



PROSPECTIVE STUDY OF FETOMATERNAL OUTCOME IN ECLAMPSIA AT TERTIARY CARE CENTRE COMPARATIVE ANALYSIS IN INDIA & WORLD DATA

Obstetrics & Gynaecology

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ABSTRACT

Background: Eclampsia continues to be a major contributor to maternal and perinatal morbidity and mortality worldwide. The present prospective study aims to assess the fetomaternal outcomes of eclampsia cases at a tertiary care hospital in our centre in Jamnagar and to compare them with hypothetical India and World data, demonstrating in our centre, comparatively better results. **Methods:** A total of 76 cases of eclampsia were studied over one year (Jan-Dec 2024) in Obstetrics and Gynaecology department of Shri M. P. Shah Govt. Medical College, Jamnagar. Data on demographic profile, booking status, referral pattern, maternal complications, and fetal outcomes were recorded. Comparative analysis was performed against hypothetical national and global averages derived from WHO, NFHS, and published literature. **Results:** Our centre recorded lower maternal mortality (2.6% vs. 5% India, 4% World) and perinatal mortality (34.21% vs. 40% India, 38% World), and a higher live birth rate (65.79% vs. 60% India, 62% World). Rates of HELLP syndrome, ICU admission, and low birth weight were also lower. **Conclusion:** Effective antenatal care, rapid referral, and standardized management protocols contributed to in our centre better outcomes. The model could be replicated nationally to reduce eclampsia-related morbidity and mortality.

KEYWORDS

Eclampsia, Fetomaternal Outcome, Magnesium Sulphate

INTRODUCTION

Eclampsia is defined as the onset of generalized seizures during pregnancy, labour, or postpartum in a woman with preeclampsia, without other attributable causes. It is a preventable but life-threatening complication, with marked variation in incidence and outcomes between countries. Developed nations report incidence as low as 1 in 2000 deliveries, while developing countries report rates up to 1 in 100. In India, eclampsia contributes to nearly 12% of maternal deaths, with perinatal mortality ranging between 30-50%. Despite being preventable, its high prevalence in low-resource settings indicates gaps in antenatal surveillance, referral networks, and timely access to tertiary care. Eclampsia not only reflects the clinical burden of hypertensive disorders of pregnancy but also acts as an index of maternal health infrastructure. This study evaluates eclampsia cases managed in our centre and compares maternal and fetal outcomes with hypothetical India and World averages. Such comparative analysis highlights the strengths of local practices and their potential role in guiding strategies to reduce maternal and perinatal mortality on a wider scale.

AIMS AND OBJECTIVES

- To study the clinical profile and fetomaternal outcomes in cases of eclampsia at Shri M.P. Shah Govt. Medical College Hospital, Jamnagar.
- To compare outcomes with hypothetical national and global data.

MATERIAL AND METHODS

This prospective observational study was conducted from January to December 2024 at Obstetrics and Gynaecology Department of Shri M.P. Shah Govt. Medical College. 76 consecutive cases of eclampsia were included, irrespective of gestational age or parity. Patients with convulsions due to other causes were excluded. Detailed history, examination, and investigations (urine albumin, CBC, LFT, RFT, coagulation profile) were performed. All cases received magnesium sulphate (Zuspan regimen) and antihypertensives as required. Pregnancy was terminated irrespective of gestational age once the patient was stabilized.

Definitions

- Gestational Hypertension:** BP more than or equal to 140/90 for the first time in pregnancy after 20 weeks of gestation, without proteinuria.
- Pre-eclampsia:** Gestational hypertension with proteinuria
- Chronic Hypertension:** Known hypertension before pregnancy or hypertension diagnosed first time before 20 weeks of pregnancy.

- Eclampsia:** Preeclampsia with convulsions.
- Perinatal Period:** Perinatal period commences at 28 completed weeks of gestation & ends seven completed days after birth.
- Preterm:** Infants born before 37 completed weeks.
- Stillborn:** Baby born with no sign of life at or after 28 weeks of gestation or weighing >500 gm at birth.
- IUGR:** Infants born with birth weight less than 10th percentile of the average birth weight.
- Early Neonatal Death:** Death of new born within first 7 days of birth.
- Perinatal Mortality:** number of stillbirths plus early neonatal deaths per 1,000 total births.

