

A Comparative Study of Phenytoin Sodium with Magnesium Sulphate and Menon's Regime in the Treatment of Eclampsia

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Summary

The study consists of 90 cases of eclampsia. Thirty two were treated with phenytoin sodium, 34 with Menon's regime (modified) and 24 with $MgSO_4$. The majority of cases were antepartum eclampsia. Fits recurrence rate with phenytoin sodium was 6.2%, with $MgSO_4$ 8.8% and with menon's regime (modified) 52.94%. The mean induction delivery interval in case of phenytoin sodium was 15.78 hours in cases of Menon's regime (modified) 23.2 hours. The perinatal mortality in phenytoin sodium cases was 31%, in $MgSO_4$ cases 41% and in menon's regime (modified) cases 58%.

The phenytoin sodium regime proved to be better than menon's regime and almost equivalent to $MgSO_4$ as far as fits recurrence rate was concerned. The perinatal outcome was better with phenytoin sodium, when compared to $MgSO_4$ and Menon's regime. (modified).

Introduction

Eclampsia remains one of the leading causes of maternal and perinatal mortality in many parts of the world. The present management of eclampsia aims to stop the convulsions, prevent recurrence, correct fluid imbalance and induct delivery as early as possible. The anticonvulsive and antihypertensive drug therapy should protect woman and her child from deleterious effects of anticonvulsive drugs. Recently phenytoin sodium has been advocated for control of seizures in eclampsia. This drug was compared with magnesium sulphate and Menon's regime (modified) in this series.

Materials and Methods

This study was conducted at Karnatak Institute of Medical Sciences of Hubli from June 1996 to June 1998. A total of 90 cases were studied - 32 treated with phenytoin sodium, 24 with magnesium sulphate and 34 with Menon's lytic cocktail regime.

Soon after admission the detailed history regarding age, socio-economic status, parity, gestation, ANC received, and time and date of 1st convulsion and any treatment received was recorded.

Protocol for phenytoin sodium

Loading dose - 500 mgs of phenytoin sodium was given IV in 200ml of normal saline slowly over a period of 20-30 minutes.

2nd dose: 250 mgs of phenytoin sodium in 100ml of normal saline was given intravenously 2 hours after the loading dose.

Maintenance dose: Tab phenytoin sodium 200 mgs tid x 3 to 5 days orally.

Protocol for $MgSO_4$

Loading dose: Four gms of $MgSO_4$ (20%) dissolved in 20

ml of dextrose solution was given slowly IV with 10 gms of $MgSO_4$ (50%) given IM, 5 gms on each side of gluteal region.

Maintenance: 2gms of $MgSO_4$ diluted in 5% dextrose was given slowly iv. every 4-6 hours. and continued for 24 hours after delivery or last convulsion.

Before repeating next dose, knee jerk, respiratory rate > 14 /min, and urine output 30ml/hr were ensured.

Protocol for Menon's regime (Modified): At the time of admission 25 mgs. of chlorpromazine was given slowly iv 50 mgs of chlorpromazine and 25 mgs of promethazine were given alternatively every 4 hours and continued for 48 hours.

If the diastolic B.P. was more than 110 mmHg, tab nifedipine was used to control the blood pressure either orally or sublingually. Induction or Augmentation of labour was done with prostaglandins, ARM and /or oxytocin.

Observation

The mean age group of the patients in this study group, was 20.5 yrs in phenytoin sodium 21.08 yrs in $MgSO_4$ regime and in Menon's regime 23.18 yrs (Table I).

Gestational age was less than 36 weeks in 70% in phenytoin sodium, 80% in Menons group and 60% in $MgSO_4$ group. In the study group of all regimes,

antipartum eclampsia was common. There were 4 cases of post-partum eclampsia in phenytoin sodium group. In all study groups majority of the patients were primigravidae.

Two patients had convulsions after starting the phenytoin sodium regime (6.2%), 18 patients had convulsions after starting Menons regime (52.94%) and 3 cases after starting $MgSO_4$ (8.8%) (Table II).

Table II No. of patients having convulsions after treatment

Type of regime	No. of patients	%
Menon/s modified	18/34	52.94
$MgSO_4$	3/24	8.8
Phy Sodium	2/32	6.25

The mean-induction - delivery interval in phenytoin sodium group was 15-78 hours, in $MgSO_4$ group 20 hours and in Menon's regime 23.2 hours (Table III).

Table III Mean induction delivery interval

Regime	Time
Menon's (modified)	23.2 hrs
$MgSO_4$	20 hrs
Phy Sodium	15.78 hrs

The perinatal mortality in phenytoin sodium group was 31%, in $MgSO_4$ group 41% and in Menon's regime group 58% (Table IV).

Table I Distribution of cases according to age gestation parity and type of eclampsia.

		$MgSO_4$ No=24		Menon's=34		Ph. Sodium = 32	
		No.	%	No.	%	No.	%
Mean age		21.08		23.18		20.5	
Gestational age	<28	7	29	12	38.2	4	12.5
	28-36	8	33.2	14	41.1	19	59.3
	> 36	9	37.5	8	23.5	5	15.6
Parity	Primi	19	79.16	21	61.76	22	68.75
	Multi	5	20.83	13	38.23	10	31.25
Type of eclampsia	Antepartum	15	62.5	25	73.5	21	65.6
	Intrapartum	9	37.46	9	26.4	7	21.8
	Post-partum	0	0	0	0	4	12.5

Table IV Perinatal outcome

Regime	Alive at discharge		Neonatal deaths		Still birth	
	Cases	%	Cases	%	Cases	%
Menon's (Modified)	14	41.1	2	5.8	18	52.9
$MgSO_4$	14	58	4	16	6	25
Ph. Sodium	22	68.75	3	9.37	7	21.87

Discussion

In this study phenytoin sodium was found to be very effective in controlling the fits. The fits recurrence rate was 6.25% in phenytoin sodium group. It was 8.8% in MgSO₄ group and 52.94% in Menon's group. (Table II) Sandu et al (1993) observed recurrence of fits in MgSO₄ group and 36% recurrence in lytic cocktail group.

Fit recurrence with MgSO₄ has shown to be 1.3% by Bhat and Barfiwala (1985), 1% by Sibai et al (1981) and 1.98% by Nagar et al (1988).

Naidu et al (1992) observed fits recurrence of 27% in their 11 cases of phenytoin sodium.

Dommissse (1990) had recurrence of fits in 36% of cases treated by phenytoin sodium. The eclampsia trial collaborative group (1995) observed 5.7% recurrence in MgSO₄ group and 17.1% in phenytoin sodium group.

Mean induction delivery interval was 15.78 hours in phenytoin sodium, 20 hours in MgSO₄ and 23.2 hours in Menon's regime. Induction delivery interval was shorter in phenytoin sodium regime when compared to MgSO₄ and Menon's regime which is statistically significant (Table III). The induction delivery interval is more in MgSO₄ most probably due to tocolytic effect of MgSO₄.

The perinatal mortality was 31% in phenytoin sodium, 41% in MgSO₄ and 58.1% in Menon's regime. The high perinatal mortality might be due to prematurity because in majority of the patient's gestational age was less than 36 weeks. (Table IV).

Conclusion

It is concluded that the phenytoin sodium regime has proved better than lytic cocktail therapy and almost equivalent to MgSO₄ for control of convulsions. The perinatal outcome was better with phenytoin sodium than with Menon's and MgSO₄ regimes.

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