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Study of Intravenous Magnesium Sulfate and Intramuscular Magnesium Sulphate Regimens in Patients of Eclampsia In Terms Of Maternal and Fetal Outcome

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ABSTRACT

BACKGROUND AND OBJECTIVE

Magnesium sulphate is the drug of choice for prevention and treatment of eclampsia.

Keeping above the above facts in mind, we have undertaken the present study to compare the efficacy of Zuspan IV magnesium sulphate regimen and Pritchard IM regimen in terms of maternal and perinatal outcomes.`

METHODS

100 patients of imminent, antepartum, intrapartum and postpartum eclampsia reporting to the emergency room at Gandhi medical college during a period of 2 years were included in the study. Pts were randomly enrolled to receive Pritchard regimen or Zuspan regimen.

RESULTS

Both Pritchard and Zuspan regimens are equally effective in the management of imminent eclampsia and eclampsia. There is no difference in maternal mortality, perinatal mortality, maternal morbidity and caesarean section rates among both the magnesium sulphate regimens, but for the local site complications like pain, induration and abscess in the Pritchard regimen group.

CONCLUSION

The zuspan regimen is equally effective as Pritchard regimen in the management of imminent eclampsia and eclampsia. It requires simple clinical monitoring and can be administered in any hospital set up where facilities for intense monitoring or serum magnesium levels estimation are not available. There is no difference in maternal mortality, perinatal mortality, maternal morbidity and caesarean section rates among the both magnesium sulphate regimens, but for the local site complications in the Pritchard regimen group.

KEYWORDS

ECLAMPSIA, PRITCHARD REGIMEN,ZUSPAN REGIMEN.MAGNESIUM SULPHATE.

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I. Introduction

Eclampsia is a form of Hypertensive encephalopathy with generalised tonic clonic convulsions associated with signs of preeclampsia during pregnancy, labour (or) within 7 days of delivery and not caused by epilepsy (or) other convulsive disorders. It is one of the important causes of mortality and morbidity during pregnancy, child birth & puerperium. In India, the incidence of hypertensive disorders is reported to be 8-10% among the pregnant women[1]. In India, incidence of eclampsia ranges from 0.179% to 5% and the average being 1.5%[2]. Hypertensive disorders of pregnancy contribute to 12.9% and 14% of maternal deaths in high income and middle-low income countries respectively[3]. Collaborative Eclampsia. Trial shows – Not only does magnesium sulphate diminishes the risk of further convulsions, but it also produces less maternal and neonatal morbidity than the other agents[4]. Various drugs and regimens have been tried since decades for management of eclampsia. However, today magnesium sulphate is the drug of choice for prevention and treatment of eclampsia. It has retained its popularity since 70 years. It became the first anticonvulsant of choice to prevent and treat

eclamptic events. Dr.J.A.Pritchard popularised magnesium sulphate therapy for eclampsia and preeclampsia in 1984 known as "Pritchard regimen" which is being followed all over the world [5]. Later Zuspan and Sibai Baha advocated intravenous magnesium sulphate.

The intravenous route of administration has advantages of less pain, easy administration and easy control of mean serum magnesium levels compared to intramuscular Pritchard regimen where most importantly mean magnesium levels cannot be easily controlled.We have conducted the present study to compare the efficacy of Zuspan IV magnesium sulphate regimen and Pritchard IM regimen in terms of maternal and perinatal outcomes.

AIM OF THE STUDY

To compare the efficacy of zuspan IV regimen and Pritchard IM regimen in terms of maternal and perinatal outcome.

OBJECTIVES OF THE STUDY

To assess the intramuscular and intravenous magnesium sulphate regimens in terms of

1) Prevention of occurrence of convulsions in pts of imminent eclampsia
2) Control of convulsions in patients of eclampsia
3) Prevention of recurrence of convulsions in patients of eclampsia
4) Incidence of complications
5) Maternal and perinatal outcomes

II. Materials And Methods

This study was conducted in Gandhi medical college, Secunderabad between May 2018 and May 2020.

This is a tertiary referral centre for Hyderabad region of Telangana and serves an indigent population from poor socioeconomic conditions.

