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Comparative study of magnesium sulphate regimens –pritchard regimen and dhaka regimen in the management of antepartum eclampsia

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ABSTRACT

Aims : To compare the effects of Magnesium sulphate regimens – Dhaka regimen with Pritchard regimen. The efficacy of controlling convulsions , In preventing recurrent convulsions, The incidence of complications. **Materials and Methods:** The present study was conducted in 50 patients with antepartum eclampsia were recruited. Patients were divided into two groups of 25 each, Group A comprising of 25 patients who were given the Dhaka regimen, Group B comprising of 25 patients who were given the Pritchard regimen. **Results:** The mean age in patients on Dhaka regimen was 21.6 years whereas the mean age in in patients on Pritchard regimen was 21.8 years. There was no significant difference observed in Premonitory symptoms between the two regimen groups $p > 0.05$. In the present study there was no significant difference in past history of eclampsia/ preeclampsia was observed between the two regimen groups In the present study it was observed that in both the groups majority of patients were admitted between 0 – 6 hrs Dhaka regimen (88%), pritchard (84%), there was no significant difference in mean convulsion to admission interval in either groups $p > 0.05$. Maintainence dose of MgsO4 was given when patellar reflex was present, respiratory rate> 12/min, urine output the previous 1hr exceeding 30 ml .In the present study it was observed that the toxic levels of Magnesium reached earlier in Pritchard whereas in Dhaka it was not the same. **Conclusion:** The study clearly shows that Dhaka regimen is equivalent to Pritchard regimen in controlling convulsions and preventing recurrence of convulsions, with no difference.

Key words: Magnesium sulphate,Dhaka,regimen,convulsions

Introduction

Eclampsia is derived from the Greek word meaning flash of lightening, to shine forth. Eclampsia is defined as the occurrence of generalized tonic-clonic convulsion in women with pre-eclampsia not caused by any other neurological or medical disorders. Pritchard *et al* [1] suggested that the dose of magnesium sulphate should be limited in women who are known to be or appear to be small (Low weight). Administering Pritchard regime might prove to be hazardous with a possibility of respiratory failure. There was a need for modification and to formulate a regime for women of tropical world physique. Indian women, especially from low socioeconomic strata, weigh much less than their counterparts in the western world. Various regimens with different dosages have "been used over the years, question still remains about the 'minimum effective dose' of magnesium sulphate. "If a woman is known to be or appear to be small, the dose should probably be limited"2." WinitPhuapradit et al"[2].One may also speculate that Magnesium sulphate dosing should vary according to the patients weights or body mass index. However this has never adequately been evaluated." Andrea Witln et al[3]. . A smaller study carried out at Dhaka Medical College by Begum et al4, at the same time as the Collaborative Eclampsia Trial Group[6](CETG) came to exactly the same conclusions. The main difference between these 2 studies was the dosage regimen of magnesium sulphate.This study compares the Pritchard Regimen with Dhaka regimen of magnesium sulphate in the management of antepartum eclampsia. Eclampsia now a rare disease in developed countries (1:2000 deliveries) where modern antenatal care is available to

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all pregnant women, as a result preeclampsia is detected early and treated effectively so that the convulsive stage is seldom reached.

Materials and methods

The present study was conducted in the Department of Obstetrics and gynaecology, government general hospital, GGH from September 2015 to august 2016. A total of 50 patients with antepartum eclampsia were recruited for the present study. Magnesium sulphate was used in control of convulsions. 25 patients were put under the Pritchard regimen and other 25 were enrolled under Dhaka regimen.

Inclusion Criteria: 50 consecutive patients with antepartum eclampsia, irrespective of parity and gestational age were included in the study.

Exclusion Criteria:

Patients with convulsions due to causes other than eclampsia Referred patients, who received magnesium sulphate loading dose before admission. : A detailed history regarding age, parity, gestational age, number of convulsions, duration of symptoms of pregnancy induced Hypertension, H/o imminent symptoms were taken from close relatives and also from the patient if she is conscious. Any past history of hypertension (or) renal disease (or) Eclampsia in previous pregnancy was elicited. Patients who had at least 3 antenatal visits, 1 in each trimester, and 2 doses of TT injection were taken as booked case.

Results

Patients were divided into two groups of 25 each, Group A comprising of 25 patients who were given the Dhaka regimen, Group B comprising of 25 patients who were given the Pritchard regimen.

Table 1: Distribution of patients according to Age

Age group	Dhaka regimen		Pritchard	
	No of Patients	%	No of Patients	%
15-20	11	44	11	44
21-25	13	52	13	52
26-30	1	4	1	4
Total	25	100	25	100
Mean±SD	21.6 ± 2.4		21.8 ± 2.38	

The mean age in patients on Dhaka regimen was 21.6 years whereas the mean age in in patients on Pritchard regimen was 21.8 years. There was no statistical difference in the mean age between either groups ($p > 0.05$). On age wise distribution it was observed that majority of the cases were in the age group of 21 - 25 years in both grou

Table 2 : Comparison of premonitory symptoms

Premonitory Symptoms	Group A		Group B	
	No of Patients	%	No of Patients	%
Nil	18	72	14	56
Blurring of Vision	0	0	1	4
Headache	0	0	2	8
Vomiting	0	0	1	4
Headache+vomiting	7	28	5	20
Total	25	100	25	100
X^2 value	6.83		p value= 0.233	

There was no significant difference observed in Premonitory symptoms between the two regimen groups $p > 0.05$.

