

Study of Maternal and Perinatal Outcome in Eclampsia

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Abstract

Aims and Objectives: 1. Study the incidence of eclampsia. 2. Study the maternal and perinatal outcome. *Materials and Methods:* It is a prospective study of Maternal and Perinatal outcome in 50 cases of eclampsia above 32 weeks of gestation from July 2015 to July 2016 in M.R. Medical College Gulbarga. Patients were examined in labour ward to know the pregnancy outcome and neonates in neonatal intensive care unit. On admission detailed history is taken from the attendant, general physical examination and systemic examination of patient was done. Management includes - General line of management, management of convulsions by pritchard regimen, anti hypertensives, obstetric management - delivery by either vaginal route or cesarean section. All the babies delivered are followed up during early neonatal period for complications. *Result:* The most common cause of perinatal mortality is prematurity. Incidence of eclampsia is 0.64%, with 2 maternal deaths and 12 perinatal deaths. 36% of patients developed complications. Maternal mortality was significantly high in patients with 6 or more episode of convulsions. Antepartum eclampsia with gestational age less than 36 weeks, BP >160/100, preterm birth, low birth weight babies, low apgar scores influenced adverse perinatal outcome. *Conclusion:* Eclampsia still remains a major problem in developing countries. It is one of the important cause of maternal and perinatal morbidity and mortality due to lack of proper ANC, low socio-economic status and lack of education.

Keywords: Eclampsia; Hypertension; Maternal Death; Perinatal Death.

Introduction

The term "eclampsia" is derived from a Greek word meaning "like a flash of lightning".

Eclampsia is a life threatening emergency that continues to be a major cause of maternal and perinatal mortality worldwide. Maternal mortality varies widely at different places with almost identical management indicating that there may be an important differences in socio-economic condition of a nation and the quality of obstetric care. Majority of these deaths occur in developing countries and most of these are preventable.

In India, maternal mortality and morbidity from eclampsia is very high.

The perinatal mortality ranges from 14.6% to 47.4% [1]. Because "Eclampsia still kills", it is worth while to periodically review this major problem of obstetric care [2]. With better antenatal care, early recognition and hospital treatment of severe pre-eclampsia patients, the incidence of eclampsia can be decreased. The present study is undertaken to find out maternal and perinatal mortality and morbidity rate in eclampsia.

Aims and Objective

The aims and objectives of our study was to

- The incidence of eclampsia.
- To Study the maternal and perinatal outcome.

Materials and Methods

A total number of 50 cases of eclampsia admitted to Basaveshwar teaching & General Hospital, attached to M. R. Medical College, Gulbarga from July 2015 to July 2016 were taken for this study.

Inclusion Criteria

1. Pregnancy with eclampsia
2. Gestational age (from 32 weeks till term)
3. No other associated medical complication.

Exclusion Criteria

1. H/o convulsions secondary to other medical cause.
2. Pregnancy associated medical complications like diabetes, vascular or renal disease etc.

On admission detailed history was taken from the patients attendant and clinical examination was done.

Particular reference was given to the following points.

1. Name, age and socio-economic status of the patient.
2. Detailed history regarding the antenatal checkups was taken.
3. Duration of gestation.
4. Detailed history was taken regarding the convulsions i.e., total number of convulsions, time of onset of first convulsion, interval between the convulsions, history of loss of consciousness and the time gap between the onset of convulsion and the admission to the hospital.
5. H/o of swelling of legs and face
6. H/o of premonitory symptoms like headache, vomiting, giddiness, blurring of vision and epigastric pain.
7. Detailed obstetric history, past history, family history and personal history were noted.

General Physical examination was done. An obstetric examination was done to note the duration of pregnancy, condition of fetus and whether the patient is in labor.

In all cases following investigations were carried out.

Haemoglobin estimation, Urine for albumin, sugar

and microscopy, Blood grouping and Rh typing, Blood urea, Serum uric acid, Serum creatinine, LFT, Fundoscopy, Ultrasonography.

Interventions

1. General nursing care, fluid and electrolyte balance were maintained, urine output was monitored with an indwelling catheter.
2. Medical Management:
 - a. *Anticonvulsants*: To keep the patient sedated and to prevent convulsions, MgSO₄ therapy was used (Pritchard's regimen)- loading dose of 4gms of MgSO₄ in 20ml of distilled water was given intravenously along with 10gms of 50% intramuscular on each buttock, followed by maintenance dose of 5gms of 50% MgSO₄ intramuscularly every 4th hourly, continued for 24 hrs following delivery.

The toxicity signs of MgSO₄ were carefully monitored like; absence of patellar reflex, decreased respiratory rate (less than 14/min), decrease in the urine output (less than 100ml in 4hrs). If any signs of toxicity were found, MgSO₄ injection was stopped and antidote injection i.e., calcium gluconate, 1gm slow IV was given.

