

Eclampsia : a hospital based retrospective study

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Abstract

Aim and objective: This study was done to see the incidence, epidemiology, clinical profile of eclamptic patients and the effect of current intervention strategy for Eclampsia on maternal and perinatal outcome.

Methodology: Analysis of case records of all Eclampsia cases from mid-April, 2000 to mid-April, 2001.

Results: Incidence of Eclampsia has been found to be 2.9 per 1000 deliveries. Eclampsia was primarily a disease of young women (97.22%) and nulliparas (80.85%). Approximately half of eclamptic patients had some antenatal care (55.31%) and majority of them had fits before the onset of labor (70.21%). Most eclamptic patients presented with fits at term pregnancy (72.34%). About three fourth of them started fitting at home (74.46%) but one fourth had first fit while already admitted in the hospital (25.53%). Caesarean section was common mode of delivery (55.31%). There was no maternal death. Majority of patients stopped fitting once intervention was started (80.85%) and went home within three weeks (95.73%). One fifth of babies died [stillbirths (14%), neonatal deaths (6%)].

Conclusion: It appears that current intervention strategy for eclampsia in the maternity hospital is effective in reducing maternal mortality and morbidity but perinatal outcome still needs to be improved.

Key words: Eclampsia, Maternal outcome, perinatal outcome, magnesium sulphate.

Introduction

Eclampsia is defined as the occurrence of convulsions, not caused by any coincidental neurological disease such as Epilepsy, in a woman whose condition also meets the criteria for pre-eclampsia¹. The incidence is about 1 in 1600 pregnancies¹. Eclampsia is still commonly perceived as the end of a linear spectrum that stretches from normal pregnancy, through mild hypertension, Pre-eclampsia and finally Eclampsia. However, Eclampsia may precede pre-eclampsia and an alternative view is that seizures are one of the ranges of signs and symptoms caused by the widespread endothelial cell damage secondary to an ischaemic placenta². Treatment of this disease is entirely empirical and symptomatic and controversy still exists in the choice of the most appropriate treatment especially for prevention and control of fits.

The overall maternal mortality associated with Eclampsia is 2%.³ Eclampsia is an important cause of maternal mortality in many parts of Africa, Asia, Latin America and the Caribbean⁴. Hypertensive disorders contribute to approximately 9% of all maternal deaths in Nepal and almost all deaths were associated with Eclampsia⁴. Nepalese women have 1 in 32 chance of dying due to pregnancy related cause and Eclampsia accounts for 16% of maternal deaths.⁵ According to another study, Eclampsia accounts for 13% of maternal deaths in various hospitals of Nepal⁶.

Methodology

This is a retrospective study of all cases of Eclampsia between mid-April, 2000 to mid-April, 2001. Case records were reviewed and information was collected and tabulated with respect to the following variables: Age, parity, antenatal care, duration of gestation, type of Eclampsia, place of first fit, Blood pressure and degree of proteinuria at the time of admission, fit-admission and fit-delivery interval, mode of delivery, perinatal outcome, maternal mortality, recurrence of fits and hospital stay. Data were entered in a format and analyzed manually. Results were reported as percentage.

Intervention strategy of eclampsia in the maternity hospital

1. Diazepam (10 mg) i.v. bolus initially to abort fit and transfer to Maternal intensive care unit
2. To prevent recurrence of fits, slightly modified Pritchard intramuscular magnesium sulphate regime using slightly lower dose of magnesium sulphate was used. 4 gm of magnesium sulphate was given intravenously over 5-10 mins and 4 gm i.m. in each buttock {total loading dose-12 gm} followed by maintenance dose of 4

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3. gm i.m. 4 hourly till 24 hrs. after delivery or last fit. In order to continue magnesium sulphate, the patient should have a patellar reflex, urine flow greater than 30 ml per hour and respiratory rate of 12/min. Diazepam drip- {40 mg in 5% dextrose} at 20 drips/min was alternative only, if magnesium sulphate regime was contraindicated.
4. Nifedepine sublingually/orally was given at regular interval to achieve the desired level of diastolic blood pressure of 90 mm hg or less and a trace of albumin or no albumin in urine (usually 50-100 mg of nifedipine per day).
5. Termination of pregnancy once the patient is stabilized.

Results

There were 47 confirmed cases during the time period among 16,096 total deliveries, i.e. incidence was 2.9/1000 total deliveries.

Table 1. Age distribution

Age group [years]	
19 or less	22 [46.80%]
20-24	19 [40.42%]
25-29	3 [6.38%]
30 or more	3 [6.38%]

Eclampsia was found to be more common among young and adolescent women.

