# "Eclampsia – Present Scenerio in a Referral Medical College Hospital

Arup Kumar Majhi, Partha Sarathi Chakraborty, Asima Mukhopadhyay

*Department of Obstetrics and Gynaecology, R G Kar Medical College & Hospital, 1, Belgachia Road, Calcutta 700 004.*

**Summary**

The present study is a retrospective analysis of all 877 eclamptic women manged at R.G. Kar Medical College & Hospital, Calcutta during the period from January 1995 to December 1997. The overall incidence of eclampsia during the study period was 2.79%. Among the eclampsia patients majority (58.15%) were below 20 years, most of them came either from rural area (54.61%) or from urban slum (26.33%) and 82% were from low socioeconomic status. The victims were mostly primi (88.37%) and unbooked (82.32%). The ratio of Hindu and Muslim eclamptic patients was 2.21 : 1. Intrapartum eclampsia (44.69%) predominated in this series. Caesarean section rate was 10.52%. Maternal case fatality rate was 11.28% and eclampsia contributed 48.76% of all maternal deaths during the study period. Still-birth rate was 25% with an early neonatal death rate of 14.9% resulting in a perinatal mortality of 39.9%. The incidence of low bith weight babies was 49.6%. The outcome of mother and foetus was relatively better in cases who were actively managed and delivered by caesarean section than in those who awaited deliveries by vaginal route. Early referral, intensive management and introduction of better treatment protocol are essential to improve the perinatal and maternal outcome in eclampsia cases. But the cornerstone to reduce the incidence of eclampsia is adequate and widespread antenatal coverage and the improvement of general health status of women.

## Introduction

Eclampsia remains one of the important unsolved problems in obstetrics. A maternal mortality of 3-4% and perinatal mortality of upto 30-40% may occur following eclamptic convulsions (Davey, 1995). It has been estimated that approximately 50,000 women die each year worldwide from this dreadful disease (Duley, 1992). In United Kingdom, preeclampsia and eclampsia remain one of the main causes of maternal mortality and morbidity (Leitch et al, 1997). Maternal hypertension is associated with as much as 22% of all perinatal deaths and 30% of all maternal deaths in the United States (Aria, 1992). Though the incidence of eclampsia and the total number of deaths from eclampsia have been reduced dramatically in developed countries due to excellent prenatal care and management still in developing countries the incidence of eclampsia and its consequent complications have not decreased significantly over the past few decades. Admission of eclamptic mothers at any government medical college hospital in India is still a common event and perinatal and maternal morbidity and mortality are also high. The maternal and perinatal outcome following eclampsia primarily depends on the nature of fits, quality of treatment received and the speed with which it is available. But various epidemiological aspects of pregnant women are strong determinants of the occurance of this disease and of perinatal and maternal outcome.

The purpose of this study was to analyse the cases of eclampsia, its incidence, type, patient's profile, mode of delivery, the fetal and maternal outcome. To compare these with other Indian and global studies, and also discuss the measures to be taken to save both the mother and fetus from the ill effects of this dreadful disease.

## Material and Methods

A retrospective analysis of all eclamptic mothers managed at the Department of G & O, R.G. Kar Medical

College & Hospital, Calcutta during the period from January 1995 to December 1997 was done from the records. All cases were analysed with regards to the age, parity, habitat, religion, socioeconomic condition, status of antenatal care, type of eclampsia, mode of delivery, perinatal and maternal outcome.

R.G. Kar Medical College & Hospital is a referral teaching institution with 10,000 to 11,000 deliveries per year and has a vast catchment area catering urban, suburban and rural population. All patients are admitted irrespective of their booking status. No patients are refused admission and hence many of the patients are admitted even in a moribund state. All eclampsia mothers, antepartum, intrapartum or postpartum are kept and managed in a room specially designed for the eclampsia patients. No single anticonvulsive protocol is chosen for all eclamptic women. Most of the patients are treated with either lytic cocktail therapy or diazepam therapy though recently some of the patients are being treated with magnesium sulphate therapy.

