

Adverse Maternal and Fetal Outcome in Patients with Eclampsia

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ABSTRACT

Background: Eclampsia is a multisystem disorder that may lead to deterioration of maternal condition, hypoxia and acidosis of fetus. Objective was to evaluate the risk factors associated with adverse maternal and fetal outcome in patients with eclampsia.

Methods: All patients with eclampsia were enrolled after informed consent from February 2013 to February 2014. Questions as per per-forma were asked to the patients and attendants about antenatal visits, parity, number of episodes of seizures, duration from onset of seizure to magnesium sulfate, then the patients were followed as per the hospital protocol, the mode of delivery, outcome of baby, post partum maternal condition and mortality were then noted.

Results: Fifty-two patients with eclampsia were admitted in the study period. Thirty-one patients required mechanical ventilator support. Twenty-five (48.07%) patients were delivered by emergency cesarean section and 30(57.6%) babies were low birth weight and there were 11(21.1%) stillbirths. There was one maternal mortality and 45(86.5%) patients were discharged with improvement but 6(11.5%) patients had neurological impairment. Mortality was significantly related with number of seizure episodes and time interval between seizure onset and administration of magnesium sulphate.

Conclusions: Early detection of hypertension and management with magnesium sulphate for eclampsia can help to minimize the maternal and fetal adverse outcomes.

Keywords: Eclampsia; maternal mortality; risk factors.

INTRODUCTION

Eclampsia is defined as the onset of seizures in the setting of preeclampsia and without other neurologic cause with potentially life-threatening complication accountable for large numbers in morbidity and deaths among women of reproductive age and their offspring.^{1,2}

A systematic review showed that the crude incidence of eclampsia fluctuates from 0 to 0.1% in Europe and up to 4% in Nigeria; 0.6% in Brazil.^{3,4} The case fatality rate of eclampsia ranges from 0-1.8% in developed countries, up to 17.7% in India, emphasizing a huge gap in the quality of maternal health care.⁵

Hypertensive disorders contribute to approximately 9% of all maternal death. Eclampsia accounts for 16% of maternal deaths.⁶ In BPKIHS, the reported incidence of eclampsia was 1.2%.⁷ Thirty-three percent of maternal death was due to eclampsia.⁸

Our objectives were to evaluate the risk factors associated with adverse maternal and fetal outcome in patients with eclampsia.

METHODS

A prospective study for evaluating the risk factors contributing for maternal and fetal mortality and morbidity in patients of eclampsia was done from February 2012 to February 2013 in department of Obstetrics and Gynaecology, BPKIHS. All the patients admitted and referred with eclampsia were enrolled for the study after informed consent from the patients or the attendants. Questions from the per forma were asked and noted in the form regarding duration, number of episodes of seizure, duration of illness, history of hypertension, antenatal visits. Then, patients were treated as per protocol and followed up in the ward, further to take a note on regarding the type of anti-convulsant given and mode of delivery, outcome of baby and condition of mother till time of discharge.

All data were entered in excel sheet and analysis was done using spss 11. Frequency and mean were calculated. Outcome and correlation of the variables were done using chi-square test and Pearson's correlation test. P value less than 0.05 was considered significant.

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RESULTS

There were 10,000 deliveries during the study period. Fifty-two patients were admitted with eclampsia. None of the patients had antenatal visit at BPKIHS, of which 45(86%) patients were referred with seizure and 7(13.4%) developed seizure after admission. Sixteen(30%) patients were below 19 year of age and majority was between 20-25 years. Ante partum eclampsia was high as compared to postpartum eclampsia. Thirty-six(69.2%) patients had repeated seizure of more than 2 episodes. All patients received magnesium sulfate as anti-convulsant of choice (Table.1).

Table 1. Demographic variables (n=52).