Table 2. Eclampsia in relation to parity

Gravida and parity	
G1, P0	38 [80.85%]
G2, P1	1 [2.12%]
G3, P2	6 [12.76%]
G4 or more	2 [4.25%]

Eclampsia was predominantly a disease of primigravidas.

Table 3. Antenatal care

No antenatal care	21 [44.68%]
Antenatal care	26 [55.31%]

Only 26 patients had some form of antenatal care [55.31%], whereas 21 patients had no antenatal check up [44.68%].

Table 4. Type of eclampsia

Antepartum	33 [70.21%]
Intrapartum	3 [6.38%]
Post partum	11 [23.40%]

Majority of patients developed fits before the onset of labour.

Table 5. Duration of gestation at the onset of fit

Less than 37 weeks	13 [27.65%]
37-42 weeks	34 [72.34%]
More than 42 weeks	0

Most patients presented with convulsion at term pregnancy.

Table 6. Diastolic blood pressure at the time of admission

BP in mm Hg	
90 or less	14 (29.78%)
91-100	10 (21.27%)
101-110	14 (29.78%)
111-119	none
120 or more	9 (19.14%)

Majority of eclamptic patients presented with mild to moderate hypertension [80.83%]

Table 7. Systolic blood pressure at the time of admission

BP in mm Hg	
Less than 90	none
90-120	9 (19.14%)
121-140	10 (21.27%)
141-160	14 (29.28%)
More than 160	14 (29.28%)

Approximately two third patients had mild to moderate hypertension [69.69%]

Table 8. Fit – delivery interval

Time in hours	
Less than 5	8 (17.02%)
5-10	10 (21.27%)
11-15	1 (2.12%)
16-20	4 (8.51%)
More than 20	7 (14.89%)
Post partum	11 (23.40%)
undelivered	1 (2.12%)
No record	5 (10.63%)

Among antepartum cases, most patients were delivered within 24 hours.

Table 9. Mode of delivery

Spont. vaginal delivery	13 [27.65%]
Vacuum / forceps	3 [6.38%]
Caesarean section	26 [55.31%]
Twin delivery	4 [8.51%]
undelivered	1 [2.12%]

Caesarean section was the common mode of delivery among eclamptic patients.

Table 10. Recurrent fits: Number of fits after intervention.

Number of fits	
None	38 [80.85%]
1-2	7 [14.89%]
3-4	1 [2.12%]
5-6	0
7-8	1 [2.12%]
> 8	0

Only 9 patients had recurrent fits even after starting intervention.

Table 11. Hospital stay :

No. of days	
< 10	30 [63.82%]
10-20	15 [31.91%]
21-30	2 [4.25%]
> 30	none

Majority of patients were discharged within three weeks of admission .

Table12. Perinatal outcome:

Undelivered	1 [2.12%]
Total deliveries	46
Total births	50
Total live births	43 [86.00%]
Total stillbirths	7 [14.00%]
Neonatal deaths	3 [6.00%]
Premature deliveries	13[26.00%]
Low birth weight babies	23[46.00%]
No record of weight	6 [12.00%]

There were 10 perinatal deaths among eclamptic patients [20%]

Discussion

This study revealed the incidence of Eclampsia as 2.9 per 1000 deliveries i.e. 0.29% comparable to that from Patan hospital (0.24%), another hospital of Kathmandu valley⁷. This figure is lower compared to reports from other developing countries-2.2%⁸, 0.93%⁹ , though this figure is still higher than that of developed countries like the UK, where eclampsia complicates 0.05% of total deliveries.²

Eclampsia was found to be particularly common in adolescents and young pregnant women (97.22%) and primigravidas (84.60%). Acharya G et al, 1991 reported that primigravidas were mostly affected (71.42%) though Eclampsia was commonest in 20-24 years of age group (42.85%).⁷ Adolescent pregnancy constitutes about 15-20% of obstetric admission in maternity hospital and may explain the higher no. of cases of Eclampsia in this age group.

21 patients had no antenatal care (44.68%) while 26 had some antenatal care either in maternity hospital or outside (55.31%). Lack of antenatal care has been documented by several studies as risk factor for Eclampsia-93.99% patients had no antenatal care (S,Jain,et al,1988),¹⁰ 76.66% had no antenatal care (S.Swain et al,1992)⁸ but on the other hand , Douglas and Redman,1994 reported that eclampsia was seen despite antenatal care (70%) and within one week of women's last visit to a midwife or doctor (85%).² In Nepal, only 13%of obstetric population have antenatal care provided by doctors and 11% have antenatal care by nurses and midwives (Family health survey,1996).⁵ Therefore, it is not surprising that majority of patients had no antenatal surveillance in this study. Routine screening methods during antenatal check up helps to identify potential Eclamptic women but Eclampsia may not always be predictable and preventable.

