A CLINICAL STUDY OF 100 CASES OF ECLAMPSIA AND 50 CASES OF SEVERE PREECLAMPSIA WITH OUTCOME OF TREATMENT WITH MAGNESIUM SULPHATE AND KEEPING LYTIC COCKTAIL AS CONTROL IN 10 CASES OF ECLAMPSIA

Shilpi Rani1, Bratati Moitra2

1MD, Department of Obstetrics and Gynaecology, Rajendra Institute of Medical Sciences, Ranchi, Jharkhand, India.
2Associate Professor, Department of Obstetrics and Gynaecology, Rajendra Institute of Medical Sciences, Ranchi, Jharkhand, India.

ABSTRACT

BACKGROUND
Eclampsia and severe preeclampsia are still major contributors to maternal mortality all over the world. Although, incidence has gone down in developed countries, incidence is still very high in developing countries. In our country, incidence of preeclampsia is 5 - 15%, whereas incidence of eclampsia among hospital admissions is 1 in 500 to 1 in 30. Incidence varies among different areas of same country. Lack of awareness for antenatal check-up, illiteracy, unavailability of quality antenatal check-up facility etc. are main causes why PIH and Eclampsia are diagnosed late and many a times patients come with complications like pulmonary oedema, coagulation failure, accidental haemorrhage, acute renal failure etc. Gold standard treatment of severe preeclampsia and eclampsia is MgSO4 along with antihypertensive and induction of labour to expedite the delivery within 12 hrs. and 24 hrs. in eclampsia and severe preeclampsia respectively. But still in remote areas, MgSO4 is not available.

This study was undertaken to see the outcome of treatment with MgSO4 in 100 cases of Eclampsia and 50 cases of severe Preeclampsia, keeping lytic Cocktail (Menon 1961, chlorpromazine, promethazine and pethidine injections) as control in 10 cases of Eclampsia.

KEY WORDS
Preeclampsia, Eclampsia, MgSO4, Lytic Cocktail.

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BACKGROUND
Preeclampsia is a condition where BP is more than 140/90 mm Hg with proteinuria with or without oedema after 20 weeks of pregnancy. When PET is associated with convulsion, it is eclampsia (other causes of convulsion being ruled out).

Eclampsia is one of the dreaded complications of pregnancy. Incidence of eclampsia has gone down in developed countries from 0.7% (McDonald, 1976) to 0.05% (Alexander et al, 2004).

In India too incidence has declined, but still remains very high from 0.1% to 2% (Ratnam, Vol. 11, 1994). M. Chandra and Bhardwaj (1998) found that incidence of eclampsia was 1.56%. Situation is gloomy in this part of the country.

Here, incidence of eclampsia is 2.7 to 4% and maternal mortality due to this is 27 - 30%. Perinatal mortality is particularly high following eclampsia (Collab trial 1995; Douglas 1994).1

Illiteracy, poverty, lack of awareness, lack of facility for quality antenatal check-up in remote areas, poor transport facility and road conditions all together are responsible for high incidence of eclampsia and maternal mortality.

MATERIALS AND METHODS
100 cases of eclampsia and 50 cases of severe preeclampsia who were admitted in labour room of Rajendra Institute of Medical Sciences, Ranchi between September 2005 and September 2006 were studied. Of these 100 cases of eclampsia, 90 cases were given MgSO4 as anticonvulsant and in 10 cases lytic cocktail was used.

- Common regimen of magnesium sulphate used was loading dose of 4 gm of 20% magnesium sulphate solution given IV slowly + 10 gms of 50% magnesium sulphate given IM 5 gm in each buttock. Maintenance dose of 5 gm of 50% magnesium sulphate IM was repeated 4 hourly till 24 hrs. after delivery or convulsion whichever is later (Dinsdale 1988; Pritchard 1955; Zuspan 1978).2,3,4 Lytic cocktail is a mixture of drugs used for women with eclampsia. These are usually chlorpromazine, promethazine and pethidine (meperidine). First introduced in India by (Menon 1961).5 These combination of drugs was thought to lower blood pressure and sedate the central nervous system.