Variables	No. of patients (%)	
Age	<19 y	16(30.6)
	>20y	36(69.2)
Occupation	Housewives	44(84.6)
	Working	8(15.3)
POG	<34 weeks	10(19.2)
	>35 weeks	42(80.7)
Gravida	Primigravida	25(48.07)
	Multi gravida	27(51.9)
Eclampsia	Antepartum	39(75)
	Postpartum	13(25)
Antenatal visit	Booked	0
	Unbooked	52(100)
Referred	----	45(86.5)
No. of seizure	Single	16(30.7)
	>once	36(69.2)
BP on admission	>140\90 mm Hg	47(90.38)

Emergency lower segment caesarean section was the most common mode of delivery 25(48.07%). Twenty-two (42.3%) delivered spontaneous vaginal delivery and 5(9.6%) delivered by vacuum assisted vaginal delivery. Thirty-one patients required ventilator for respiratory

support in maternal ICU. Forty-five (86.5%) patients recovered well before discharge, 6(11.5%) had some neurological impairment and there was one maternal mortality (Table.2).

Among the admitted mother, one suffered from community acquired pneumonia, one aspiration pneumonia, one developed pleural effusion and ascitis, two patients suffered from post partum psychosis.

Thirty (57.6%) babies were low birth weight and 29(55.7%) of them had abnormal apgar score in either 0, 1 and 5 minute of birth. Seven (13.4%) of them were born with meconium stained liquor and 13(25%) babies needed ICU care. Eleven (21.1%) baby were stillborn (Table.3).

Table 2. Maternal Outcome n(%).

Maternal Outcome	n(%)	
Mode of Delivery	SVD	22(42.3)
	LSCS	25(48.07)
	Instrumental Delivery	5(9.6)
ICU admission	7(13.4)	
Condition at discharge	Improved	45(86.5)
	Neurological impairment	6(11.5)
	Mortality	1(1.9)
BP at discharge	Normal	34(65.3)
	Abnormal	18(34.6)

Table 3. Neonatal outcomes n(%).

Neonatal outcomes	n(%)	
Baby weight	Normal	22(42.3)
	LBW	30(57.6)
APGAR score	>8	23(44.2)
	<7	29(55.7)
Still birth	11(21.1)	
NICU admission	13(25)	
Meconium stained liquor	7(13.4)	

Table 4. Co-relation of maternal outcome with variables (*: p<0.05).

	Seizure episodes	Seizure to mgso4 interval	referred	Admission SBP	Admission DBP	Platelet
Condition at discharge	.091	.224	.052*	.012*	.027*	.086
Maternal Death	.038*	.056*	.287	.207	.168	.085

Table 5. Co-relation of fetal outcomes with variables (*: p<0.05).

	Seizure episodes	Seizure to mgso4 interval	referred	Admission SBP	Admission DBP
Apgar Score	.182	.038*	.025*	.123	.215
Birth weight	.102	.089	.101	.141	.388

Correlation of different variables with maternal outcomes is illustrated in table.4 where it shows maternal death is significantly related to the time interval between seizure to magnesium sulfate administration and number of episode of seizure. The condition at discharge was significantly related to referred patients and blood pressure during admission.

Table 5 illustrates fetal outcomes in relation to different variables showing apgar score of the newborn was significantly related with referred patients and interval between seizure and magnesium sulfate administration.

DISCUSSION

The analysis of the 52 patients showed that regular and timely hospital visits were important, since all the patients were unbooked to our institute. Time interval from episode of seizure to treatment and number of episodes of seizure showed significant effect on maternal outcome. Few of the studies have shown similar risk factors as ours.

