ECLAMPSIA, A MAJOR BURDEN ON MATERNAL AND CHILD HEALTH: A RETROSPECTIVE STUDY IN TERTIARY CARE CENTRE

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ABSTRACT

BACKGROUND

Eclampsia is very common obstetric emergency and major cause of both maternal and perinatal morbidity and mortality in India.

AIM

The aim of study was to evaluate its incidence, clinical profile and maternal and perinatal morbidity and mortality associated with it in our hospital.

MATERIALS AND METHODS

A retrospective study was conducted in Government medical college, Haldwani from August 2014 to July 2015 for a period of one year. Out of 3432 deliveries a total of 53 cases of eclampsia were admitted .Cases were studied with respect to age, parity, period of gestation, blood pressure at the time of admission, severity of proteinuria ,maternal complications and mortality, mode of delivery and perinatal outcome.

RESULTS

Incidence of eclampsia in our study was 1.45%. Majority of patient were primigravida (62.26%) It was more common in age group of 21 to 25 years (43.39%) followed by age group of 26 to 30 years (26.41%).In most of patient first episode of convulsion occurred at term pregnancy with gestational age more than 37 weeks in our study (52.83%).Among 53 patients of eclampsia 48 presented with antepartum eclampsia (90.57%) and 5 presented as postpartum eclampsia (9.43%). There was no case of intrapartum eclampsia in our study. Most common mode of delivery was Lower Segment Caesarean Section (62.26%) in our study. Among 53 cases of eclampsia 3 patient had pulmonary oedema, 3 patient developed postpartum pyrexia and 4 patient had placental abruption. In one case postpartum haemorrhage occurred and one patient was in acute renal failure. There was one maternal mortality in our study. 6 patient had intrauterine foetal death (11.32%). 25 had preterm delivery (47.16%) and 16 newborns were of low birth weight less than 2.5 Kilograms (30.19%). Most patient who developed eclampsia were unbooked or had irregular or no antenatal check-up (94.33%).

CONCLUSION

Improvement in antenatal care and neonatal facilities is of paramount importance in decreasing the incidence of eclampsia and improving maternal and perinatal outcome.

KEYWORDS

Eclampsia, Incidence, Maternal and Foetal Outcome.

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BACKGROUND

The word eclampsia comes from Greek word which means 'shining froth' is an acute and life threatening complication of pregnancy. Eclampsia is defined as preeclampsia complicated by tonic clonic convulsions or coma.[1] It is a major cause of maternal and perinatal morbidity and mortality.[2] Depending on time of occurrence of convulsion it can be antepartum, intrapartum and postpartum. Frequency of timing of eclampsia reported in literature ranges from 38-53% antepartum, 15-20% intrapartum and 11-44% postpartum.[3] Most antepartum eclampsia occurs in third trimester and more frequently near term. In UK, the incidence of eclampsia is 4.9 per 10,000 and in USA it is 4.3 per 10000 deliveries.[4] In India the incidence of eclampsia is 220 per 10,000.[5] Majority of eclampsia occurs in patient who has not received proper antenatal care.

Diagnosis of eclampsia is clear when women presents with seizures, hypertension and proteinuria. As per NICE

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guidelines hypertension is further divided according to severity as mild, moderate and severe.[6]

Hypertension	Systolic Blood Pressure	Diastolic Blood Pressure
Mild	140 -149	90-99
Moderate	150 -159	100-109
Severe	≥ 160	DBP ≥ 110

Hypertension may be severe (20-54%) or mild(30-60%).[7] Eclampsia is associated with increased maternal and foetal morbidity and mortality. Preeclampsia and eclampsia are the cause of approximately 20% of all maternal deaths in USA and half of them are associated with eclampsia.[8] Mortality and severe morbidity rate in eclampsia in UK is 1.8% and 35% respectively.[9]

Maternal complications in eclampsia are placental abruption (7-10%), DIC (7-11%), HELPP syndrome(7-20%), acute renal failure (5-9%), pulmonary oedema (3-5%), aspiration pneumonia (2-3%), cerebral haemorrhage and cardiopulmonary arrest (2-5%).[7] Most common cause of maternal death are intracranial bleeding and acute renal failure secondary to abruptio placenta. Risk of death is higher in case of antepartum eclampsia perinatal mortality is reported in 5-12% of cases.[7] Causes of perinatal mortality is prematurity, IUGR, foetal asphyxia and placental abruption.

Eclampsia is mostly preventable disease through regular antenatal care with early detection of preeclampsia and timely intervention. Delivery of baby with placenta is definitive treatment of eclampsia. Unfortunately eclampsia is still a major cause of maternal and foetal morbidity and mortality in developing countries due to lack of proper antenatal care and low socioeconomic status. The purpose of our study is to evaluate incidence of eclampsia and its association with clinical profile like age, parity, period of gestation, blood pressure, antenatal care and maternal and foetal morbidity and mortality associated with it in our hospital setting.

