Maternal and fetal outcome in eclamptic convulsion with Magnesium sulphate therapy

Vinaya G[1,*], Rashmi Nagangouda[2]

[1]Senior Resident, Koppal Institute of Medical Sciences, Koppal, [2]Assistant Professor, Dept. of Obstetrics & Gynecology, Raichur Institute of Medical Sciences, Raichur, Karnataka

***Corresponding Author:**
Email: vinigururajnayak@gmail.com

Abstract

Eclampsia accounts for 50,000 maternal deaths a year worldwide. The maternal case fatality rate is 1.8% and 35% of eclamptics will have one major complication.

Objective: objective of study was to improve maternal and fetal outcome with single dose of magnesium sulphate therapy.

Materials and Method: The present prospective study was undertaken among women aged between 18-35 years outpatient's Department of gynecology in Karnataka Institute of Medical Sciences (KIMS) Hubli. Permission for the study was obtained from the College authorities prior to commencement. The study was undertaken during December 2009 to November 2010.

Results: 100 cases of eclampsia admitted to Karnataka Institute of Health Sciences, Hubli were belong to lower socio economic status, majority of them were Hindus and illiterates. 82% had vaginal delivery and 15% had LSCS for fetal indication. In 52 cases, induction was done. LSCS was done in 11 cases in induction group, 8 cases were for fetal distress and 3 were for failed induction. Maternal mortality in our study was 1% and the cause was acute pulmonary edema. Commonest complication encountered in our study was the renal failure. In our study 70 of the them were live born out of which 49 were pre term and 21 were term. 71% of the them had birth weight of more than 1.5Kg. Among this 46 perinatal deaths, 30 were still born and 16 were neonatal death, thus giving the perinatal mortality of 46%.

Conclusion: It was concluded that Magnesium sulphate is safe and effective in controlling convulsions with improved maternal and perinatal outcome.

Keywords: Perinatal mortality, Maternal death, Magnesium sulphate regime, Eclapmsia, convulsion

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Introduction

Eclampsia accounts for 50,000 maternal deaths a year worldwide. The maternal case fatality rate is 1.8% and 35% of eclamptics will have one major complication.(1) The perinatal mortality rate in developing countries is as high as 80 (or) more per 1000 births.

Although it is a standard practice to use anticonvulsants for management of Eclampsia, the choice of agent is controversial.(2) Magnesium sulphate was first used in the treatment of puerperal eclampsia in 1925. The Collaborative Eclampsia Trial (CET) involving 1687 women with eclampsia in the year 1995 provides compelling evidence that magnesium sulphate reduces the risk of recurrent seizures as compared with diazepam and phenytoin and also less maternal and neonatal morbidity than the other agents.(3)

The loading dose (4gm IV and 4 gm IM) of single dose regimen was significantly less than standard Pritchard regimen and other regimens, with this regimen the maternal mortality rate and perinatal mortality fallen dramatically. The objective of study was to improve maternal and fetal outcome with single dose of magnesium sulphate therapy.

Materials and Method

The present prospective study was undertaken among women aged between 18-35 years outpatient's Department of Gynecology in Karnataka Institute of Medical Sciences (KIMS) Hubli. Permission for the study was obtained from the College authorities prior to commencement. The study was undertaken during December 2009 to November 2010.

Sample Size: 100 cases of Eclampsia between 20-42 weeks of pregnancy were taken in the study.

Inclusion Criteria: All proved cases of eclampsia.

Exclusion Criteria: Known epileptics, Patients who are put on other regimes and Eclamptic patients below 20 weeks and above 42 weeks.

Apparently 100 women of those aged between 18-35 years who voluntarily willing for the examination were taken in this study. Willing patients were enrolled into the study information is obtained us for the proforma.

A detailed history regarding age, parity, gestational age, number of convulsions, duration of symptoms of pregnancy induced Hypertension, H/0 imminent symptoms were taken from close relatives and also from the patient if she is conscious (or) taken retrospectively from her. Any past history of hypertension (or) renal disease (or) eclampsia in previous pregnancy was elicited.