There were 14 maternal deaths in 100 eclampsia cases and majority of the patients were unbooked, young and primigravida.⁹

Perinatal outcome of eclampsia showed convulsion delivery interval > 12 hours, diastolic BP > 110mm Hg and Proteinuria > 3+ had significant higher perinatal death. Seventy percent babies were low birth weight. Stillbirth, prematurity and birth asphyxia were found to be most important causes of perinatal loss in eclampsia.¹⁰

Factors affecting perinatal mortality in eclampsia showed antepartum eclampsia, gestational age less than 32 weeks, convulsions more than 5, blood pressure more than 160/100 mmHg, urine albumin levels over 1+, vaginal preterm births, low birth weight babies and a lower 5th minute Apgar score influenced the adverse perinatal outcome observed. Systolic hypertension had a significant influence on perinatal deaths.¹¹

Study on fetomaternal outcomes in eclampsia showed that maternal complications occurred more frequently in those with fit to delivery time interval and fit to start of anticonvulsant time interval of more than 12 hours.¹²

CONCLUSIONS

Patients failing to get regular antenatal checkups, number of episode of seizures, time duration between anti-convulsant and seizures, low birth weights were found to be major contributing factors. Thus, health education, availability of primary health care services, measures of decreasing time taken for patients to reach to tertiary care centre should be the priority for decreasing maternal and fetal mortality and morbidity.

REFERENCES

1. American College of Obstetricians and Gynecologists; Committee on Practice Bulletins—Obstetrics. ACOG practice bulletin: diagnosis and management of preeclampsia and eclampsia. *Obstet Gynecol.* 2002; 99:159–67. [\[Link\]](#)
2. Giordano JC, Parpinelli MA, Cecetti JG, Haddad SM, Costa MC, Surita FG et al. The Burden of Eclampsia: Results from a Multicenter Study on Surveillance of Severe Maternal Morbidity in Brazil. *PloS ONE.* 2014; 9(5): e97401. [\[DOI\]](#) [\[Full Text Link\]](#)
3. Abalos E, Cuesta C, Grosso A, Chou D, Say L. Global and regional estimates of preeclampsia and eclampsia: a systematic review. *Eur J Obstet Gynecol.* 2013; 170(1):1–7. [\[DOI\]](#) [\[Science Direct\]](#)
4. Souza JP, Cecatti JG, Parpinelli MA, Sousa MH, Lago TG, Pacagnella RC et al. Maternal morbidity and near miss in the community: findings from the 2006 Brazilian demographic health survey. *BJOG.* 2010; 117(13): 1586–92. [\[DOI\]](#) [\[Full Text\]](#)
5. Ronsmans C, Campbell O. Quantifying the fall in mortality associated with interventions related to hypertensive diseases of pregnancy. *BMC Public Health.* 2011; 11 Suppl 3S8. [\[DOI\]](#) [\[Full Text Link\]](#)
6. Choudhary P. Eclampsia: a hospital based retrospective study. *Kathmandu Univ med J.* 2003; 1: 237-41. [\[Link\]](#)
7. MC Regmi, A Agrawal, T Pradhan, P Rijal, A Subedi, D Uprety. Loading dose versus standard dose regimen of magnesium sulfate in eclampsia- a randomized controlled trial. *Nepal Med coll J.* 2010; 12(4): 244-47. [\[Full Text\]](#)
8. Rijal P, Agrawal A, Pokharel H, Pradhan T, Regmi MC. Maternal Mortality: a Review from eastern Nepal. *NJOG.* 2014; 17(1):33-36. [\[Full Text\]](#)
9. Kannar A, Patel M, Prajapati S, Chavda D. A retrospective study of 100 cases of Eclampsia: perinatal outcomes. *IJRCOG.* 2016; 5(11) [\[DOI\]](#)
10. Alam IP, Akhter S. Perinatal Outcome of Eclampsia in Dhaka Medical College Hospital. *Bangladesh J ObstetGynaecol.* 2008; 23(1): 20-24. [\[Full Text\]](#)
11. Dhananjay BS, Dayananda G, Sendilkumaran D, Murthy N. A Study of factors Affecting Perinatal Mortality in Eclampsia. *JPBS.* 2009; 22(2):2-5. [\[Full Text\]](#)
12. Rayamajhi A K, Uprety D, Agrawal A Pokhrel H. Fetomaternal outcome in eclampsia. *J Nepal Med Assoc.* 2003;42:341-345. [\[Full Text\]](#)