100 patients of imminent, antepartum, intrapartum and postpartum eclampsia admitted during this period were included in the study. Patients with hypertension and proteinuria who had additional symptoms or signs such as persistent headache, visual disturbances, epigastric pain, increased patellar reflexes and clonus were considered to have impending eclampsia

After Ethics committee approval was received, pts were randomly enrolled to receive Pritchard regimen and Zuspan regimen. Informed consent was obtained from all participants in the study or their attendants.

INCLUSION CRITERIA

Pregnant women brought with imminent eclampsia and eclampsia to the emergency room during the study period.

EXCLUSION CRITERIA

1) Patient's or attendants' refusal or inability to provide informed consent.
2) Patients who are known cases of epilepsy or other neurological disorders
3) Patients with other conditions like diabetes mellitus, renal disorders, heart disorders, thyroid disorders, maternal infections and autoimmune disorders

OUTCOME MEASURES

Primary outcome measures are prevention of occurrence of seizures in patients of imminent eclampsia and recurrence of seizures after starting the treatment in patients of eclampsia. Perinatal outcomes in terms of live birth or still birth, birth weight, APGAR score, NICU admission were assessed.

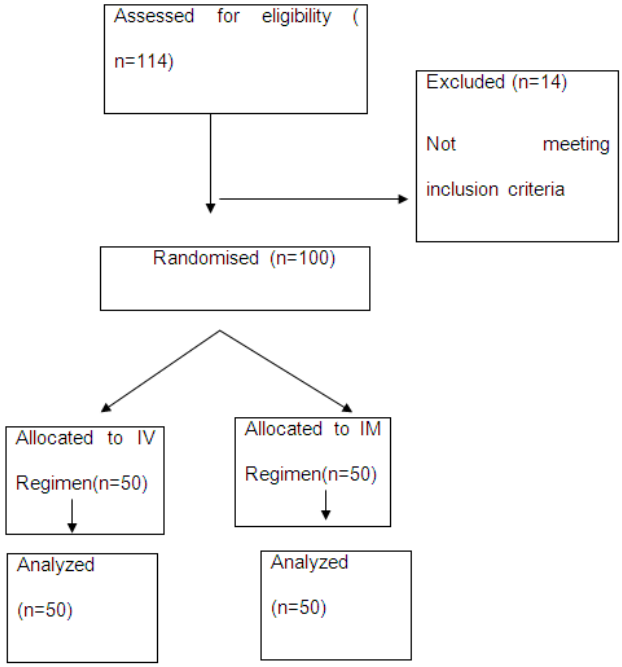
STATISTICAL ANALYSIS

Descriptive statistics such as mean, SD and percentage were used to present the data. Statistical analysis was done using test of significance - Chi square test. P value less than 0.05 is considered as significant.

III. Results And Analysis

The study was done to compare the effectiveness of 2 regimens of magnesium sulphate – intravenous and intramuscular. All women with imminent eclampsia, antepartum eclampsia, intrapartum eclampsia and postpartum eclampsia were eligible according to inclusion and exclusion criteria and follow up was until discharge from hospital.

A) CHARACTERISTICS OF THE CASES STUDIED



AGE

Age of women in the two groups does not differ significantly. In this study, 3 cases are below 20 yrs, 54 cases are in age group 20-24, 29 cases are in age group 25-29, 14 cases are above 30 yrs.

BOOKING STATUS

In intramuscular regimen, the booked cases were 44%, unbooked cases were 56% and in intravenous regimen, the booked cases were 60%, unbooked cases were 40%. The P value of 0.109 was insignificant. In cases which were booked, majority of them presented with imminent eclampsia

PARITY

Parity in the two groups does not differ significantly.

In our study, 50 cases were primis, 50 cases were multis in intramuscular group and 32 cases were primis and 18 cases were multis in intravenous group. The P value being 0.157, the parity in two groups does not differ significantly.

RECURRENCE OF CONVULSIONS

In the IM group, 7 cases had recurrent convulsions and in the IV group, 4 cases had recurrent convulsions and the P value was 0.338 which was insignificant.

MODE OF TERMINATION

In the IM group, induction of labour was planned for 21 cases out of which 14 delivered vaginally and 7 cases were taken up for lscs.13 cases were directly taken up for LSCS. 16 had spontaneous VD.