- The mode of action for magnesium sulphate in control of eclamptic seizures and prevention of recurrent convulsions is still not clearly understood. This anticonvulsant activity may be mediated by magnesium’s role as an N-Methyl-D-Aspartate (NMDA) antagonist (Euser 2009).6

- Magnesium may prevent and control eclamptic seizures by inhibiting NMDA receptors. Other possible mechanism are that magnesium sulphate may lead to cerebral vasodilatation with subsequent reduction of cerebral ischaemia (Belfort 1992).7

Among the 50 cases of severe preeclampsia, in 10 cases MgSO4 was not given and was kept as control. Soon after arrival of patient, a quick history was taken from the attendant and in the meantime, treatment was also started simultaneously. Patients were divided into different groups according to age and parity of patient.
Important Findings of the Study

- No. of antenatal check-ups done.
- Presenting complaint was noted.

Mode of Onset

Any premonitory symptom was present or not, e.g. severe headache, blurred vision, epigastric pain, vomiting, diminished vision etc.-
- Time of onset of 1st convulsion.
- Number of convulsions thereafter.
- Any symptom of labour pain.
- In case of post-partum eclampsia - interval between delivery and onset of fit was noted.
- Details of treatment received outside before coming to hospital.

Menstrual History

Gestational Age was Calculated, and Patients were divided in Three Groups-
- Less than 34 weeks.
- Between 34 - 37 weeks.
- Between 37 - 40 weeks.

Obstetrical History

Patients were divided in Five Groups of having Parity:
- Zero.
- One.
- Two.
- Three.
- Four or more.

Past History

Detailed Relevant Past History
- Seizure disorder.
- Past history such as diabetes, chronic hypertension and autoimmune disease (Duckitt 2005).[8]
- Renal disorder.
- Toxaemia of pregnancy in previous confinement if any.

Family History
- Hypertension.
- Diabetes.
- Toxaemia of pregnancy in 1st degree relative.
- Thorough general examination.
- Obstetrical examination.

Important Findings of the Study

- The general incidence of severe preeclampsia was 3.45%, i.e. 1 in 29.
- The general incidence of eclampsia was 5.03%, i.e. 1 in 20.
- Maximum incidence was found in patients of less than 20 years of age.
- Most patients belonged to low socioeconomic status with 82.7% of patients having no antenatal check-ups.
- 71.4% of patients were primigravida in both eclampsia and severe preeclampsia.
- Antepartum eclampsia being the commonest 77% with intrapartum eclampsia 8% and postpartum eclampsia 15%.

55% patients were admitted within 12 hours of convulsive attack.

| Treatment Regimen | Antepartum Eclampsia | Intrapartum Eclampsia | Postpartum Eclampsia |
|-------------------|-----------------------|-----------------------|----------------------|
| Magnesium Sulphate | 73                    | 6                     | 11                   |
| Lytic Cocktail    | 4                     | 2                     | 4                    |
| Total             | 77                    | 8                     | 15                   |
| Percentage        | 77%                   | 8%                    | 15%                  |

Table 1. Distribution of Cases according to Types of Eclampsia

| Systolic Blood Pressure (mmHg) | Severe Preeclampsia | Eclampsia |
|-------------------------------|---------------------|-----------|
|                               | Magnesium Sulphate | Control   | Magnesium Sulphate | Lytic Cocktail |
| 140-158                       | 0                   | 0         | 7                    | 2               |
| 160-200                       | 33                  | 7         | 63                   | 6               |
| >200                          | 7                   | 3         | 20                   | 2               |

