

Study of maternal outcome in patient with imminent eclampsia and eclampsia

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Abstract:

Aim: The present study was undertaken with the following aims and objectives: (1) To evaluate the risk factors and clinical presentation in women with imminent eclampsia and eclampsia. (2) To analyze the maternal outcome in patient with imminent eclampsia and eclampsia.

Material and Methods: The present study will be carried out in the Department of Obstetrics & Gynecology of Choithram Hospital & Research Centre, Indore from October 2012 to September 2014. The study will be conducted on the antenatal and postnatal women admitted in the inpatient department of Choithram Hospital & Research Centre, Indore (M.P.). Women willing to give voluntary consent for participation in the study. Pregnant women with BP of >140/90 mm Hg with proteinuria, edema with convulsion. Pregnant women with BP of > 140 / 90 mm Hg with proteinuria, edema with signs and symptoms suggestive of imminent eclampsia i.e. characterized by visual disturbance, headache or epigastric pain and / or signs of brisk reflexes.

Result: Incidence of eclampsia and imminent eclampsia Total number of Obstetric admissions 3980, Total number of eclampsia cases seen 46, Total number of imminent eclampsia cases seen 54, Incidence of eclampsia $46 / 3980 * 100$, 1.15%, Incidence of imminent eclampsia $54 / 3980 * 100$ 1.35%.

Conclusion: Eclampsia and imminent eclampsia are a major health problem in pregnant women. And it carries high morbidities and mortality. Eclampsia is more complicated than imminent eclampsia. Most common maternal complication of eclampsia and imminent eclampsia was PPH followed by HELLP syndrome, renal dysfunction, pulmonary edema, pulmonary embolism, abruptio placenta, and DIC. Maternal mortality was 4.35% of eclampsia and 3.70% in imminent eclampsia women.

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Introduction

The anatomical, physiological and biochemical adaptations to pregnancy are well orchestrated. In certain cases departure from this normal course leads to the pregnancy being complicated. Complications that so develop, endanger the life of both the mother and her unborn child. One such dreaded complication is pregnancy induced hypertension.

Eclampsia is defined as the pre-eclampsia when complicated with convulsion and/or coma. Eclampsia is still commonly perceived as the end of a linear spectrum that stretches from normal pregnancy, through mild hypertension, Preeclampsia and finally eclampsia. However, eclampsia usually precede pre-eclampsia and an alternative view is that seizures are one of the ranges of signs and symptoms caused by the widespread endothelial cell damage secondary to an ischemic placenta. [1] Eclampsia is a preventable disease. Incidence of eclampsia is variable in different parts of world. Approximately 50,000 women die worldwide each

year from eclampsia. The reported maternal mortality rate ranges from 1-20%. While it is on decline in developed countries, it is still one of the principle causes of maternal morbidity and mortality in developing countries like India. [2]

A patient of eclampsia has not only her baby's life to lose but also her life. Any delay in the management can lead to loss of one or either's life. It is observed that most of the cases of eclampsia are un-booked and belong to rural areas. They reach the hospital after having many convulsions at home. Eclampsia is still a major killer of women in developing countries. The neurological involvement is mandatory of diagnosis of eclampsia although it is a multi-system disease. The neurological manifestation of eclampsia consists of seizures and alteration of sensorium and coma on a background of preeclampsia. [3,4] However, proteinuria may be intermittent and the definite test for proteinuria is quantitative measurement of total 24 hr. excretion of protein.

Epigastric pain of right upper quadrant pain, rapid rise in blood pressure, marked increased in proteinuria, oliguria and hyper-reflexia [5].