MATERIALS AND METHODS

A retrospective study was conducted from August 2014 to July 2015 over a period of one year at obstetrics and gynaecology department of Government Medical College, Haldwani a teaching and tertiary care centre. Most of cases were referred from rural areas primary health centres, community health centres, district hospitals and private hospitals. Out of 3432 deliveries a total of 53 cases of eclampsia were admitted. Cases were studied with respect to age, parity, period of gestation, blood pressure at the time of admission, severity of proteinuria, maternal complications and mortality, mode of delivery and perinatal outcome.

OBSERVATIONS

Our study shows 53 cases of eclampsia admitted to Obstetrics and gynaecology department of Government Medical College, Haldwani from August 2014 to July 2015 over a period of one year among 3432 deliveries with incidence of 1.54%.

Eclampsia is most prevalent in age group of 21-25 years as shown in Table 1 followed by 26-30 years.

Age Group (Years)	Number and Percentage of Patient of Eclampsia
17-20	5 (9.43%)
21- 25	23 (43.39%)
26-30	14 (26.41%)
31-35	8 (15.09%)
36-40	3 (5.66%)
Table 1. Age Distribution of Eclampsia Patient	

Majority of patients were primigravida (62.26%) as shown in Table 2.

Parity	Number and Percentage of Patient of Eclampsia
Primigravida	33 (62.26%)
Multigravida	20 (37.73%)
Table 2. Parity and Eclampsia	

Most of them has first episode of convulsions in antenatal period. There was no case of intrapartum eclampsia in our study. (Table 3)

Types of Eclamsia	Number and Percentage of Patient of Eclampsia
Antepartum	48 (90.57%)
Intrapartum	0
Postpartum	5 (9.43%)
Table 3. Time of First Episode of Convulsion	

In our study majority of patient had eclampsia in third trimester and most cases were more than 37 weeks of gestation (Table 4).

Period of Gestation (Weeks)	Number and Percentage of Patient of Eclampsia
20-28	2 (3.77%)
29-34	9 (16.98%)
35-37	14 (26.42%)
> 37	28 (52.83%)
Table 4. Period of Gestation at the Onset of Convulsions	

Most of patient had mild to moderate hypertension at the time of admission. Table 5 and Table 6 shows systolic and diastolic blood pressure of patient of eclampsia at the time of admission.

	Systolic Blood Pressure (SBP) mm of Hg	Number and Percentage of Patient of Eclampsia
	<140	2 (3.77%)
Mild	140-149	10 (18.86%)
Moderate	150-159	18 (33.96%)
Severe	≥160	23 (43.4%)

Table 5. Systolic Blood Pressure in Eclampsia Patients

	Diastolic Blood Pressure (SBP) mm of Hg	Number and Percentage of Patient of Eclampsia
	<90	1 (1.87%)
Mild	90-99	6 (11.37%)
Moderate	100-109	12 (22.64%)
Severe	≥110	34 (64.15%)

Table 6. Diastolic Blood Pressure in Eclampsia Patients

Most of the patient of eclampsia had 2 plus proteinuria on dipstick (43.4%) as shown in Table 7.

Proteinuria on Dipstick	Number and Percentage of Cases of Eclampsia
0/Trace	2(3.77%)
1+	8(15.09%)
2+	23(43.4%)
3+	15(28.3%0
4+	5(9.43%)

Table 7 Proteinuria in Eclampsia Patients

Various maternal complications which we encountered were placental abruption, pulmonary oedema, acute renal failure, postpartum pyrexia, post partum haemorrhage and death. (Table 8)

Complications	Number and Percentage of Cases of Eclampsia
Acute Renal Failure	1 (1.89%)
Pulmonary edema	3 (5.67%)
Abruption	4 (7.55%)
PPH	1 (1.89%)
Postpartum pyrexia	3 (5.67%)
Mortality	1 (1.89%)

Table 8. Maternal Complications in Eclampsia

Table 9 shows that most of cases of eclampsia were unbooked and referred from periphery (94.33%).

Only 3 (5.66%) were booked but not at our hospital. 2 of booked cases were from district hospital and 1 was from private hospital.

Cases	Number and Percentage of Cases of Eclampsia
Booked case	3 (5.66%)
Unbooked case/Irregular ANC	50 (94.33%)

Table 9. Most of Cases of Eclampsia were Unbooked (94.33%)

Most common mode of delivery was LSCS in patients of eclampsia in our hospital as shown in Table 10.

Mode of Deliveries	Number and Percentage of Cases of Eclampsia
LSCS	33 (62.26%)
Vaginal deliveries	19 (35.85%)

Table 10. Mode of Delivery in Eclampsia Patients

Table 11 shows overall effect of eclampsia on pregnancy outcome. Preterm delivery occurred in 47.16%.16 (30.19%) of New born had low birth weight less than 2500 gms. There were 6 (11.32%) intrauterine death.