A thorough general examination and obstetric examination were made. On general examination, conscious level, degree of edema, anaemia, pulse rate, temperature, respiratory rate, blood pressure, cardiovascular system, respiratory system, fundus examination were done. Blood and urine were sent for all investigations related to eclampsia like renal function tests, liver function tests, haematological tests and coagulation screening tests were carried out in all patients. A life line was established and the Regimen was started. Pulse, Blood pressure, Respiratory rate, Oxygen saturation monitored for every 30 minutes, Knee jerk and urine output every half hourly.

Anti Convulsant Line of Management: Women admitted to eclampsia labour room is given loading dose of 4gm of 50% I.V. magnesium sulphate diluted in 20cc of 5% of dextrose over 10-15 minutes, simultaneously 4gm of magnesium sulphate Intramuscularly, 2gm on each buttock was administered.

The patient is monitored with Adequate anti hypertensives, hydration and immediate termination of Pregnancy. If the convulsions are not controlled even after 30 minutes of giving single dose magnesium sulphate, then it is switched over to other regimes like low dose magnesium sulphate and Phenytoin regime. Control of hypertension is achieved by Tab. Nifibipine 10mg Thrice day maximum of 120mg in conscious patients and injection lebetalol 20mg IV maximum of 300mg in unconscious patients.

Obstetric Management: After stabilizing the patient, a detailed obstetric examination was done. Mode of termination was planned according to the gestational age, viability of the fetus, and the cervical scoring. Patients were induced with prostaglandin E1 and accelerated with Oxytocin infusion. Cesarean section was done for obstetric indications (or) for failed induction. After delivery the patient was observed carefully for 48 – 72 hours in the labour ward and post operative ward and followed up until the discharge of the patient. Primary outcome measures were recurrence of fits, safety and efficacy after starting the treatment in single dose regime. Perinatal morbidity and mortality, maternal morbidity and mortality. Data collected was entered in Microsoft Office Excel and analyzed by using SPSS version 13.0. Dependent variable frequencies, percentage, were calculated.

Results

This study consists of 100 cases of eclampsia admitted to Karnataka Institute of Health Sciences, Hubli from Dec 2009 to Nov 2010. Majority of patients belong to lower socio economic status, majority of them were Hindus. Majority of patients (72%) in our study group were illiterates. 75% of patients encountered in this study were primigravidas. 80% of patients in our study were more than 28 week of gestations.

The convulsions were controlled in 75% of women. Recurrence of convulsions occurred in 25% of women after receiving the single dose magnesium sulphate regime. In our study 75% of cases, there was no recurrence of convulsions and in 25% of cases, there was recurrence of convulsions, out of which 20 cases received low dose MgSO4 regime and the other 5 cases received Phenytoin regime as 2nd line of treatment.

82% had vaginal delivery and 15% had LSCS for fetal indication Table 1.

Table 1: Mode of delivery

	No of cases	Percentage
Vaginal	82	82
Vaginal instrumentation	3	3
Operative	15	15

11 (21.15%) cases antepartum eclampsia they had gone into spontaneous labour at the time of PV examination.

In 52 cases, induction was done. LSCS was done in 11 cases in induction group, 8 cases were for fetal distress and 3 were for failed induction Table 2.

Table 2: Mode of delivery

	Total 52(Induction)	Total 11(spontaneous)
Vaginal	39	9
Forceps	1	1
LSCS	11	1

50% (84.61) patients delivered within 24 hrs induction. 2 patients delivered after 48 hrs of induction they underwent LSCS for failed induction. Augmentation of labour was done in 13 cases and all cases delivered vaginally. In our study 82% of the cases had vaginal delivery. Caesarean section rate of 15%, of the 12 LSCS in antepartum of the 3 LSCS in. Antepartum eclampsia were done for failed induction and 80% for fetal indication (fetal distress) all LSCS were done under general anaesthesia.

In our Study 96.62% of patients delivered within 48 hrs of 1st convulsions the interval was > 48 hrs in 3 cases (3.37%) because of late referral to our institute, maximum 1st convulsion and delivery interval was more than 48 hrs and the patients had come to our institution 12 hrs after the onset of convulsions. Maternal mortality in our study was 1% and the cause was acute pulmonary edema. Commonest complication encountered in our study was the renal failure Table 3.