Fits occurred mostly antepartum (70.21%), 3 patients were in labor (6.38%) and 11 were cases of post partum Eclampsia (23.40%). The study in the UK showed relatively higher proportion of post partum Eclampsia (44%)². Better antenatal surveillance could be correlated with lower incidence of ante partum Eclampsia in the developed world . Aetiology and pathogenesis of post partum Eclampsia is less clear so far.

Eclampsia was commonest at term pregnancy (72.34%) in this study whereas relatively more cases occurred before 37 completed weeks in the study from the UK (44%).² According to them, women with preterm Eclampsia were more severely affected compared to Eclampsia at term or post term. Majority

of women had first fit at home (70.21%) , whereas approximately one fourth of them first fitted while already in the hospital (25.53%). Study of Eclampsia in the UK showed 77% of Eclamptic patients were already admitted in the hospital before the onset of fit and only 62% of those had hypertension and proteinuria before the first fit.²

Approximately 50% of patients had severe hypertension at the time of admission whereas half of them had either no hypertension or mild hypertension. Majority of them had proteinuria at the time of admission. G. Acharya and S. Schultz, 1991 reported severe hypertension in 57.14% of cases and proteinuria in all cases at the time of admission⁷. These findings suggest that hypertension and/or proteinuria are risk factors for development of fits, but fits can also occur without preceding hypertension and or proteinuria.

Approximately half of patients underwent caesarean section{55.31%}. Caesarean section was the predominant mode of delivery among Eclamptic patients as reported by several studies. If fits are effectively controlled and patient is stabilized, clinician can await spontaneous vaginal delivery after inducing labour. Caesarean section clearly adds to morbidity in Nepalese women due to poor patient compliance for follow up and contraceptive use leading to complications of post caesarean pregnancy and delivery.

The most important maternal morbidity recognized among Eclamptic patients is recurrence of fits. With current intervention strategy, only 9 patients had recurrence of fits after intervention{19.13%}.All patients received magnesium sulphate regime except two patients who received diazepam infusion. It is understood that treatment of eclampsia is symptomatic as underlying cause is not clearly known. In general , aim of treatment in Eclampsia is prevention of further fits as it is the recurrent fits that leads to significant cerebral anoxia and associated with adverse outcome. Most clinicians agree that diazepam should be used to abort initial fit as it is effective, inexpensive, easily available and can be used by nursing staff. However, the risks include respiratory depression, respiratory arrest and aspiration pneumonia. Magnesium sulphate can also be used to abort fit but may not be immediately available.

The greater efficacy of magnesium sulphate compared to diazepam or phenytoin for prevention of recurrence of fits is now accepted worldwide^{11, 12, 13, 14}. The results of collaborative Eclampsia trial¹⁵ , the

largest multicentre randomized controlled trial, showed that in magnesium diazepam arm, there were fewer Convulsions (13.2%Vs27.9%) and a non-significant lowering of maternal mortality (3.8%Vs 5.1%) in women receiving magnesium sulphate regime, Other maternal morbidity was similar in both group but better perinatal outcome was seen in magnesium sulphate group. Use of magnesium sulphate is further supported by other studies^{16, 17, 18}.

There was no maternal death recorded in hospital statistics but one patient was taken home by relatives in a state of irreversible coma. It seems that current intervention strategy is effective to prevent deaths to internationally accepted level, i.e.<5% in Eclampsia. Higher maternal deaths were reported from India [case fatality rate- 7.8%]¹⁹.

With current intervention strategy, majority of patients were discharged within 10 days {65.82%}.Prolonged hospital stay not only put stress on the economic and social condition of family but also adds financial constrain to the hospital.

There were 10 perinatal deaths among eclamptic patients {20%}, comparatively lower than that reported of Patan hospital 31.25%⁷ and 38.6%⁸ but still higher than that reported by developed countries- 5.42%². Late arrival of patients after onset of fits results in severe intrauterine hypoxia and intrauterine death. Eclampsia occurring preterm necessitates preterm delivery . Available neonatal care facilities also determines the perinatal outcome.

Main limitation of a retrospective study is incompleteness of data due to incomplete recordings of case notes. However, it appears that current intervention strategy of managing Eclampsia and care of patients in equipped intensive care unit in maternity hospitals is effective in reducing maternal mortality and morbidity.

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