Women who have or develop high blood pressure during pregnancy are all at increased risk of complications antenatally, intrapartum and in the puerperium. The increased risk applies to the mother as well to the fetus. Preeclampsia is the most serious form of hypertensive pregnancy complications, but it is not primarily a hypertensive disease; it is a disorder induced by factors based on the presence of placenta. Preeclampsia is initiated by abnormal placentation and, therefore, a low perfused placenta, release of cytokines and other toxins, and vasoconstriction and platelet activation; so, it is a syndrome of generalized endothelial dysfunction, and the complications are associated with the vascular system. Fundamentally, these complications are 1- intravascular coagulation, PPH and 2- organ failure (hepatic and renal) following poor perfusion. [6] As we have observed, preeclampsia has quite an impact on renal function. Preeclampsia may be complicated by seizures: eclampsia. The greatest compromise occurs with the development of the HELLP syndrome (hemolysis, elevated liver enzymes and low platelet count). The HELLP syndrome, alongside preeclampsia, accounts for most maternal deaths associated with hypertension. The process is completely reversed by the delivery of the fetus and placenta, but intrauterine growth retardation and premature delivery pose major threats to the fetus and may require care in a tertiary care center. [7] Treatment of preexisting or pregnancy-induced hypertension does not prevent or reverse the process, but is justified to prevent maternal cardiovascular complications, especially during labor and delivery. The fetus is at increased risk due to growth retardation and hypoxia following placental damage. [8,9]

The majority of women with mild chronic hypertension have successful pregnancy outcomes. Most perinatal morbidity is secondary to superimposed preeclampsia. Antihypertensive therapy does not appear to significantly affect pregnancy outcome, or the incidence of superimposed preeclampsia in mild chronic hypertensive. Maternal and fetal risks are considerably higher in severe chronic hypertension and in those women with target organ disease. These women should ideally be counseled regarding their risks prior to pregnancy their illness. [10,11]

Material and Method

The present study will be carried out in the Department of Obstetrics & Gynecology of Choithram Hospital & Research Centre, Indore from October 2012 to September 2014. The study

will be conducted on the antenatal and postnatal women admitted in the inpatient department of Choithram Hospital & Research Centre, Indore (M.P.)

Study Site: Department of Obstetrics & Gynecology, Choithram Hospital & Research Centre, Indore (M.P.).

Study Population: Antenatal and postnatal women admitted in the inpatient department.

Study Design: Prospective observational study.

Sample Size: 100 women were enrolled in the study.

Study Period: October 2012 to September 2014.

Inclusion Criteria

1. Women willing to give voluntary consent for participation in the study
2. Pregnant women with BP of >140/90 mm Hg with proteinuria, edema with convulsions.
3. Pregnant women with BP of > 140 / 90 mm Hg with proteinuria, edema with signs and symptoms suggestive of imminent eclampsia i.e. characterized by visual disturbance, headache or epigastric pain and / or signs of brisk reflexes.

Exclusion Criteria

1. Women who were not willing to provide voluntary consent for their participation in the study.
2. Women with neurological disorders like epilepsy, chronic hypertension, hepatic and cardiac diseases, vascular diseases and diseases cause convulsion other than the eclampsia.

Methodology

All the women are evaluated for demographic data, antenatal history, obstetric history, menstrual history, medical and surgical history, mode of delivery, onset of eclampsia, treatment received and maternal and fetal complications.

Statistical Analysis

Data was analyzed using MS Office Excel 2010. All the data was represented as number and percentages. Previous studies so reviewed most of the studies have included approximately 100 women in their sample. Accordingly, to justify our sample size, we have also included 100 women in the study.

Results

Incidence of Eclampsia and Imminent Eclampsia

Total number of Obstetric admissions : 3980

Incidence of eclampsia: $46 / 3980 * 10 = 1.15\%$

Total number of eclampsia cases seen : 46

Incidence of imminent eclampsia: $54 / 3980 * 10 = 1.35\%$

Total number of imminent eclampsia cases seen: 54

Table 1: Distribution of Women According Type of Eclampsia

Type of Eclampsia	No.	%
Eclampsia	46	46.00
Imminent Eclampsia	54	54.00

This table shows that there were total number of eclampsia was 46 (46%) and imminent eclampsia was 54 (54%).