Table 3: Maternal complications

Complication	No. of cases
Renal failure	4
Abruption with DIC	3
Blurring of vision	2
Acute pulmonary edema	1

Table 4: Perinatal mortality

	No. of cases	Percentage
IUD/Still born	30	30
Live	70	70
Pre term	49	70
Term	21	30
Neonatal Death	16	

In our study 70 of the them were live born out of which 49 were pre term and 21 were term table 4. 71% of them had birth weight of more than 1.5Kg. Among this 46 perinatal deaths, 30 were still born and 16 were neonatal death, thus giving the perinatal mortality of 46% Table 5.

Table 5: Birth weight

Birth Weight (kg)	Number of cases	Percentage
<1.5Kg	29	28.65
1.5-2.5	52	52.63
2.5	19	19.88

Discussion

11 patients had gone into spontaneous labour at the time of PV examination. Induction of labour was done in 52 cases, all were instilled with Misoprostol vaginally. 9 patients in spontaneous group delivered vaginally and LSCS was done in one patient and one more patient delivered vaginally by forceps.

In induction group 39 patients delivered vaginally and one by forceps and 11 cases underwent LSCS (8 were for fetal distress and 3 were for failed induction).

44 patients delivered within 24 hrs of induction. Maximum induction delivery interval in two cases was more than 48 hrs. In present series 28 cases had intrapartum eclampsia and all patients delivered vaginally. Incidence of LSCS in our series was 14%.

Pritchard[4] (1984) advocated vaginal delivery unless there were contraindications to it as eclampsia patients progress fast even if they are remote from term.

Authors	Percentage
K.C De[5]	76.36
Bhattacharya[6]	19.7
K. Devi[7]	8.8
Goswami[8]	48.9
Sibai[9]	49
Present study	14

Complications

Renal failure was the commonest complication noted in our series. 4 patients had renal failure. 3 patients had abruption placenta with DIC. 2 patients had blurring of vision, improved in due course of hospital stay and discharged in satisfactory condition.1 patient had acute pulmonary edema and died. In present series there was 1 maternal death, the rate being 1%. Patient died of acute cardiac arrest secondary to acute pulmonary edema. Our study is nearer to the study by Nawani[10] et al (1996) who reported 13.3%.

A higher maternal mortality rate of 29% was reported by Chandra & Bharadwaj[11] (1998) and 17.3% by Sanyal[12] et al (1987). In developed countries it has been zero in some centres, as reported by Pritchard et al (1984) Domissee[13] et al (1990). The Eclampsia collaborative trial[14] has described a MMR of 5.2% in eclampsia.

It is clear that whatever the regime is used, maternal mortality cannot be completely prevented as it depends on condition of the patient at the time of admission, severity of eclampsia and progress of the disease. It can be prevented by good antenatal care, prompt admission of the cases with severe PIH, effective control of convulsions and termination of pregnancy as early as possible by reducing the 1st convulsion and delivery interval.

Perinatal mortality in eclampsia generally range from 30.60%. In present study, out of 100 babies there were 46 perinatal deaths. 30 were still births and 16 were neonatal deaths giving perinatal mortality 46% as the patients with eclampsia have antecedent PIH. The babies were already compromised, the convulsions further increases the damage hence still born were fresh still born prematurity adversely affects the babies from withstanding strain of labour hence babies are still born.

Incidence of perinatal mortality in various other studies

Author	Year	No. of case	% age.
Dutta1[15]	1981	76	36.8
Goswami[8]	1982	81	42
Swain et al[16]	1992	44	38.6
Persent study	2009-10	100	46

The incidence of perinatal mortality was 46% in our study. This was comparable to other studies in India.

Thus the incidence of perinatal mortality in our study was 46%. This was comparable to other studies in India. Percentage of perinatal mortality is also comparable to other developing countries like turkey 59% but in developed countries incidence is very low 5-15%.

Conclusion

It was concluded that the single dose Magnesium sulphate is safe and effective in controlling convulsions with improved maternal and perinatal outcome.

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