively. There were 9 maternal deaths (4.32%) in the study, with HELLP syndrome/DIC being the leading cause of death. In Neelima B (2019) *et al.,* study [13] reported that total maternal deaths accounted for 3.04% and the most common cause for maternal mortality was eclampsia with HELLP.

Study shows the causes of fetal morbidity and mortality. Out of the 208 deliveries, 73 (35.09%) babies experienced complications. Intrauterine fetal death (IUFD) was the most common fetal mortality, occurring in 18.88% of cases, while neonatal deaths were observed in 13.33% (12) of cases. In Chauhan JU. 2023 *et al.,* study [10] out of 106 babies, 15 were IUFD, 15.09% IUGR and 1.88% still birth. Neelima B (2019) *et al.,* [13] reported that perinatal mortality was seen in 164 cases (35.65 %) of which 109 were IUD, 50 were NICU deaths and 5 were fresh still births Goyal P 2023 *et al.,* study [12] out of the total 100 babies, 71(71%) babies had complications, 82 babies were born alive and neonatal death were 14. Major cause for neonatal morbidity and mortality were prematurity and respiratory distress syndrome.

CONCLUSION

Early onset preeclampsia poses considerable risks for both mothers and babies, often resulting in significant complications. Timely booking for prenatal care is crucial to optimize maternal and fetal outcomes. When considering whether to terminate a-pregnancy, healthcare providers must carefully weigh both maternal and fetal factors. In instances of uncontrolled hypertension accompanied by complications, terminating the pregnancy becomes imperative, regardless of fetal maturity, to safeguard maternal health. The presence of a well-equipped NICU plays a vital role in improving fetal prognosis, providing necessary support for newborns facing potential complications. In selected cases, expectant management at tertiary care centers can mitigate the impact of serious maternal and fetal complications through close monitoring and timely intervention. This approach involves closely monitoring the condition and delaying delivery when possible, under the supervision of specialized medical professionals. By offering comprehensive care and interventions, tertiary care centre can help minimize adverse outcomes associated with early onset pre-eclampsia.

REFERENCES

1. van Eerden, L., Gaugler-Senden, I., de Vries, R. J., Zeeman, G. G., de Groot, C. J., & Bolte, A. C. (2018). Mode of delivery in severe preeclampsia before 28 weeks' gestation: A systematic review. *Obstetrical & Gynecological Survey*, *73*(8), 469-474.
2. Cunningham FG, Leveno KJ, Bloom SL. Williams obstetrics. In: Leveno KJ, Bloom SL, Dashe JS, Hoffman BL, eds. Chapter 40; Hypertensive Disorders. 24th edition ed. McGraw Hill; 2014:728-779.
3. Goyal, P., Shukla, P. K., Meena, P., Saxena, B., Rawat, R. P., & Meena, S. (2023). Fetomaternal outcome in early onset severe pre eclampsia. *Int. J. Adv. Res.*, *11*(06), 133-138.
4. Vigil-De Gracia, P., & Ludmir, J. (2022). Conservative management of early-onset severe preeclampsia: comparison between randomized and observational studies a systematic review. *The Journal of Maternal-Fetal & Neonatal Medicine*, *35*(16), 3182-3189.
5. Gangadhar, L., Rengaraj, S., Thiyagalingam, S., & Bethou, A. (2023). Maternal and perinatal outcome of women with early-onset severe pre-eclampsia before 28 weeks: Is expectant management beneficial in a low-resource country? A prospective observational study. *International Journal of Gynecology & Obstetrics*, *161*(3), 1075-1082.
6. Koulouraki, S., Paschos, V., Pervanidou, P., Christopoulos, P., Gerede, A., & Eleftheriades, M. (2023). Short-and long-term outcomes of preeclampsia in offspring: review of the literature. *Children*, *10*(5), 826.

7. Frost, A. L., Suriano, K., Aye, C. Y., Leeson, P., & Lewandowski, A. J. (2021). The immediate and long-term impact of preeclampsia on offspring vascular and cardiac physiology in the preterm infant. *Frontiers in Pediatrics*, *9*, 625726.
8. Aabidha, P. M., Cherian, A. G., Paul, E., & Helan, J. (2015). Maternal and fetal outcome in pre-eclampsia in a secondary care hospital in South India. *Journal of family medicine and primary care*, *4*(2), 257-260.
9. Jikamo, B., Adefris, M., Azale, T., & Gelaye, K. A. (2022). Incidence of adverse perinatal outcomes and risk factors among women with pre-eclampsia, southern Ethiopia: a prospective open cohort study. *BMJ Paediatrics Open*, *6*(1).
10. Chauhan, J. U., Agarwal, S. S., Jain, M. P., Patel, S. M., Contractor, K. T., & Vaidya, J. A. (2023). Study of fetomaternal outcome in pre-eclampsia at tertiary care centres, South Gujarat. *Int J Reprod Contracept Obstet Gynecol*, *12*, 1798-801.
11. Gilbert, J. S., Babcock, S. A., & Granger, J. P. (2007). Hypertension produced by reduced uterine perfusion in pregnant rats is associated with increased soluble fms-like tyrosine kinase-1 expression. *Hypertension*, *50*(6), 1142-1147.
12. Goyal, P., Shukla, P. K., Meena, P., Saxena, B., Rawat, R. P., & Meena, S. (2023). Fetomaternal outcome in early onset severe pre eclampsia. *Int. J. Adv. Res.*, *11*(06), 133-138.
13. Neelima, B. (2019). The study of maternal and perinatal outcome in preeclampsia in tertiary care hospital. *Int J Reprod Contracept Obstet Gynecol.*, *8*(1), 285-289.