

# THE EVALUATION OF VARIOUS ANTI-CONVULSANT REGIMES IN THE MANAGEMENT OF ECLAMPSIA

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## SUMMARY

**Mag Sulf is the most efficient anti-convulsant therapy, followed by Diazepam and Lytic Cocktail in that order. The superior anti-convulsant action of Mag Sulf results in the lower maternal mortality and morbidity and the lower L.S.C.S. rate as compared to Diazepam and Lytic Cocktail.**

**There is no danger of sudden severe hypotension with Mag Sulf and the patient can co-operate during delivery. The best fetal results are seen with Mag Sulf and the worst with Lytic Cocktail. This is especially marked in those infants with weight < 2000 gms.**

### Introduction

The hypertensive disorders in pregnancy particularly eclampsia, rank with haemorrhage and infection as leading causes of maternal death. The hypertensive disorders also pose a serious threat to the fetus and new born infant.

The incidence of pre-eclampsia and consequently eclampsia can be minimised by good ANC care. Once it develops, the maternal and neonatal mortality and morbidity can be minimised by prompt diagnosis and enlightened medical care by the physicians concerned. Prompt control of convulsions Pulse and B.P. along with steps to initiate delivery form the foundation stones of the treatment of eclampsia (Llewellyn—Jones).

### Material and Methods

All patients admitted for eclampsia and those developing eclampsia while in our hospital were included in the study. The usual supportive measures implemented in eclampsia were adopted. The convulsions were controlled by any one of the following regimes randomly chosen:

#### (A) Magnesium Sulphate

This is given by any one of the following two regimes:

(i) Chesley—2.4 gms Mag Sulf IV slatt followed by a continuous infusion of 1-1.5 gm/hour. Maximum in 24 hours is 38 gms.

(ii) Pritchards—4 gms Mag Sulf IV slatt and then 10 gms in slatt, followed by 5 gms in every 4 hours.

In both the above any dose is omitted if:

(a) Knee jerks or other reflexes are absent (plasma levels > 10 mEqv/lit).

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(b) Urinary output < 200 ml in 6 hours.

(c) Slightest suspicion of respiratory depression (plasma levels > 15 mEqv/lit) cardiac arrest occurs at serum levels of 30 mEqv/lit.

(B) *Diazepam* (Ratnam and Sivasamboo)

40 mg Diazepam given IV slatt followed by 40 mg in 500 ccs. of 5% Glucose at 30 drops/mt.

(C) *Lytic Cocktail* (Menon)

25 mg chlorpromazine and 100 mg Pethidine in 20 ccs. of 5% Glucose is given IV slatt along with 50 mg Diethazine in slatt. Then an IV infusion of 200 mg Pethidine in a litre of 20% Glucose is run slowly over 24 hours. Simultaneously 50 mg Chlorpromazine and 50 mg Diethazine were alternated in every 4 hours for upto 48 hours. Maximum of 300 mg Pethidine in 24 hours is allowed.

As fairly early in our study we noticed that Magsulf was more efficient than the other regimes, all failures on Diazepam and Lytic Cocktail were given a treatment of Magsulf. Also many small babies were often severely adversely affected by the heavy sedation of Diazepam or Lytic Cocktail therapy. Hence many patients with small babies in the latter part of our studies, were put on. Mag Sulf irrespective of their random turn for ethical reasons.

### Results

In our experience Mag Sulf was the most effective in preventing and controlling convulsions (failure rate 1.3%) followed by Diazepam (Failure rate 13.6)

and the least effective was Lytic Cocktail (failure rate 28%). Mag Sulf therapy was so effective that as secondary therapy it achieved 100% control of patients who were primary failures on Diazepam or Lytic Cocktail. Due to its prompt and dependable anti-convulsant effect, patients on Mag Sulf achieved the best maternal outcomes.

The best fetal outcomes also, were achieved with Mag Sulf and the worst with Lytic Cocktail. The Apgar Scores were the highest, and the still-births the lowest with Mag Sulf (only fetuses alive on admission were taken into consideration). This is particularly apparent in the group of fetuses weighing < 2000 gms. This may be because Mag Sulf has a minimum depressant action on the fetus, increases uterine blood flow, and allows the mother to co-operate during labour. Besides the prompt control of convulsions, Mag Sulf also contributes to the better fetal outcome.

### Discussion

TABLE I  
Incidence of Eclampsia

Type	No. of cases	Eclampsia
Booked	8893	106 (1.2%)
Unbooked	827	73 (8.8%)
Total	9720	179 (1.84%)

Table I deals with the incidence of eclampsia. Of 9720 deliveries during the period of review, 179 were cases of eclampsia (1.84%). The incidence in the unbooked cases (8.8%) is much higher than in the booked cases (1.2%). This is due to lack of ANC and also many transfers for severe pre-eclampsia or eclampsia from surrounding hospitals.

TABLE II  
Parity-Wise Distribution

Para				Total
I	II	III	IV and above	
98 (54.7%)	27	20	34	179

Table II illustrates that eclampsia is mainly a disorder of primigravidas. Ninety-eight out of 179 i.e. 54.7% of eclamptics in our study were primigravidas.

Table III deals with the age-wise distribution of cases. The high incidence in the younger age groups is because eclampsia affects mainly primigravidas. Though the number of adolescents was comparatively low (Bombay), the percentage of eclampsia was comparatively high, proving that adolescents are particularly prone to eclampsia.

