



## Comparative Study of Low Dose Magnesium Sulphate Therapy With Standard Pritchard's Regime in Eclampsia in Imminent Eclampsia.

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### ABSTRACT

This study is carried in the department of Obstetrics & Gynaecology, Kurnool Medical College, Kurnool. The aim of the study is to compare the efficacy of low dose magnesium sulphate regime with the standard pritchard's regime for control of convulsions in eclampsia in Indian women. To study the efficacy of low dose magnesium sulphate regime as seizure prophylaxis in imminent eclampsia and to compare the incidence of magnesium sulphate with standard pritchard's regime and with low dose magnesium sulphate regime.

### KEYWORDS

magnesium sulphate , pritchard's regime, eclampsia.

### Introduction:

Eclampsia is one of the most serious and potentially catastrophic complications of pregnancy and still remains the 2<sup>nd</sup> most common cause of maternal and perinatal mortality & morbidity in developing countries like India. The first and foremost principle in management of eclampsia is to control convulsions and expedite delivery. The dose of magnesium sulphate is modified and a standardized protocol has been formulated to suit our Indian women who on an average weigh around 40-60 Kg at term. Therefore this study of administering low dose magnesium sulphate has been taken up in controlling convulsions in eclampsia and preventing convulsions in imminent eclampsia cases.

### Materials and methods:

This is a prospective comparative study.

Selection criteria:

1. Patients of eclampsia
2. Patients of imminent eclampsia

### A standard protocol was uniformly followed for all the cases.

Group A : This group includes 50 cases of eclampsia who were treated with low dose magnesium sulphate therapy.

Group B : This group includes 50 cases of eclampsia who were treated with pritchard's regime.

Group C : This group includes 50 cases of imminent eclampsia who were treated with low dose magnesium sulphate therapy and the results were compared. 2 gms of magnesium sulphate three hourly and continued till premonitory symptoms and signs disappeared.

Selection of cases was at random. On admission a detailed history was taken from the patients attendants followed by a complete physical examination and an obstetric examination.

Termination of pregnancy was undertaken in all cases of eclampsia. Delivery was expedited by induction with oxytocin or prostaglandins or with ARM as per her uterine contractions and Bishop's score. LSCS was done for obstetric indication, uncontrolled convulsions or impending renal failure.

### Observation & Results

#### Eclampsia:

This study has been done to compare the results of treatment

of eclampsia with low dose magnesium sulphate therapy and the standard pritchard's regime.

#### Age(years)

In this study 58% of the patients in Group A and 48% in Group B belong to (16-19 years) group.

#### Parity

64% of the patients in Group A and 76% of the patients in Group B were primigravida and 18% of the patients in Group A and 12% of the patients in Group B were multigravidae.

#### Socioeconomic status

Majority of patients fell in low income group .84% in Group A and 88% in Group B were unbooked. Lack of antenatal care as risk factor for eclampsia has been documented in several studies like S.Jain et al and S.Swain et al.

Average weight of the patients in this study was 48kg in both groups.

#### Duration of gestation:

In this study in Group A 4% of the cases were between 2-28 weeks of gestation, 16% of the cases were between 29-32 weeks of gestation, 44% of the cases were between 33-36 weeks of gestation and 36% of the cases were between 37-40 weeks gestation.

In Group B 4% of the cases were between 24-28 weeks gestation, 28% of the cases were between 29-32 weeks, 38% of the cases were between 33-36 weeks and 30% of the cases were between 37-40 weeks gestation.

#### Type of eclampsia:

Type of eclampsia	Group A	%	Group B	%
antepartum	29	58	30	60
intrapartum	18	36	17	34
postpartum	3	6	3	6

#### Number of convulsions:

In the present study 80% in Group A and 76% in Group B had 1-6 convulsions while 20% in Group A and 24% in Group B had > 7 convulsions.