In the IV group, induction of labour was planned for 23 cases out of which 18 cases delivered vaginally, 17 cases were directly taken up for LSCS .10 had spontaneous VD.

P value being 0.372 shows no significance.

ADMISSION TO DELIVERY INTERVAL

In the IM group, the mean admission to delivery interval was 8.16 hrs and it is 8.15 hrs in the IV group. The resultant p value showed no significant difference between the 2 groups

LOSS OF PATELLAR REFLEX

In the IM group, 2 cases presented with loss of patellar reflex and none of the cases in IV group had loss of patellar reflex. The P value 0.153 showed no statistical significance. 2 cases in IM group presented with loss of patellar reflexes after 3 maintenance doses and magnesium sulphate discontinued thereafter.

DECREASED URINE OUTPUT

In the IM group, 1 case presented with decreased urine output and none of the cases in IV group had such presentation. The P value 0.315 showed no statistical significance.

RESPIRATORY DEPRESSION

None of the cases in the study had respiratory depression

LOCAL SITE COMPLICATIONS

The local site complications observed in IM group were pain, induration, abscess formation and that observed in IV group was thrombophlebitis.

In the IM group, 10 cases had local site complications and only 1 case in IV group had local site complications.P value is 0.004 shows a statistical significance.

PERINATAL OUTCOME

In the IM group,38 cases were alive births,7 were IUDS,2 were still births ,3 cases were neonatal deaths.In the IV group,43 were alive births,1 case was IUD,4 were still births and 2 were neonatal deaths.P value 0.645 showed no statistical significance.The mean birth weight was 2.575 kg in the IM group and 2.324 kg in the IV group.P value 0.066 showed no statistical significance.

IV. Discussion

The use of magnesium sulfate for seizure control and prophylaxis has been shown to be effective in women with eclampsia. Maternal morbidity and mortality can occur because of magnesium sulphate overdose and toxicity, which can be prevented by giving magnesium sulphate at controlled rate and by close monitoring of the patient. While most of the health centers in the western world administer magnesium sulphate by continuous IV infusion, but in India, most medical centres prefer IM administration as described by Pritchard because most of the setups have poor resources and giving IV magnesium sulphate is difficult due to non availability of infusion sets, less number of nursing staff. In this study, both the routes for magnesium sulphate were compared and magnesium toxicity measured by clinical parameters and compared.

V. Conclusion

Control of convulsions and prevention of their recurrence is the cornerstone in the management of eclampsia. Magnesium sulphate is the drug of choice in the management of imminent eclampsia and eclampsia and is being used with variety of protocols.

The zuspan regimen is equally effective as Pritchard regimen in the management of imminent eclampsia and eclampsia. It requires simple clinical monitoring and can be administered in any hospital set up where facilities for intense monitoring or serum magnesium levels estimation are not available. There is no difference in maternal mortality, perinatal mortality, maternal morbidity and caesarean section rates among the both magnesium sulphate regimens, but for the local site complications. The IV route can be administered in pts with thrombocytopenia in whom the IM route is contraindicated.

Proper antenatal care, improved socio economic status and intensive management will largely reduce the incidence of eclampsia which is an important cause of maternal morbidity and perinatal mortality. To bring down the maternal and perinatal mortality and morbidity in cases of eclampsia, control of convulsion should be the first step to be done in association with other steps of management.

References

[1]. Mackay AP, Berg CJ, Atrash HK. Pregnancy-related mortality from preeclampsia and eclampsia. Obstet Gynecol. 2001; 97:533-8.
[2]. Bhargava A, Pant R, Chutani I, Singh SR. Accelerated recovery from eclampsia. J Obstet Gynecol India. 2006;56:402-5
[3]. Seth S, Nagrath A, Singh DK. Comparison of low dose, single loading dose and standard Pritchard regimen of magnesium sulphate in ante-partum eclampsia. Anatol J Obstet Gynecol. 2010;1(1):1-4.
[4]. No Author. Which anticonvulsant for women with eclampsia? Evidence from the Collaborative Eclampsia Trial. Lancet. 1995;345(8963):1455-63.
[5]. Pritchard JA, Cunningham, FG Pritchard SA. The parkland memorial hospital protocol for treatment of eclampsia evaluation of 245 cases. Am J Obstet Gynecol. 1984:148(7);951-63.

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