Table IV shows that most of the patients 117/179 i.e. 65% had some predisposing factor. Besides if socio-economic status,

extremes of age and lack of ANC were to be included almost all patients would have some predisposing factor or the other.

This is important because the obstetrician can select patients at high-risk of eclampsia for special attention, and try to prevent it. Besides the presence of these predisposing factors also helps in the differential diagnosis of pre-eclampsia and eclampsia.

Table V demonstrates that 96/179 i.e. 53.6% had ante-partum, 71/179 i.e. 40% intra-partum and 12/179 i.e. 6.4% post-partum eclampsia. The earliest onset in our series was at 22 weeks and the latest was 5 days after delivery.

TABLE III  
Age-Wise Distribution

Age in Years				Total
20	20-25	25-30	30 and above	
57	71	21	30	179

TABLE IV  
Predisposing Factors

Nulliparity	Family or past H/o pre-eclampsia	Diabetes	Multiple gestation	Pre-existing hypertensive or renal disease
98	4	1	11	3

TABLE V  
Incidence of Eclampsia in Relation to Labour

Ante-partum	Intra-partum	Post-partum	Total
96 (53.6%)	71 (40%)	12 (6.4%)	179

TABLE VI  
Relation of Prognosis to No. of Fits

No. of fits	No. of cases	Mortality	Morbidity
1- 2	128	1	3
3- 5	40	2	2
6-10	8	2	1
10 and above	3	1	1
Total	179	6	7

Table VI illustrates that the maternal mortality and morbidity is directly proportional to the number of convulsions. This was irrespective of whether convulsions occurred before or after initiation of treatment. Hence prevention of convulsions while on treatment is very important. Thus the mortality and morbidity is negligible for 1-2 convulsions and 10% for 3-5 convulsions jumps to 37% for 6-10 and 67% for > 10 convulsions.

The case with 1 convulsion that died was a 6th para who was put on Lytic Cocktail therapy. She went into severe refractory hypotension either due to Cocktail therapy or due to eclampsia itself. Three deaths were due to C.V.A. and 2 due to severe D.I.C. Our morbidity included 1 Mendellson's syndrome, 1 severe tongue bite, 1 abruptio with mild DIC with acute renal shutdown, 1 abruptio with DIC, and 3 cases of C.V.A.

Table VII deals with the efficacy of the various anti-convulsant regimes. Failure was defined by us as a convulsion occurring 15 minutes after initiation of

TABLE VII  
Control of Convulsions

Treatment given	Cases	Failures
Mag Sulf	78	1 + ? 1 (1.3%)
Diazepam	44	6 (13.6%)
Lytic Cocktail	57	16 (28%)

anti-convulsant treatment. There was only 1 failure and 1 failure on Mag Sulf in 78 cases (1.3%). Diazepam had 6 failures in 44 cases (13%) and Lytic Cocktail 16 failures in 57 cases (28%). Thus Mag Sulf is clearly the most effective in our series. In fact, failures on other regimes respond to Mag Sulf. Out of the 6 failures on Diazepam, 5 were put on Mag Sulf and all responded (100%). Out of the 16 failures on Lytic Cocktail, 11 were put on Mag Sulf and again all responded.

The 1 authentic failure on Mag Sulf had 3 convulsions in 40 minutes. The baby being small (30 weeks) and the patient being in labour, a pentothal drip was started and the patient delivered. In the ? failure case it was found that the IV Mag Sulf drip had stopped for some time. Hence it is probably not a true failure.

Table VIII deals with the fetal outcome taking into consideration only those fetuses alive on admission. Twins have been counted as two fetuses.

The Still-Births are the lowest with Mag Sulf (2/76) and the highest with Lytic Cocktail (6/52). This shows the severe depressive action of Lytic Cocktail and Calmpose on the fetus. This is

TABLE VIII  
Fetal Outcome (Fetuses Alive on Admission)

Anti-convulsant Regime	No. of babies	Apgar			Still-births
		7-10	4-6	0-3	
(1) Mag Sulf	76	50 (67.6%)	15 (20.2%)	9 (12.2%)	2
(2) Diazepam	41	21 (55.3%)	10 (24.3%)	7 (20.4%)	3
(3) Lytic Cocktail	52	22 (47.9%)	14 (30.4%)	10 (21.7%)	6

TABLE IX  
Fetal Outcome (WT. <2000 gms.)

Regime	Total No.	Apgar Score		
		7-10	4-6	0-3
Mag Sulf	30	17 (56.7%)	7 (23.3%)	6 (20.0%)
Diazepam	17	7 (41.2%)	5 (29.4%)	5 (29.4%)
Lytic Cocktail	18	6 (33.3%)	6 (33.3%)	6 (33.3%)

further borne out by the Apgar Scores which show that fetuses on Diazepam and Lytic Cocktail therapy have a much lower Apgar Score than those on Mag Sulf. Thus the best fetal outcomes are obtained with Mag Sulf and the worst with Lytic Cocktail. The increased uterine blood flow and the good control of convulsions seen with Mag Sulf also contribute to the better results (Chesley).

Table IX shows that the difference in Apgar Scores between infants weighing < 2000 gms. on Diazepam or Lytic Cocktail, and Mag Sulf is much greater than the population as a whole (Table VIII). Thus the depressive action of Diazepam and Lytic Cocktail is much more marked

in infants weighing < 2000 gms, Lytic Cocktail being the worst. Hence when dealing with a fetus of expected birth weight < 2000 gms. Magsulf is the regime of choice.

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