**Results and Discussions**

Total number of deliveries were 31,352 during the study period and the number of eclampsia patients managed were 877 which gives an incidence of 2.79% (Table-I). This incidence is similar to some of Indian figures but is very much higher in comparison to western reports. The incidence of eclampsia in U.K. has come down to 4.9/10,000 deliveries (Douglas and Redman, 1994). In United States the incidence is 4.3/10,000 (Saftlas et al, 1990). and in Sweden it is 2.7/10,000 (Moller and Lindmark, 1986). Systematically collected population based data to measure the incidence of eclampsia in India is not available. The data which are available here are mostly hospital based. The different reported incidences in India are 0.72% (Pal et al, 1996). 2.69% (Sanyal et al, 1987) & 4.69% (Goswami & Goswamy, 1984) etc. The higher incidence in this series is explained by the fact that still a larger number of pregnant women are not covered by adequate antenatal care and now most of the eclampsia patients are referred to the tertiary center, instead of treating them at peripheral one. This high incidence is apparent because the rate has been calculated on the total number of hospital deliveries, and not on the total delivered population within the whole catchment area.

**Table – I**
**Incidence of Eclampsia**

| Year | Total No. of Deliveries | Total No. of Eclampsia Patients | Incidence |
|---|---|---|---|
| 1995 | 10,363 | 280 | 2.70% |
| 1996 | 10,495 | 317 | 3.02% |
| 1997 | 10,494 | 280 | 2.66% |
| Total | 31,352 | 877 | 2.79% |

Seasonal variation in admission of eclampsia patients is not a new observation. The higher incidence during the months of October, November, December and January (Table II, Fig. 1) is also supported by the observation of other authors in India (Sanyal et al, 1987). One reason may be that this increase is proportionate to the increase in number of deliveries during these months. Whether there is any effect of climate (temperature variation) over the aetiopathogenesis of PET/Eclampsia among the pregnant women residing in tropical country is not understood.