- b. Antihypertensives
- c. Antibiotics
3. Obstetric Management

An attempt was made in each case after the control of fits to find out, if the patient was in labor and if in labor, how far advanced. If not in labor, whether the cervix was favourable for induction. If the cervix was favourable and the CPD was ruled out, labor was induced with either, syntocin drip, ARM, prostaglandin E₁, E₂ and patient was allowed for vaginal delivery.

Second stage is shortened by assisting the delivery by forceps or vacuum extractor. Lower segment caesarean section is done for eclampsia in status eclampticus and if the convulsions recur or are not controlled in 10-12hrs after starting the treatment.

Follow-Up

All the mothers were followed up for evidence of decrease in blood pressure, evidence of proteinuria or any other complications.

All the babies delivered were followed up during neonatal period for complications.

Results

Maternal Mortality and Morbidity

There were 2 maternal deaths out of 50 cases.

Of the 2 maternal deaths, 1 patient died due to

pulmonary oedema, 1 due to acute renal failure. Majority of cases presented with more than 6 hours of first fit- admission interval.

Majority of maternal death occurred in low socio economic status and in patients with high blood pressure.

Table 1: Proteinuria

Proteinuria	No of Cases	Percentage
Nil	0	0
1+	1	2
2+	13	26
3+	25	50
4+	11	22
Total	50	100

Proteinuria was noted in all 50 cases (100%).

Maximum number of convulsions are seen in patients with grade +3, +4 proteinuria.

Maternal mortality is seen in patients having 3+, and 4+ of proteinuria.

Table 2: Maternal mortality in relation to age

Age in Years	No of Cases	Maternal death	Percentage
< 20	14	1	7.1
21-25	30	1	3.3
26-30	5	-	-
>30	1	-	-
Total	50	2	4

$\chi^2=0.65$ $P=0.89$ [not significant]

Maternal mortality was seen in < 20 years and 1 in 21-25 years

Table 3: Maternal mortality in relation to parity

Parity	No of Cases	Maternal Death
P0	37	1
P1	11	1
P2	2	-
Total	50	2

Maternal mortality was seen in nulliparous and P1.

Table 4: Maternal mortality in relation to Convulsion delivery interval

C-D interval [hours]	No of Cases	Maternal Death	Percentage
6-12	16	-	-
13-24	24	1	4.2
>24	10	1	10
Total	50	2	4

$\chi^2=1.61$ $P=0.45$ [Not significant]

With a convulsion delivery interval of >24 hours and 13-24 hours, maternal mortality was seen

Table 5: Maternal mortality in relation to Duration of Labor

Duration of labour	No of Cases	Maternal Death	Percentage
6-10	17	-	-
10-20	15	2	13.3
Total	32	2	6.3

$\chi^2=2.60$ $P=0.11$ [not significant]

Out of 50 cases studied, LSCS was done in 18 patients, So maternal mortality in relation to duration of labor was determined in only 32 patients.

Table 6: Maternal complications

Maternal Complications	No of Cases	Maternal Death
Transient Oliguria	10	1
Unconsciousness	4	-
Abruption placenta	2	-
Pulmonary oedema	2	1
Pyrexia of unknown origin	1	-
Total	18	2

In this study out of 50 cases, 18 cases (36%) developed complications. The common complications were unconsciousness, transient oliguria and pulmonary oedema.

- Perinatal Mortality and Morbidity*
1. Total number of cases -50
 2. Total number of babies -50
 3. Number of live births -43
 4. Number of cases with absent FHS at admission - 3
 5. No. of fresh still births -4
 6. No. of Neonatal deaths -5
 7. Total perinatal deaths -12
- Out of 12 perinatal death, 5 were neonatal death, out of which most common cause was prematurity.

Table 7: Perinatal mortality in relation to gestational

Gestational age [weeks]	No of cases	Perinatal death	Percentage
34-36	20	9	45
37 and above	30	3	10
Total	50	12	24

$X^2=8.06$ $P<0.01$ [Significant]

Perinatal mortality was higher with cases < 36 weeks and maternal blood pressure of more than 160/100 mm of Hg and increase in duration of labour.

Table 8: Perinatal mortality in relation to Convulsion - Delivery Interval

C-D interval [hours]	No of cases	Perinatal death
6-12	16	3
13-24	24	6
>24	10	3
Total	50	12

Perinatal mortality increases with increasing convulsion delivery interval especially when convulsion delivery interval is >24 hours.

Table 9: Maternal and perinatal mortality in Relation to mode of delivery

Mode of Delivery	No of Cases	Maternal Death	Perinatal Death
Vaginal	32	2	11
LSCS	18	-	1
Total	50	2	12

Perinatal mortality was significantly less in those delivered by LSCS

Discussion

The incidence of eclampsia and the total number of deaths from eclampsia have come down dramatically in developed countries. This has been

achieved with improvements in prenatal care and management. However, in developing countries eclampsia still stands as one of the major complications of pregnancy.