#### Duration of eclamptic state before the start of treatment:

In this study 64% in Group A and 60% in Group B were ad-

mitted within 6 hours after the onset of fits. About 90% of patients in Group A and 92% in Group B were admitted within 12 hours.

Control of convulsions:

Control of convulsions	Group A	%	Group B	%
none	45	90	48	96
one	2	4	1	2
two	3	6	1	2
Three/more	-	-	-	-

Type of delivery:

In the present study in Group A 26% of patients delivered by instrumental vaginal delivery,54% of the patients delivered spontaneously and 16% of the patients underwent caesarean section.

In Group B 32% of the patients delivered by instrumental vaginal delivery, 56% of the patients delivered spontaneously and 10% of the patients underwent LSCS.

Perinatal outcome:

Depression of the newborn is seen uncommonly, and Apgar scores do not correlate to the cord blood magnesium levels. It causes a small but clinically insignificant decrease in variability of the fetal heart rate. Eclamptic convulsions cause severe hypoxia and acidosis in fetus. In the present study the perinatal mortality with the availability of NICU facilities in our institution was 56% in Group A, 60% in Group B.

Maternal mortality:

In the present study it is 4% in Group A,and 2% in Group B and these maternal deaths are not related to magnesium sulphate toxicity clinically.

Magnesium sulphate toxicity:

In the present study Group B(36%) had absent knee jerks 8,6,10 hours after administration of loading dose. In these cases the next intramuscular maintenance dose as skipped and once the reflex was demonstrated, the intramuscular dose of magnesium sulphate was continued.

In Group A no such drug toxicity was seen.

Imminent eclampsia:

In this study 30% of the patients were less than 20 years of age,62% were between 20-30 years of age and 8% were above 30 years of age.

Parity

In this study 56% were primigravida and 44% were multi-gravida.

Socioeconomic status:

In this study majority of the patients fell into low income group and came from both rural and urban areas.

In contrast to eclamptic group the numbers of booked cases were higher, 54% were booked and 46% were unbooked.

Duration of gestation:

In this study 4% of the cases were between 26-28 weeks of gestation,16% were between 29-32 weeks, 62% were between 33-36 weeks and 18% between 37-40 weeks.

Imminent symptoms and signs:

Headache and vomiting were the most common premonitory symptoms in cases of Imminent eclampsia.

Control of convulsions:

Low dose magnesium sulphate protocol was very effective as seizure prophylaxis in imminent eclampsia.In this study, in 98% of cases there were no convulsions, but in one case convulsions occurred once. This was treated by standard

pritchard's regime.

Type of delivery:

Pregnancy was continued in 30% of cases.In the remaining 70% , 16% were delivered by LSCS and54% were delivered by vaginal route of which 6% delivered by outlet forceps.

Perinatal outcome:

Perinatal mortality among patients in whom pregnancy was terminated was 8%, but in eclamptic group it was 60%.Seizure prophylaxis should be given to all patients of imminent eclampsia to improve perinatal outcome. Among patients who were treated conservatively, 8 were lost for follow up. In the remaining 8 cases pregnancy continued till 37 weeks and then terminated and perinatal mortality was nil.

Discussion

Eclampsia is a life threatening emergency that continues to be a major cause of serious morbidity and mortality.

Eclampsia affects 0.2% to 0.5% of all deliveries. In our hospital the incidence of eclampsia is 1.8-2%. The incidence of eclampsia does not appear to have really come down. The majority of cases, of course, came from villages and mostly these patients did not have antenatal checkups.

The efficacy of magnesium sulphate in the prevention and control of eclamptic convulsions has been validated in randomized controlled trials performed worldwide.

Since the introduction of pritchard's regime there has been a constant discussion in literature regarding the dose of magnesium sulphate and therapeutic serum magnesium levels. In India pritchard's regime has been modified at many places. Different hospitals are having different regimes. A long term statistical data has not been reported and the protocol has not been standardized. Pritchard himself in 1984. suggested that the dose of magnesium sulphate should be limited in women who appear to be small.