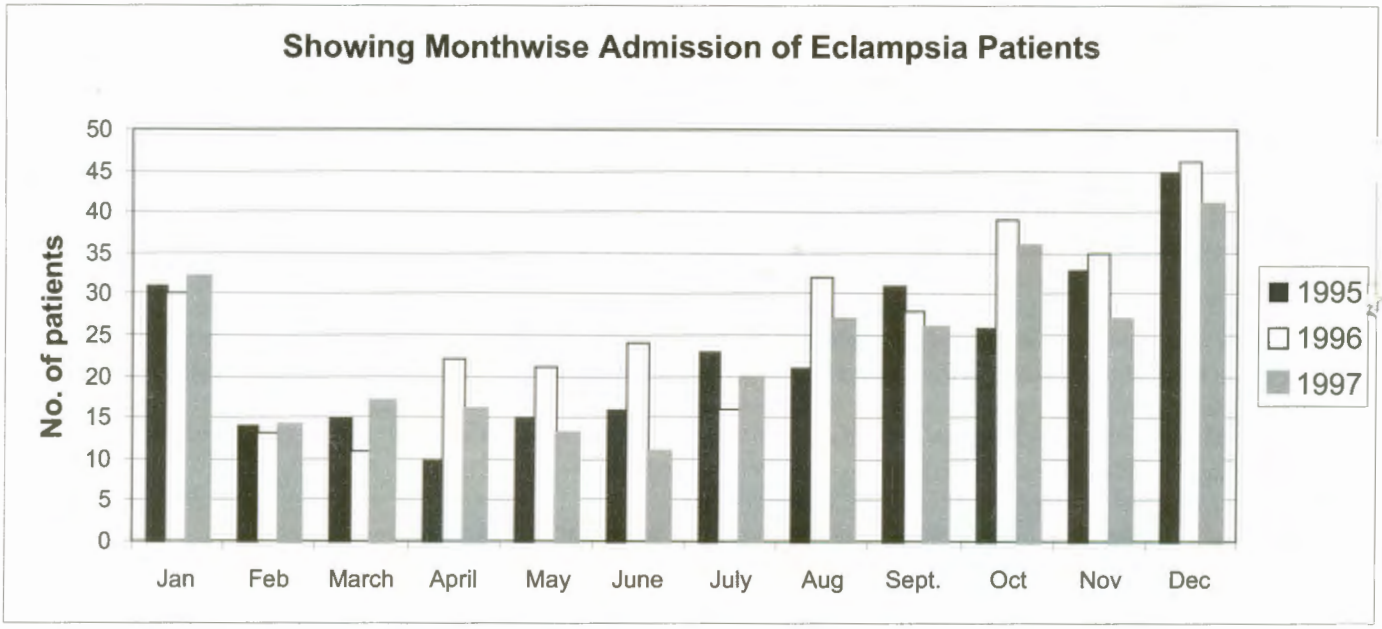


Fig. 1

**Table – II**
**Monthwise Admission of Eclampsia Patients**

| Year | Jan | Feb | March | April | May | June | July | Aug | Sept. | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 | 31 | 14 | 15 | 10 | 15 | 16 | 23 | 21 | 31 | 26 | 33 | 45 | 280 |
| 1996 | 30 | 13 | 11 | 22 | 21 | 24 | 16 | 32 | 28 | 39 | 35 | 46 | 317 |
| 1997 | 32 | 14 | 17 | 16 | 13 | 11 | 20 | 27 | 26 | 36 | 27 | 41 | 280 |
| Total | 93 | 41 | 43 | 48 | 49 | 51 | 59 | 80 | 85 | 101 | 95 | 132 | 877 |

In this series (Table-III), 58.15% of victims were below the age of 20 years and 78.67% were below 25 years indicating that majority of the eclamptics were young and teenage which is an important risk factor for developing eclampsia. This is supported by the observations of (Nawani et al, 1996). As noted by Douglas and Redman, (1994) teenagers are three times more likely to suffer from eclampsia than the older women.

**Table- III**
**Different Epidemiological aspects of Eclampsia patients**

| Factors | Number | Percentage |
|---|---|---|
| Age in years | | |
| <20 | 510 | 58.15 |
| 20-25 | 180 | 20.52 |
| 25-30 | 137 | 15.62 |
| 30-34 | 35 | 3.99 |
| > 35 | 15 | 1.71 |
| Parity | | |
| Primigravida | 775 | 88.37 |
| 2nd gravida | 61 | 6.95 |
| 3rd gravida | 17 | 1.93 |
| 4th gravida or more | 24 | 2.73 |
| Residence | | |
| Urban | 167 | 19.04 |
| Urban slum | 231 | 26.33 |
| Rural | 479 | 54.61 |
| Religion | | |
| Hindu | 604 | 68.87 |
| Muslim | 273 | 31.12 |
| Others | nil | nil |
| Socioeconomic status | | |
| High | 35 | 4 |
| Middle | 123 | 14 |
| Low | 719 | 82 |
| Antenatal Care | | |
| Booked | 155 | 17.67 |
| Unbooked | 722 | 82.32 |

Majority (88.37%) of the eclamptic women were primigravid in this series. These findings are consistent with those of Pal et al (1996), Sanyal et al (1987) and Leitch et al (1997).

Most of the eclamptics in this series have come either from rural area (54.61%) or from urban slum (26.33%). Though among the victims Hindus constituted the main bulk (68.87%), in relation to the population ratio in the catchment area Muslim victims were more affected. In this series, most of the women (82%) had come from the low socio-economic status. Socio economic status is largely related with health consciousness and health and family welfare of the people.