Table 2: Distribution of Women According to Age

Age Group	Eclampsia (N=46)		Imminent Eclampsia (N=54)	
	No.	%	No.	%
< 20 years	5	10.90	2	3.70
21-30 years	38	82.60	38	70.40
31-40 years	3	6.50	14	25.90
Total	46	100.00	54	100.00

In our study 5 (10.90%) eclampsia and 2 (3.70%) imminent eclampsia patients belonged to < 20 years age group, 38 (82.60%) eclampsia and 38 (70.40%) imminent eclampsia patients belonged to 21-30 years age group and 3 (6.50%) eclampsia and 14 (25.90%) imminent eclampsia patients belonged to 31-40 years age group. Maximum number of patients were between 21-30 years age group.

Table 3: Distribution of Women According to Gestational Age

Gestational Age	Eclampsia (N=46)		Imminent Eclampsia (N=54)	
	No.	%	No.	%
20-30 weeks	7	15.2	12	21.93
30-40 weeks	29	63.04	42	77.77
Postnatal	10	21.74	2	3.70
Total	46	100.00	54	100.00

In our study 7 (15.20%) eclampsia and 12 (21.93%) imminent eclampsia women had gestational age between 20-30 weeks, 29 (63.04%) eclampsia and 42 (77.77%) imminent eclampsia patient had gestational age between 30-40 weeks. In postnatal period 10 (21.74%) eclampsia and 3 (2.70%)

imminent eclampsia cases were seen. Maximum number of women have a gestational age between 30-40 weeks of pregnancy. Gestational age was also associated with severity of the disease. Women who were less than 30 weeks

Table 5: Distribution of Women According to Clinical Presentation

Clinical Presentation	Eclampsia (N=46)		Imminent Eclampsia (N=54)	
	No.	%	No.	%
Raised blood pressure	46	100.00	54	100.00
Headache	38	82.60	52	96.30
Vomiting	30	65.20	36	66.70
Epigastric pain	11	23.90	40	74.10
Abdominal edema	3	6.52	2	3.71

In our study blood pressure raised in all the cases of the eclampsia and imminent eclampsia women. Headache was seen in 38 (82.60%) eclampsia and 52 (96.30%) imminent eclampsia women, vomiting in 30 (65.20%) eclampsia and 36 (66.70%)

imminent eclampsia women, epigastric pain in 11 (23.90%) eclampsia and 40 (74.10%) imminent eclampsia women and ascites was seen in 3 (6.52%) eclampsia and 2 (3.71%) imminent eclampsia women.

Table 6: Comparison of maternal outcome in eclampsia and imminent eclampsia

Parameter	Eclampsia (N=46)		Imminent Eclampsia (N=54)	
	No.	%	No.	%
Abruptio placentae	3	6.52	7	12.96
HELLP	12	26.09	0	0.00
Renal dysfunction	10	21.74	2	3.70
Pulmonary edema	6	13.04	4	7.41
Pulmonary embolism	3	6.52	0	0.00
PPH	18	39.13	10	18.52
DIC	5	10.87	1	1.85
Death	2	4.35	2	3.70

In our study maternal complications are high. PPH was seen in 10 (18.52%) imminent eclampsia women and 18 (39.13%) eclampsia women, abruptio was in 7 (12.96%) imminent eclampsia and 3 (6.52%) eclampsia women, DIC was in 1 (1.85%) imminent eclampsia and 5 (10.87%) eclampsia women renal dysfunction was seen in 2 (3.70%) imminent eclampsia and 10 (21.74%) eclampsia women, pulmonary edema was seen in 4 (7.41%) imminent eclampsia and 6 (13.04%) eclampsia women, and pulmonary embolism was seen in 3 (6.52%) eclampsia women. maternal mortality was seen in 2 (3.70%) imminent eclampsia and 2 (4.35%) eclampsia women.