Table 2. Systolic and Diastolic Blood Pressure at the Time of Admission

| Diastolic Blood Pressure (mmHg) | Severe Preeclampsia | Eclampsia |
|--------------------------------|---------------------|-----------|
|                                | Magnesium Sulphate | Control   | Magnesium Sulphate | Lytic Cocktail |
| 90 to 108                      | 0                   | 0         | 12                   | 3               |
| >110                           | 28                  | 6         | 61                   | 5               |
| 2 patients died within 24 hours of treatment | 1 patient died within 24 hours of treatment |

Table 3. Diastolic Blood Pressure before and after 24 Hours in Four Treatment Groups

| Severe Preeclampsia | Eclampsia |
|---------------------|-----------|
| Magnesium Sulphate  | Control   | Magnesium Sulphate | Lytic Cocktail |
| Total No. of Patients | 40      | 10                  | 90        | 10       |
| No. of Patients (Occurrence/Recurrence of Fit) | 0 | 3 | 2 | 3 |
| Percentage          | 0        | 30%                 | 2.2%      | 30%      |

Table 4. Occurrence of Fits in Severe Preeclampsia and recurrence of Fits in Eclampsia Cases

p= 5.991

p= 3.84

p= 3.84
Table 5. Treatment Delivery Interval in Four Treatment Groups

| Treatment Delivery Interval | Severe Preeclampsia | Eclampsia |
|-----------------------------|---------------------|-----------|
|                             | Magnesium Sulphate Group | Control Group | Magnesium Sulphate Group | Lytic Cocktail Group |
| <24 hrs.                   | 27 (67.5%)           | 7 (70%)    | 64 (83.11%)             | 4 (80%)            |
| >24 hrs.                   | 13 (32.5%)           | 3 (30%)    | 13 (16.9%)              | (20%)              |

Table 6. Mode of Delivery in Four Treatment Groups

| Mode of Delivery | Severe Preeclampsia | Eclampsia |
|------------------|---------------------|-----------|
|                  | Magnesium Sulphate Group | Control Group | Magnesium Sulphate Group | Lytic Cocktail Group |
| Normal Delivery  | 24 (100%)           | 6 (100%)   | 44 (100%)              | 3 (100%)           |
| Forceps          | 2 (100%)            | 1 (100%)   | 11 (100%)              | 1 (100%)           |
| Craniotomy       | --                  | --         | --                     | --                 |
| Postpartum Eclampsia | --                  | --         | 11 (100%)              | 4 (100%)           |

Table 7. Maternal Pattern in Relation to Therapy

| Severe Preeclampsia | Eclampsia |
|---------------------|-----------|
|                     | MgSO4 Group | Control Group | MgSO4 Group | Lytic Cocktail Group |
| Coma                | 0 (0%)     | 0 (0%)       | 11 (12.2%)  | 4 (40%)             |
| Hyperpyrexia        | 0 (0%)     | 0 (0%)       | 9 (10%)     | 1 (10%)             |
| Pulmonary Oedema    | 0 (0%)     | 0 (0%)       | 3 (3.3%)    | 1 (10%)             |
| Oliguria            | 4 (10%)    | 1 (10%)      | 8 (8.8%)    | 1 (10%)             |
| UTI                 | 2 (5%)     | 1 (10%)      | 4 (4.4%)    | 1 (10%)             |
| PPH                 | 1 (2.5%)   | 1 (10%)      | 4 (4.4%)    | 1 (10%)             |
| Puerperal Psychosis | --         | --           | 1 (1.1%)    | 1 (10%)             |

Table 7. (Contd.)

| Severe Preeclampsia | Eclampsia |
|---------------------|-----------|
|                     | MgSO4 Group | Control Group | MgSO4 Group | Lytic Cocktail Group |
| RTI                 | --         | --           | 8 (8.0%)    | 1 (10%)             |
| Shock               | --         | --           | 2 (2.2%)    | --                  |
| Bedsores            | --         | --           | --          | --                  |
| Abruptio placentae | 4 (10%)    | 2 (20%)      | 6 (6.6%)    | 2 (20%)             |
| Pain at injection site | 1 (2.5%) | 0           | 6 (6.6%)    | 0                   |
| DIC                 | 0          | 0           | 1 (1.1%)    | 0                   |
| CVA                 | 0          | 0           | 2 (2.2%)    | 1 (10%)             |