82.32% of the women were not booked in this series. Unbooked cases were categorized as those women who had received no antenatal care at all or had less than three antenatal visits. The incidence of unbooked women among the eclamptics was highest as reported by most of the Indian workers (Sanyal et al 1987), Pal et al (1996). It has been universally accepted that the adequate standard antenatal care has immense value in reducing the incidence of eclampsia by early detection of preeclampsia and its prompt management. Where there is very low incidence of eclampsia like in Douglas and Redman series (1994), it was found that 71% of the eclamptic women had received antenatal care corresponding to or exceeding the standard pattern. Sibai et al (1986) had pointed out the nonpreventable eclampsia the incidence of which was very difficult to reduce. It was a notable fact in our series also that 17.67% of eclamptic women were booked and still developed eclamptic convulsions.

World literature recorded that in majority of the reports, antepartum eclampsia is the commonest type (Leitch et al, 1997). In this study (Table IV) intrapartum eclampsia predominated (44.69%) over antepartum cases (38.65%). This observation confirms with very few observations in India (Sanyal et al, 1987). In fact, most of the patients were admitted following repeated attacks of convulsions and many of them were found in labour, and inspite of sincere efforts it was not always possible to delineate exactly whether the convulsion started before or after the onset of labour. The incidence of postpartum eclampsia in this series was 16.6%. Similar incidence was also found in the series of Nawani et al (1996) & Sanyal et

al (1987).

**Table IV**
**Distribution of cases according to type of Eclampsia**

| | | |
|---|---|---|
| Antepartum | 339 | 38.65% |
| Intrapartum | 392 | 44.69% |
| Postpartum | 146 | 16.64% |

60.8% of the patients were delivered vaginally without using any aid. 28.4% of the patients were delivered by low forceps and only in 2 cases craniotomy was needed (Table-V). In this series, the incidence of caesarean section among the eclamptic mothers was 10.52%. Pal et al (1996) reported similar incidence of 9.7%. Many centers (Sibai et al, 1981, Leitch et al, 1997) are liberal to do more abdominal deliveries in an expectation of better maternal & fetal outcome. Liberalisation of caesarean section has been possible in practice due to marked improvement in aneasthesiology. In this series, 19 pregnant women died in undelivered conditions giving very little scope for their management.

**Table V**
**Distribution of cases according to mode of delivery**

| Mode of Delivery | No. of Cases | Percentage |
|---|---|---|
| Vaginal | 433 | 60.8 |
| Forceps | 202 | 28.4 |
| Ventouse | Nil | — |
| LSCS | 75 | 10.52 |
| Destructive | 2 (Craniotomy) | 0.28 |
| Total | 712 | 100% |

No. of Postpartum cases – 146, Died undelivered – 19

There were 99 maternal deaths out of 877 eclamptic mothers giving an overall maternal mortality rate of 11.28% (Table-VI). This figure is nearer to 10.72% of Pal et al (1996) & 13.3% of Nawani et al (1996). The higher maternal mortality was reported by Chandra & Bharadwaj (1998) viz 29% using lytic cocktail and 29.77% using MgSo4, Sanyal et al (1987) reported 17.3% and Goswami & Goswami (1984) 19.6%. In this study, the maternal mortality in eclampsia has been found to come down from 13.2% to 8.92% during the last three years. However, in developed countries it has come down remarkably. In some centers it has become zero (Pritchard et al, 1984, Leitch et al, 1997). Maternal mortality rate in U.K. was estimated to be 1.8% (Douglas & Redman, 1994). The high mortality rate in our series is due to late arrival of the patients, many even in moribund conditions, and the administration of haphazard combination of sedatives and anticonvulsants outside. Lack of standard and better protocol may also be a factor. The contribution of eclampsia in total maternal deaths is significant throughout the world. In Asia it contributes about 10% of all maternal deaths (Duley et al, 1992). In Chandra & Bharadwaj (1998) series it is 20.15% and in the series of Pal et al (1996), it is 14.08%. In the present series, deaths from eclampsia formed the main bulk of maternal deaths and contributed 48.76% of all maternal deaths. In an earlier report (Majhi et al, 1996) from the same institution eclampsia was found to be contributing to 29.72% of all maternal deaths in a 10 year study. In fact, during the last ten years contribution of 30.90% in 1988 has increased to 45.45% in 1997 (Table VII, Fig. II). The higher contribution in deaths by eclampsia is explained by the decrease in deaths due to sepsis and haemorrhage (relative increase) and referral of large number of eclampsia patients from the periphery because of more public awareness.