This study was planned to compare the efficacy of low dose magnesium sulphate regime with pritchard's regime in controlling convulsions in eclampsia in Indian women and to study the efficacy of low dose magnesium sulphate regime as seizure prophylaxis in imminent eclampsia.

In the present study the average weight of the patients in both groups was 48kg in both groups(A&B) and all the other parameters were comparable.

In this study convulsions were controlled in 90% of cases with loading dose of 4gm only, instead of 14gm as prescribed in pritchard's regime, and the recurrence rate of convulsions with low dose magnesium sulphate therapy was 10%. With pritchard's regime,3(6) patients had absent knee jerks, but no such drug toxicity was seen with lo dose magnesium sulphate therapy.

Recurrence rate reported in various studies with pritchard's regime is 9.7%. Pritchard and Sibai both have reported a recurrence rate of 10-12% cases.

In the study of Mohanty et al (1990) the recurrence rate with pritchard's regime is 9.5%.

In the study by Nawani et al (1996) the recurrence rate is 10% with pritchard's regime.

In the study by Ghosh et al, the recurrence rate with pritchard's regime is 4.19%.

The recurrence rate with standard protocol reported in collaborative eclamptic trial, the largest multicentre randomized controlled trial ranges between 5.7% and 13.2%.

Low dose therapy,Pritchard's regime:

study	regime	Recurrence rate
Present study	Low dose therapy, pritchard's regime	10%
		6%
Saedesai suman et al study	Low dose therapy, pritchard's regime	8%
		6.67%
Begum study	Half of standard dose	1.5%

Low dose magnesium sulphate :

study	regime	Recurrence rate
Present study	Low dose therapy	2%
Sardesai suman et al	Low dose therapy	1.25%
Hall et al	Pritchard's	1.5%

Women in India, especially from rural areas belong to low socio economic strata. They tend to have smaller weights. Administering Pritchard regime might prove to be hazardous in these low weight women and there is every possibility of respiratory failure. The risk of respiratory failure greatly exceeds the risk imposed by administering small doses with slight possibility of one more convulsion. More over switching over to standard regime from the low dose protocol is simple in the event of such a need.

The key issue in our country is maternal transport to tertiary referral centre especially from rural areas. Therefore there is a need to start treatment at primary care level itself. The low dose magnesium sulphate therapy can be given safely by the medical officers and ANMs working at primary care level, here facilities for specialised treatment for eclampsia is not available and can be administered to tide over the crisis without fear of precipitating respiratory failure before transferring the patient to a higher centre.

REFERENCES

This study was done to compare the efficacy of low dose magnesium sulphate therapy with Pritchard regime in eclampsia and to study its efficacy in preventing convulsions in imminent Eclampsia. | This study was carried out in 100 cases of eclampsia and 50 cases of imminent eclampsia. | 50 cases of eclampsia and 50 cases of imminent Eclampsia were treated with low dose magnesium sulphate therapy and 50 cases of eclampsia were treated with pritchard's regime. | Study was randomized and both categories ere more or less comparable in respect to antenatal care, socioeconomic status, age, gravidity, type of eclampsia. | Control of convulsions was the most important factor in the management of eclampsia and low dose magnesium sulphate therapy is as effective as Pritchard regime for controlling convulsions in eclampsia and for preventing convulsions in imminent eclampsia. | The total number of cases in which convulsions were controlled with low dose magnesium sulphate therapy was not significantly less than the cases with Pritchard regime.( Chi-square test  $\chi^2 = 1.36$ ,  $P < 0.05$  which is statistically insignificant. | There is no significant difference in the incidence of maternal mortality in both groups indicating that the variation in the dose of magnesium sulphate did not effect a change in the disease pattern. | The dose of magnesium sulphate described in Pritchard regime does not affect the labour outcome and perinatal outcome. | Every effort should be made to prevent the occurrence of eclampsia by proper and regular antenatal check up and institute early treatment for patients with eclampsia at primary care level |