FetalOutcome	Number and Percentage of Cases of Eclampsia
Preterm birth	25 (47.16%)
Low birth weight babies	16 (30.19%)
Intra uterine death	6 (11.32%)

Table 11. Effect of Eclampsia on Pregnancy Outcome

DISCUSSION

Eclampsia is life threatening complication of preeclampsia. It is associated with very high risk of maternal and perinatal morbidity and mortality. The incidence of eclampsia in our study is 1.54%. Incidence in Kerala is 3.8%. In Andhra Pradesh incidence is 4.9%. In Madhya Pradesh 15% and 20.7% in Bihar.[10] Incidence of eclampsia in our hospital were comparable to incidence in one study from Maharashtra (1.63%).[11]

In US incidence is 1 in 3250 pregnancy.[12] and 1 in 2000 pregnancy in Europe.[9] Incidence in western world is low because of proper antenatal care and uniform national health care policy.

Majority of cases of eclampsia in our study were unbooked cases (94.33%). Other study also shows majority of cases of eclampsia as unbooked patients (88%).[13] Most of patients in our study were in age group of 21-25 year (43.39%) followed by 26-30 year (26.4%). Incidence was less in age group less than 20 year (9.43%) and greater in 36 year (5.66%). It is comparable to other studies where majority of women were in age group 21-29 year (68.9%).[14] Chaturvedi et. al. also found that most of patients of eclampsia were in 21 to 29 year of age (83%).[15]

Eclampsia is seen in most cases of primigravida (62.26%) in our study. Results were comparable to other studies which also shown higher incidence in primigravida i.e. 58%.[16] in a study from Bangladesh. Shiraz et al, Dutta M R et al and Shaeen B et. al. found incidence of eclampsia in primigravida as 69.1%, 66% and 69% respecectively.[2,17,18]

In our study 90.57% had ante partum eclampsia and 9.43% had postpartum eclampsia. There was no case of intrapartum eclampsia in our study. Incidence of ante

partum eclampsia was greater than that from Choudhary et al which shows 65% case of antepartum eclampsia.[19]

In our study 52.83% of cases of eclampsia occurred at term gestation and 47.17% before 37 weeks of pregnancy. But in study from Maharashtra shows 78.26% of ante partum eclampsia occurred before 37 completed weeks of pregnancy.[11]In a study from UK 44% Of antepartum occurred before 37 weeks.[9] which was comparable to our study.

52.82% patients of eclampsia had mild to moderate systolic hypertension at the time of admission in our study. Choudhary et al shows 66% patient of eclampsia had mild to moderate systolic hypertension at time of admission.[20] Around 60% of eclampsia patient had mild to moderate systolic hypertension at the time of admission in a study from Karnataka.[13] 3.77% of eclampsia patient had systolic blood pressure less than 140 mm of Hg and 1.87% of eclampsia patient had diastolic blood pressure less than 90 mm Hg at time of admission. In a study from Karnataka 15% of eclampsia patient had systolic blood pressure less than 140 mm of Hg and 9% had diastolic blood pressure of less than 90 mm of Hg. So, it gives inference that seizures can occur in few cases of normotensive pregnant patient.[13]

Severe systolic hypertension was present in 43.4% of cases with systolic BP greater than 160 mm of mercury in our study and severe diastolic BP was present in 64.15% which is comparable to study from Maharashtra where severe systolic hypertension was present in 39.13% and severe diastolic hypertension was present in 56.52% cases of eclampsia.[11] Almost all cases of eclampsia had varying severity of proteinuria except 2 cases (3.77%) which had trace proteinuria on dipstick at time of admission. G. Acharya and S Shultz in 1991 reported severe hypertension in 57.14% of cases and proteinuria in all cases of eclampsia at the time of admission.[21]

Common complications noted in our study were placental abruption 7.55%, postpartum pyrexia 5.67%, pulmonary oedema 5.67%, PPH 1.89% and acute renal failure in 1.89%. There was 1.89% maternal mortality in our study. Cause of maternal mortality was placental abruption with acute renal failure. The results were comparable to the study from Karnataka, India in which abruption was noted in 3%. Postpartum pyrexia in 12% and PPH in 6% of cases.[13]

There were 6 IUD (11.32%) in our study which is lower than reported in study of G. Acharya 31.5%.[21] and study of Swain 38.6%.[22]

CONCLUSION

Incidence of eclampsia is less in comparison to other states but still very high in comparison to developed countries. Eclampsia is more common in primigravida of young age group. In most cases, it occurs in moderate to severe hypertension with proteinuria but seizures can occur in very few normotensive patient with or without proteinuria. Most of patient of eclampsia had no or irregular antenatal check-up. Eclampsia is preventable in most cases with proper and regular antenatal care, early detection and its proper management. This study emphasises on regular antenatal care to diagnose pregnancy induced hypertension and timely interventions to decrease incidence of preeclampsia and thus decreased maternal and perinatal morbidity and mortality.

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