**Table – VI**
**Case Fatality Rate in eclampsia**

| Year | No. of Eclampsia Cases | Maternal Deaths | Fatality rate |
|---|---|---|---|
| 1995 | 280 | 37 | 13.21% |
| 1996 | 317 | 37 | 11.67% |
| 1997 | 280 | 25 | 8.92% |
| Total | 877 | 99 | 11.28% |

Perinatal mortality in this series was 39.9% (Table VIII). Still birth rate was 25% and early neonatal death rate was 14.9% and the incidence of low birth weight was 49.6%. High perinatal mortility was also found in Chandra & Bharadwaj (1998) series viz 50% in MgSo4

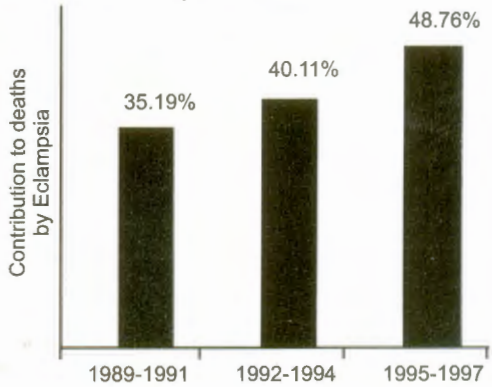


Fig. 2: Showing increasing contribution of Eclampsia to Maternal deaths

**Table – VII**
**Contribution of Eclampsia to Maternal Deaths**

| Year | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Maternal death | 55 | 63 | 58 | 58 | 51 | 65 | 51 | 76 | 72 | 55 |
| Deaths from Eclampsia | 17 | 16 | 21 | 26 | 19 | 30 | 18 | 37 | 37 | 25 |
| Contribution | 30.90% | 25.39% | 36.20% | 48.82% | 37.25% | 46.15% | 35.29% | 48.68% | 51.38% | 45.45% |

**Table VIII**
**Perinatal Outcome**

| LBW | Still Birth | Early Neonatal Death | Perinatal Mortality |
|---|---|---|---|
| 359 (49.6%) | 181 (25%) | 108 (14.9%) | 289 (39.9%) |

Total Babies – 724 (Single – 700, Twin – 12), Babies of Postpartum cases excluded.

regime and 66% in lytic cocktail regime and 35.3% (1996) in Pal et al (1996) series. Lower incidence of perinatal deaths was found in the series of Sibai et al (1981) viz 13.3% and of Douglas and Redman (1994) viz still birth – 2.22% and neonatal death 3.41%. The high perinatal mortility in our series is probably due to late arrival, prematurity and placental insufficiency.

It is a notable fact that there was no maternal death among 75 eclampsia patients who were delivered by Caesarean section in this series and perinatal mortility was also significantly less (16%) among the babies delivered abdominally. This can be explained by the fact that decision of LSCS was taken in those selected cases who were potentially expected to have good maternal and fetal prospects. From this series, it is difficult to conclude whether liberalization of caesarean section in eclampsia patients will improve maternal and perinatal outcome.

## Conclusion

Eclampsia still remains a major problem in developing countries. In the present series, both maternal and perinatal mortality rate are still disappointing. One maternal death occurs in every 9 eclamptic women. Two offsprings are lost in every five eclamptic mothers. The incidence of eclampsia is also high which is mainly due to the high referral of eclampsia cases reflecting poor antenatal care.

Early attention, intensive management and introduction of a better treatment protocol are essential for improving the maternal and fetal outcome in eclamptic cases. However, the main trigger of management will be directed towards the reduction of the incidence of eclampsia which can only be achieved by improvement of the general health and welfare of women and widespread adequate antenatal coverage to all pregnant women upto the grassroot level of the community giving a special attention to at risk cases. This will save many mothers and babies from the ill effects of this serious disease.

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