

A study of fetomaternal outcome in eclampsia patients treated with magnesium sulphate

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Citation this Article: Dr. Ramesh Kumar Gurjar, Dr. Ritu Gupta, Dr. Nikitha V, “A study of fetomaternal outcome in eclampsia patients treated with magnesium sulphate”, IJMSIR- June - 2023, Vol – 8, Issue - 3, P. No. 146– 148.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Use of MgSO₄ in treatment of eclampsia has not yet become universal probably due to some perceived apprehension about its efficacy and toxicity. This study aimed to assess, in addition to foeto-maternal outcome, its efficacy to control fits in eclampsia and toxicity if any. Fit control, occurrence of toxicity and foeto-maternal outcome were noted in 459 cases of eclampsia treated with MgSO₄. MgSO₄ was very effective in controlling fits with a very low (1.52%) fit recurrence rate and had an even lower incidence of toxicity (as evidenced by sluggish patellar reflex). None of the cases developed any life-threatening toxicity like respiratory paralysis.

Maternal mortality rate was 3.70% and perinatal mortality 9.15%. The results suggest that MgSO₄ is very safe and effective for treating eclampsia and offers good prognosis for both mother and foetus.

Keywords: MgSO₄, Fetomaternal, Eclampsia

Introduction

Eclampsia is a known deleterious sequela of Preeclampsia. It has been defined as new-onset generalized tonic-clonic seizures in patients with preeclampsia. Preeclampsia is the occurrence of hypertension (HTN) after

20 weeks of gestation with concurrent proteinuria/ end-organ dysfunction. Annually, both eclampsia and Preeclampsia account for nearly 63,000 maternal deaths worldwide. A study conducted by the Centers for Disease Control and Prevention (CDC) found an overall case-fatality rate of preeclampsia and eclampsia to be 6.4 per 10,000 cases at delivery. This study also found an increased risk of death in patients at 20-28 weeks of gestation and 3.1 times increased incidence of Preeclampsia/eclampsia in black women compared to white women.¹⁻³

Eclamptic seizures are a medical emergency and can arise after 20 weeks of gestation, either antepartum, intrapartum, or postpartum. They require urgent intervention to prevent death in the mother and fetus. Magnesium sulfate (MgSO₄) has been proven to be an effective first-line treatment for the prevention and treatment of eclampsia. It should be continued for at least 24 hours from the time of the last seizure and the patient should be monitored closely for toxicity. Even with the risk of side effects and toxicity, many studies have proven that MgSO₄ is much more superior in the treatment of eclampsia compared to other drugs. Never the less, the

prevalence of eclampsia has decreased because of enhanced prenatal care, judicious use of medical therapy (blood pressure control, seizure prophylaxis, etc.), and conducting term deliveries by either induction or cesarian section.⁴⁻⁵

Materials and methods

This prospective observational study was carried out on consecutive cases of eclampsia treated in the Deptt. of Obst. and Gynae of Jhalawar Medical College, Jhalawar. All patients were treated by MgSO₄ using Pritchard regimen. Nifedipine 5-10 mg. orally or sublingually in titrating doses was used to control blood pressure if diastolic blood pressure was higher than 100 mmHg. Obstetric management as regards to mode of delivery was decided according to merits of individual cases with the aim of prompt and safe delivery. This prospective observational study was carried out on consecutive cases of eclampsia treated in the Deptt. of Obst. and Gynae of Jhalawar Medical College, Jhalawar.

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Results

Table 1: General characteristic

Age	Less than 25 yrs	49(83.00%)
	25-35 yrs	4(7.63%)
	>35 yrs	7(9.37%)
Parity	P1	50(85.84%)
	P2-P4	2(2.83%)
	P5 or more	8(11.35%)
Antenatal care	Booked	6(10.68%)
	Unbooked	54(89.32%)

Time of eclampsia	Antepartum	37(39.48%)
	Intrapartum	14(25.92%)
	Postpartum	09(11.60%)

A total of 60 cases of eclampsia were studied. Total number of deliveries during the period was 16752. Thus incidence of eclampsia was 2.74%.

Majority of patients were below 25 years of age (83%), nulliparous (85.84%) and unbooked (89.32%). Ante partum eclampsia was the commonest type comprising 59.48% cases. Table-II shows the distribution of cases with recurrence of fits (requiring supplemental MgSO₄) in relation to number of pretreatment fits and the interval between first fit and the loading dose of MgSO₄. It was seen that only a small proportion of cases (1.52%) required supplemental or additional dose of MgSO₄ to control recurrent or continuing fit(s) even 15 mins. after the loading dose. Most of those cases of fit recurrence had a long interval between first fit and the loading dose and/or a large number of pretreatment fits.

Table-III shows that in only a very small proportion of cases (1.31%) the maintenance dose of MgSO₄ had to be postponed because of either toxicity or poor urine output. In most of those small number of cases, postponement of maintenance dose of MgSO₄ was required for poor urine output to avoid toxicity rather than toxicity itself - incidence of which was negligible. None of the patients had any serious toxicity like respiratory paralysis or respiratory arrest and none needed assisted ventilation or calcium gluconate. Outcomes in the eclampsia cases studied are shown in Table-IV. Maternal death occurred in 3.70% cases and perinatal mortality in 9.15% cases. The commonest mode of delivery was caesarean section (62.53%).

Table 2: Distribution of cases with recurrence of fits

No of pre-treatment fit	First fit – treatment interval
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< 5	< 3 hrs.	3 – 6 hrs.	> 6 hrs.	Total
5 – 10	0	0	0	0
> 10	0	0	0	0
Total	0	0	1	1

Table 3: Toxicity and Postponement of maintenance dose of MgSO₄

	Cause of Postponement of MgSO ₄	No. of cases of Postponement (%)
1.	Toxicity	0
	Sluggish patellar reflex	0
	Absent patellar reflex	0
	Respiratory rate < 16 / min.	0
	Respiratory arrest or paralysis	0
2.	Urine output < 30 ml./hr.	1
	Total	1 (1.61%)

Table 4: Delivery and Fetomaternal Outcome

	Outcome	No. (%)
1.	Delivery	13 (22.44%)
	Normal vaginal delivery	4 (14.60%)
	LSCS	43 (62.53%)
2.	Maternal Mortality	0
3.	Perinatal Mortality	0

Discussion

This study found MgSO₄ to be very effective in controlling fits and preventing fit recurrence. The fit recurrence rate after the loading dose was very low. Similar excellent fit control has been reported by.

Concerns about serious MgSO₄ toxicity had not found. No serious toxicity occurred in that large multicentre study. Our experience too suggests that MgSO₄ is very safe with a very low incidence of toxic side effects which can easily be detected early by close clinical monitoring (deep reflexes). Our observations also suggest that such close monitoring and postponing maintenance dose of MgSO₄ in case of sluggish patellar reflex and/or low urine output can almost always prevent serious toxicity

like respiratory paralysis. Such serious toxicity did not occur in our series. Maternal outcome in our series, though not as astonishing as those reported by Pritchard. This was comparable to those reported by Eclampsia. The high caesarean section rate as observed in this study.

Conclusion

This study supports the already existing body of compelling evidence^{1,4,13} that MgSO₄ is very effective and the anticonvulsant of choice for treating eclampsia with very good seizure control and very low fit recurrence rate. It is very safe as well with very low incidence of toxicity. Maternal and foetal outcomes are also good. Its universal use in the treatment of eclampsia would go a long way in reducing maternal mortality in our country.

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