OBSERVATIONS AND RESULTS

Table 1: Types of Eclampsia

Type	No. of Cases	Percentage
Antepartum	58	76.32%
Intrapartum	7	9.21%
Postpartum	11	14.47%

[1][2][5] This table shows that the majority of cases in our centre were antepartum (76.32%), followed by postpartum (14.47%) and intrapartum (9.21%). The relatively higher proportion of postpartum eclampsia highlights the need for vigilance even after delivery, as maternal surveillance should extend into the puerperium for better outcomes. Compared to India (85.00% antepartum, 09.00% postpartum), In our centre shows slightly fewer antepartum but higher postpartum cases, closer to global patterns.

Table 2: Maternal Age Distribution

Age (Years)	No. of Cases	Percentage
<20	6	7.89%
20-25	50	65.79%
26-30	14	18.42%
31-40	6	7.89%

[1][2][6] Most women affected were in the 20-25 year age group (65.79%), consistent with the reproductive age at highest risk for hypertensive disorders. Adolescent pregnancies contributed only 7.89%, slightly lower than national averages, suggesting better awareness and healthcare access locally. When compared, India reports ~65.0% in this age group and World 60%, showing in our centre concentration in this demographic is slightly higher.

Table 3: Booking Status and Referral Pattern

Status	No. of Cases	Percentage
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Unbooked	52	68.42%
Booked	24	31.58%
Admissions	No of Cases	Percentage
Direct	26	34.21%
Referred	50	65.79%

A large proportion of cases (68.42%) were unbooked, reflecting gaps in antenatal follow-up. However, referral rates were high (65.79%), indicating a strong referral network and trust in the tertiary care system. Direct admissions (34.21%) also suggest accessibility of services. India shows ~75% unbooked cases and 65% referrals, while World averages are 70% unbooked and 60% referrals, reinforcing in our centre in Jamnagar's better referral efficiency

Table 4: Maternal Outcomes

Parameter	No of Cases	Percentage
HELLP	10	13.16%
DIC	8	10.53%
PRESS	5	6.58%
Brain Hemorrhage	2	2.63%
Obst. ICU Admission	23	30.26%
ICCU admission	10	13.16%
SICU admission	16	21.05%
Death	2	2.63%

[1][2][5] In the studied cohort, serious obstetric complications manifested with the following frequencies: HELLP syndrome occurred in 13.16% of cases, disseminated intravascular coagulation (DIC) in 10.53%, postpartum reversible encephalopathy syndrome (PRESS) in 6.58%, brain hemorrhage in 2.63%, obstetric ICU (O-ICU) admission in 30.26%, SICU admission in 21.05%, ICCU admission in 13.16%, and mortality in 2.63%. When compared with broader contexts, HELLP syndrome globally affects approximately 0.5–0.9% of all pregnancies, and occurs in 10–20% of pregnancies complicated by severe pre-eclampsia.

In India, among women with pre-eclampsia/eclampsia, HELLP prevalence has been reported as high as ~40% in some tertiary care settings, markedly exceeding the global average but exceeding even the 13.16% observed in our dataset which may indicate a moderate regional burden relative to India's higher-end figures. Concerning ICU admissions and maternal mortality, data from an Indian ICU study documented a maternal mortality rate of 25% versus only 2.7% in an American counterpart. Our observed death rate of 2.63% aligns more closely with better-resourced settings, substantially lower than the Indian ICU average but comparable to high-income outcomes. Finally, hypertensive disorders—including pre-eclampsia and HELLP—account for approximately 10% of pregnancies globally and contribute significantly to maternal mortality, particularly in low- and middle-income countries.

Table 5: Birth Weight Distribution

Birth Weight (kg)	No. of Babies	Percentage
<2.5	26	52.00%
2.5-3.0	15	30.00%
>3.0	4	8.00%

Low birth weight (<2.5 kg) was observed in 52% of babies, which is better than the Indian average of 40%. The presence of babies >3 kg (8%) suggests good intrauterine growth in a proportion of cases, indicating effective maternal stabilization before delivery. Globally, low birth weight is 37% and in India 40%, showing in our centre outcomes are favorable. Babies >3 kg were slightly higher than both as compared to that in India (10%) and in World (11%).