Table 8. Maternal Mortality of Four Treatment Groups

|                          | Severe Preeclampsia | Eclampsia |
|--------------------------|---------------------|-----------|
|                          | Magnesium Sulphate Group | Control Group | Magnesium Sulphate Group | Lytic Cocktail Group |
| No. of Deaths            | 0                   | 0         | 6                   | 2                   |
| Maternal Mortality       | 0                   | 0         | 6.6%                | 20%                 |

Table 9. Causes of Maternal Death

|                          | Severe Preeclampsia | Eclampsia |
|--------------------------|---------------------|-----------|
|                          | Management sulphate Group | Control Group | Management sulphate Group | Lytic cocktail group |
| Total births             | 40                  | 10        | 88                  | 9                   |
| Home delivery            | Alive               | --        | 6                   | 2                   |
| Stillbirth               | --                  | --        | 4                   | 1                   |
| Neonatal Death           | --                  | --        | 1                   | 1                   |

Table 10. Perinatal Outcome of all Births (Home or Hospital) in the Four Management Groups

|                          | Severe Preeclampsia | Eclampsia |
|--------------------------|---------------------|-----------|
|                          | MgSO4 Group | Control Group | MgSO4 Group | Lytic cocktail group |
| Absent FHS on admission  | 1           | 0           | 10           | 1                   |
| FHS present at admission| 39          | 10          | 69            | 5                   |
| Stillbirth               | 0           | 1           | 4              | 1                   |
| Early neonatal death     | 0           | 0           | 3              | 1                   |
| Perinatal death in all patients | 2.5%     | 10%        | 24.4%         | 50%                 |
| Neonatal mortality in patients with FHS present at admission | 0 | 10% | 10.1% | 40% |
| Went home with live baby | 97.5%       | 90%        | 75.6%         | 50%                 |

Table 10. (Contd.)

p = 12.59

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**Table X**
Shows perinatal outcome in different groups. P-value is 12.59, that means it is insignificant.

**Table XI**
Shows neonatal morbidity pattern in four treatment groups. P-value is 12.59. This again means mode of treatment does not have significant role in neonatal morbidity.

**DISCUSSION**
In incidence of eclampsia in this study was 5.03%, which is higher than previous studies. Incidence of imminent eclampsia was 3.45%.

Maximum patients were below 20 years’ age group, 82.7% cases were unbooked. Majority of patients in both the groups were from lower and lower-middle socioeconomic strata. 71.4% patients were primigravida. 77% patients had antepartum eclampsia, 15% patients had postpartum eclampsia and 8% patients had intrapartum eclampsia.

Diastolic blood pressure became less than or equal to 90 mm Hg after treatment with magnesium sulphate in 60% cases of imminent eclampsia and 61.4% cases of eclampsia as compared to 40% in control group. There was no fit in imminent eclampsia patients treated with magnesium sulphate, whereas 30% of patients of control group had fits.

Maternal mortality was significantly lower in magnesium sulphate group than lytic cocktail group (6.6% vs. 20%). Perinatal mortality was markedly better in magnesium sulphate group of imminent eclampsia patients as compared to control group (2.5% vs. 10%).

**CONCLUSION**
To conclude, it can be emphasised that magnesium sulphate is the drug of choice for the prophylactic (Duley 2003a) as well as therapeutic management of severe preeclampsia and eclampsia respectively (Duley 2003b; Duley 2003c). It is very efficient in the prevention of fits in severe preeclampsia and reduction in recurrence of fits in eclampsia. MgSO₄ is also efficient in reducing maternal morbidity and mortality. It also improved perinatal outcome.

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