The incidence and mortality of eclampsia has fallen dramatically over the past 5 decades [3].

The incidence in the present study is 0.64% as against 0.14 to 1.4% in 2007 reported by Suman Somegouda et al [4], 2.79% and 1.85% reported by

Arup Kumar Majhi (2001) [5] and Nobis PN, (2002) [6] respectively. But it is very much higher in comparison to western reports.

The higher incidence in the present study is due to, lack of proper antenatal care and also because the study is undertaken in a referral hospital.

Socio-Economic Status

Most of the women (94%) belonged to low socio economic status. According to Arup Kumar Majhi (2001) [5], majority of the patients (82%) belonged to poor socio-economic status. This indicates that socioeconomic status, poor nutrition and inadequate antenatal care, have close relationship with eclampsia and increase perinatal and maternal mortality.

Hypertension, Oedema and Proteinuria

In the present study, all patients were hypertensive and all patients had edema and Proteinuria. Abnormal blood pressure is subject to many errors, several variants like faulty equipment, race, obesity, patient anxiety or duration of the resting period may influence the reading [7]. According to Sibai Baha M. (1990) [8], 32% did not have oedema, 23% had relative hypertension, and 19% did not have proteinuria at the time of convulsions. The degree of proteinuria may fluctuate widely over any 24hr period, even in severe cases [9]. The importance of proteinuria is that it helps to confirm the diagnosis with its concomitant increased risks [10]. In this study maximum maternal and perinatal mortality was found when the blood pressure was above 160/110 mm Hg. According to Chesley [11], the systolic blood pressure of more than 200 mm of Hg is included in Eden's criteria to denote the severity of eclampsia and the mortality increases with the severity of eclampsia.

Maternal Age and Parity

In this series 88% of cases were below the age of 25 years and 74% were nulliparous women.

Eclampsia cases were more common primigravida and young age group. But maternal mortality was high in multigravida. According to Kavita Ravi Sing et al 90% of cases were <30 years and were primigravida.

According to Agudelo - Agustinconde (1997) [12], although nulliparity and young maternal age are well accepted risk factors for eclampsia, they were not found to be associated with the development of complicated eclampsia. The increased incidence of severe illness in multiparous and older women with

eclampsia may be related to the rising prevalence of essential hypertension that occurs with aging.

Number of Convulsions

As the saying goes, each fit brings the patient, a step closure towards the grave, this study shows statistically significant correlation with maternal, perinatal mortality and the number of convulsions. The results were similar to those observed by Rajesri et al (2011) [13] and BS. Dhanjaya (2009) [14] and Swain S. (1993) [15].

Convulsion - Delivery Interval

In the present series, convulsion delivery interval is directly proportional to maternal and perinatal mortality. Similar observation have been made by Rajesri et al (2011) [13] and Swain S. (1993) [15]. The perinatal mortality increases when the interval between the first fit and the delivery increases, due to prolonged exposure to intrapartum asphyxia.

Duration of Labor

In this study, maternal mortality increased with the increase in the duration of labour. There is direct correlation between the perinatal mortality and duration of labor. This may be due to intrauterine asphyxia for a longer time.

Gestational Age

In the present series perinatal mortality was high (70.6%) when the duration of gestation was < 36 weeks, which was found to be highly significant. Similar observations were made by

Dhanajaya et al [14] (2009). Therefore prematurity is of the main cause of high perinatal mortality.

Mode of Delivery

There is no general agreement as to the mode of delivery in eclampsia. Menon (1961) [16] and Worley (1984) recommended vaginal delivery in eclampsia reserving caesarean section only for obstetrical reasons. On the other hand Pritchard and Pritchard (1985), Chesley (1978) have favoured caesarean section to reduce maternal and perinatal mortality. In our study, also perinatal mortality was lowest (5.6%) in 18 cases where caesarean section was performed. Menon reported a perinatal mortality of 30% and maternal mortality of 2.2%.

In the present series, incidence of perinatal

mortality is 24%. Prematurity is the main cause of neonatal deaths. The high mortality rate in our series is probably due to late arrival of the patients and many in moribund condition.

Conclusion

Eclampsia still remains a major problem in developing countries. It is one of the important cause of maternal and perinatal morbidity and mortality due to lack of proper ANC, low socio-economic status. In the present series, the incidence of eclampsia is high which is mainly due to the high referral of eclampsia cases.

Early attention and intensive management are essential for improving the maternal and fetal outcome in eclamptic cases. The article is a first of its kind in H-K [Hyderabad Karnataka] region of Karnataka, as such a study has never been performed during this period in H-K region of Karnataka.

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