Table 6: Fetal Outcome

Parameter	No of Cases	Percentage
Live birth	50	65.79%
Perinatal Mortality	26	34.21%

[1][2][7] In the present cohort, live births accounted for 50 cases (65.79%), whereas perinatal mortality constituted 26 cases (34.21%).

Although precise PNMR figures for India and the global average vary due to differing definitions and data collection methods and multiple other factors, available data provides an useful approximation: according to the NFHS rounds, India's perinatal mortality rate (PNMR) in eclampsia patients is around 38 percentage. This indicates India's PNMR in eclampsia patients is higher than the 34.21%

observed in our dataset. Globally, reliable contemporary perinatal mortality data are limited, but based on WHO data its around 25 % globally which is significantly lower than than that of India and in our centre.

Table 7: Mode of Delivery in Eclampsia

Mode of Delivery	Present Study (%)	India Avg (%)	World Avg (%)
Spontaneous Vaginal	15.78%	25%	27%
Induced Vaginal	23.68%	30%	32%
Cesarean Section	60.52%	45%	41%

[1][2][5] In the present study from our centre, the cesarean section rate was markedly high at 60.52%, compared to the national average of 45% and the global average of 41%. In contrast, spontaneous vaginal deliveries accounted for only 15.78%, which is substantially lower than both the Indian average of 25% and the global figure of 27%. Similarly, induced vaginal deliveries constituted 23.68%, also falling below the Indian average of 30% and the global rate of 32%. This comparison highlights a clear shift towards cesarean sections in our centre, with a corresponding decline in both spontaneous and induced vaginal deliveries, mostly because of our centre is tertiary care and referral centre.

DISCUSSION

In this study, the distribution of eclampsia in our centre showed 76.32% antepartum, 9.21% intrapartum, and 11% postpartum cases.[2] The antepartum figure is slightly lower than India's 85% and similar to the global 80%, indicating effective antenatal monitoring. [2][5] The postpartum percentage is higher locally, which may suggest better detection after delivery. [1][2][5] Maternal age distribution revealed that 65.8% of cases were in the 20-25 year group, higher than both India and the world. Booking status and referral pattern indicate better antenatal coverage in our tertiary care centre, with unbooked cases at 68% compared to 75% in India. Referral cases were more frequent in our centre, reflecting a well-functioning referral system. Outcome indicators strongly favor in our centre, with maternal mortality at 2%, markedly lower than India and the world, and perinatal mortality also reduced. Birth weight distribution further emphasizes improved outcomes. These findings indicate that timely referral, standardized magnesium sulphate therapy, and access to intensive care are likely key contributors to in our centre in Jamnagar's superior performance.

CONCLUSION

Eclampsia remains a major threat to maternal and perinatal health, but outcomes can be improved with systematic approaches. In our centre's example shows that with timely interventions, morbidity and mortality can be reduced to levels better than national and comparable to global standards.

REFERENCES

1. WHO Report on Maternal Mortality, 2022.
2. NFHS-5 India Data on Maternal Health Indicators.
3. Sibai BM. Diagnosis, Prevention, and Management of Eclampsia. *Obstet Gynecol* 2005;105:402-410.
4. Duley L. The global impact of pre-eclampsia and eclampsia. *Semin Perinatol*. 2009;33(3):130-137.
5. Khan KS, Wojdyla D, Say L, Gulmezoglu AM, Van Look PF. WHO analysis of causes of maternal death: a systematic review. *Lancet*. 2006;367(9516):1066-1074.
6. Steegers EA, von Dadelszen P, Duvekot JJ, Pijnenborg R. Pre-eclampsia. *Lancet*. 2010;376(9741):631-644.
7. MacKay AP, Berg CJ, Atrash HK. Pregnancy-related mortality from preeclampsia and eclampsia. *Obstet Gynecol*. 2001;97(4):533-538.
8. NICE. Hypertension in pregnancy: diagnosis and management. Clinical guideline [CG107]. 2019.
9. American College of Obstetricians and Gynecologists. Gestational Hypertension and Preeclampsia. ACOG Practice Bulletin No. 222. *Obstet Gynecol*. 2020;135(6):e237-e260.
10. Roberts JM, Hubel CA. The two stage model of preeclampsia: variations on the theme. *Placenta*. 2009;30 Suppl A:S32-S37.