Table 3 : Comparison of past history of preeclampsia/ eclampsia

Past history	Group A		Group B	
	No of Patients	%	No of Patients	%
Absent	20	80	22	88
Present	5	20	3	12

Total	25	100	25	100
X^2 value	1.72		pvalue= 0.423	

In the present study there was no significant difference in past history of eclampsia/ preeclampsia was observed between the two regimen groups p > 0.05.

Table 4 : Comparison of Convulsion to admission interval

Convulsions to admission Interval	Group A		Group B	
	No of Patients	%	No of Patients	%
0 – 6	22	88	21	84
7 – 12	3	12	4	16
Mean	3.40 ± 2.18		4 ± 2.2	
t value	0.965		pvalue= 0.339	

In the present study it was observed that in both the groups majority of patients were admitted between 0 – 6 hrs Dhaka regimen (88%), pritchard (84%), there was no significant difference in mean convulsion to admission interval in either groups p >0.05.

Table 5: Comparison of No. of doses of Mg sulphate given

No. of doses of MgSo4	Group A		Group B	
	No of Patients	%	No of Patients	%
1	1	4	15	60
2	6	24	7	28
3	8	32	3	12
4	5	20	0	0
5	4	16	0	0
6	1	4	0	0
Mean doses	3.32±1.2		1.52 ±0.7	
Total	25	100	25	100
X^2 value	24.6		Pvalue< 0.001	

Maintainence dose of $MgSo_4$ was given when patellar reflex was present, respiratory rate> 12/min, urine output the previous 1hr exceeding 30 ml .In the present study it was observed that the toxic levels of Magnesium reached earlier in Pritchard whereas in Dhaka it was not the same.

Discussion

The Collaborative Eclampsia Trial (CET) *et al* [5], published in 1985 found a lowered risk of recurrent convulsions with little difference in maternal, perinatal morbidity and mortality comparing magnesium sulphate with diazepam and phenytoin and concluded that" there is now a compelling evidence in favour of magnesium sulphate rather than diazepam or phenytoin in treatment of eclampsia". Similar findings were also reported by Crowther et al[6]their study. Appleton and Lucas in different studies established the superiority of magnesium sulphate over phenytoin validating its long practiced use. Duley et al7 compared magnesium sulphate with Lytic cocktail establishing its superiority and suggested the abandoning of Lytic cocktail. In 2002 the results of the 'Magpie trial'*et al* [8] another large multi-centric trial was published which showed beyond any reasonable doubt the efficacy of magnesium sulphates in reducing the risk of eclampsia. The Cochrane review of 20026, which analyzed the data from most of the studies available on magnesium sulphate, has concluded magnesium sulphate as being superior to the other anti convulsants The Collaborative Trial provided vital evidence that magnesium reduces the risk of recurrent seizures compared to other standard agents like diazepam and phenytoin. In the study of eclampsia collaborative trial Group (1995) 64% were primis. In the study by

N.W.M. Hospital, Bombay 1989, 64.9% were primis. According to Mudaliar over 75% were primis. In a study by Lalkoand et al (1997) 57.3% were primis. In our study 41 cases were primis. A prospective study by Bhalerao et al9(2013) for 3 years in 55 eclampsia patients 40 were primigravidas. In our study Dhaka regimen and Pritchard regimen 20 (80%) were primis. All the cases received maintenance doses. Maintenance dose of MgSO4 was given when patellar reflex was present, respiratory Rate>12/min, urine output the previous 1hr exceeded 30ml. Mean number maintenance of doses given in Dhaka regimen was 3.32 and in Pritchard was 1.52, Indicating lower serum magnesium levels in Dhaka group than in Pritchard group. Thus toxic levels of magnesium are less common in Dhaka group than in Pritchard group.Begum R et al[10] – in 2001 used a low dose (Dhaka) Magnesium Sulphate regime for eclampsia. And concluded that Half of the standard dose of magnesium sulphate appeared to be sufficient to control convulsions effectively and serum levels of magnesium remained lower than levels which produce toxicity.In our study out of 25 cases of Pritchard Regimen 15 cases induced with misoprostol and 1 case with cerviprime. Out of 25 cases of Dhaka Regimen 11 cases (44%) were induced with misoprostol, 1 case (4%) with cerviprime and 3 cases (12%) were induced using both cerviprime and misoprostol. 19 cases (38%) did not need any inducing agent as they delivered spontaneously or were taken for L.S.C.S. Out of 25 cases of Pritchard regimen 12 cases (44%) delivered by normal vaginal non-instrumental mode, 2 cases (8%) by vaginal instrumental mode and 11 (44%) cases by LSCS. Out of 25 cases of Dhaka Regimen 12 cases (52%) delivered by normal vaginal non-instrumental mode, 3 cases (12%) by vaginal instrumental mode and 10 (40%) cases by LSCS. Out of 33 cases delivered by LSCS, 2 cases were due to failed induction, 1 in Dhaka group and 1 in Pritchard group. 13 cases were due to foetal distress, 6 cases were due to CPD.

Conclusion

Magnesium sulphate is the anticonvulsant drug of choice in woman with eclampsia. The present study provides further strong support for the routine use of magnesium sulphate for eclampsia convulsions. The present study showed that Dhaka Regimen is efficient in controlling & preventing recurrence of convulsions. The results showed same outcome with reduction of dose of magnesium sulphate therapy and raises question whether high dose regimens are really necessary and safer. The study clearly shows that Dhaka regimen is equivalent to Pritchard regimen in controlling convulsions and preventing recurrence of convulsions, with no difference in the incidence of complications.

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Conflict of Interest: None

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