Discussion

Despite advances in medical practices imminent eclampsia and eclampsia has remained a leading cause of maternal and perinatal morbidity and mortality throughout the world. It is a common problem in developing countries because of illiteracy, poor antenatal care, poverty, and lack of health awareness and health facilities.

Incidence: In our study incidence of imminent eclampsia was found to be 1.35% and that of eclampsia was 1.15%. Incidence of eclampsia in our study is lower than the studies carried out where the incidence of eclampsia was 1.37% and 1.32% respectively. Incidence of eclampsia in the present study is higher than the study carried out where the incidence of eclampsia was only 0.28%. The incidence of imminent eclampsia in the present study was lower than that reported. [12]

Clinical Presentation: Eclampsia /imminent eclampsia can manifest as either maternal syndrome (convulsion, headache, epigastric pain, vomiting, edema and signs of multi system abnormality) or as fetal syndrome (fetal growth restriction, abnormal placentation, decreased amniotic fluid). In our study headache was the most common symptom. It was seen in 99.3% of imminent eclampsia and 82.6% of eclamptic women. [13-23]

Other common symptoms were epigastric pain, vomiting and ascitis. Epigastric pain was seen in 74.1% of imminent eclampsia and 23.9% of

eclamptic women. Vomiting was seen in 66.7% of imminent eclampsia and 65.2% of eclamptic women. Ascitis was seen in 3.71% of imminent eclampsia and 6.5% of eclamptic women. [24-29]

Maternal Outcome

PPH was seen in 18.52% of imminent eclampsia and 39.13% of eclamptic women. Abruptio was seen in 12.96% of imminent eclampsia and 6.52% of eclamptic women. DIC was seen 1.85% of imminent eclampsia and 10.87% of eclamptic women. Renal dysfunction was seen in 3.70% of imminent eclampsia and 21.74% of eclamptic women. Pulmonary edema was seen in 7.41% of imminent eclampsia and 13.04% of eclamptic women. Pulmonary embolism was seen in 6.52% of eclamptic women. 3.70% of imminent eclampsia and 4.35% of eclamptic women had died.¹

Conclusion

Eclampsia and imminent eclampsia are a major health problem in pregnant women. And it carries high morbidities and mortality. Eclampsia is more complicated than imminent eclampsia. From the present study, it can be concluded that the age group 21-30 years is most prone for the eclampsia and imminent eclampsia and disease severity is higher in age group less than 30 years. Low socioeconomic status and poor educational status contribute for their increased incidence. These patients generally have higher proteinuria, with headache followed by epigastric pain and vomiting. These women are mostly delivered by caesarean section and deliver a low birth baby (< 2.5 kg), which needs immediate attention and is admitted to the nursery. Most common maternal complication of eclampsia and imminent eclampsia was PPH followed by HELLP syndrome, renal dysfunction, pulmonary edema, pulmonary embolism, abruptio placenta, and DIC. Maternal mortality was 4.35% of eclampsia and 3.70% in imminent eclampsia women.

References

1. Early initiation of the treatment of hypertension in pregnancy, early identification of severity of the disease and referral to the higher center.

2. Health education at PHC about blood pressure, edema, and any other complications related to hypertension in pregnancy of patients and her relatives (mother-in-law).
3. Availability of MgSO₄ at PHC level.
4. Patients diagnosed with mild hypertension should be educated to come for frequent antenatal visits.
5. Eclampsia drill should be implicated at PHC level, where ASHA and all other paramedical staff should be trained.
6. Skilled monitoring during ANC period, early detection and prompt interventions as per standard of antenatal care, can prevent maternal complications of preeclampsia and improve maternal and perinatal outcome.
7. Improvement in rural ANC care in health care facilities and emergency obstetric care services especially in rural areas will improve outcome of pregnancy for safe motherhood.
8. Right time in-utero transfer to higher center where nursery care is available.
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