Original Research Article

Perinatal and maternal mortality and morbidity in eclampsia

A Mahitha Reddy[1], Kiranmai Devineni[2*]

[1,2]Associate Professor, Department of Obstetrics and Gynecology, Government Maternity hospital, Hyderabad, Telangana, INDIA.
Email: kpkiranmai1@gmail.com

Abstract

Background: Eclampsia is a severe complication of preeclampsia. It's a rare but serious condition where high blood pressure results in seizures during pregnancy. **Aim:** The aim of this study is to evaluate and reduce the maternal mortality and perinatal mortality incidence associated with eclampsia. **Materials and Methods:** This is a study which was conducted in 208 cases of eclampsia conducted over a period of January 2017 to August 2017 i.e. over a period of 8 months. **Results:** In this study, 20,000 deliveries were conducted every year, out of which, 208 cases of eclampsia were observed among 14,004 cases of deliveries in 8 months period. The gestational age of >34 weeks was the highest, LSCS was observed in 43 patients, vaginal was observed in 57 patients. The number of convulsions was ≤3 in 40 patients who had LSCS, 99 patients who had vaginal delivery. The number of convulsions was greater than 3 with complications was seen in 27 patients who had LSCS, 34 patients had vaginal delivery. Complications like cerebro-vascular accident was observed in 8 patients, Haemolysis elevated liver enzyme and low platelet count syndrome (HELLP) was observed in 2 patients, renal failure was observed in 2 patients, abruption was observed in 6 patients, HTN encephalopathy was observed in 1 patient. 42/180 cases i.e. 15% of cases induced with in 2 hrs fetal survival in better and maternal recovery is also good. When induction was delayed, Perinatal outcome falls. Shorter the admission delivery interval better with be the perinatal outcome and will less maternal morbidity. Indications for LSCS were antepartum eclampsia with term gestation (33), antepartum eclampsia with obstretric labour (1), primi with face presentation (1), failed induction (22), cephalo pelvic disproportion (2), fetal distress (1), previous LSCS (1) and twins (1). Early resort to C.S. with IUGR, Doppler abnormalities and CTG abn and preterm with survivable babies in our NICU> 1.3kgs will improve perinatal survival. **Conclusion:** caesarean section done for LBW fetuses will improve the perinatal survival though fetuses with good weight may be left for vaginal deliveries.

Key Words: Perinatal mortality, Maternal Mortality, eclampsia, pre-eclampsia.

***Address for Correspondence:**
Dr. Kiranmai Devineni, Associate Professor, Department of Obstetrics and Gynecology, Government Maternity hospital, Hyderabad, Telangana, INDIA.
Email: kpkiranmai1@gmail.com
Received Date: 12/08/2018 Revised Date: 03/09/2018 Accepted Date: 21/10/2018
DOI: https://doi.org/10.26611/1012815

Access this article online

Quick Response Code:

Website: www.medpulse.in

Accessed Date: 26 October 2018

INTRODUCTION

A woman with pre-eclampsia who has an onset of seizures or convulsions is called Eclampsia. The death of women while pregnant or within 42 days of pregnancy termination irrespective of duration of pregnancy which is because of any cause or pregnancy aggrevated and not from accidental or incidental causes is called maternal mortality.[1] Risk of serious maternal morbidity and at times of death is carried by pregnancy. Pregnancy is a physiological state. Eclampsia is a serious complication of pregnancy which causes high maternal and perinatal mortality. A disorder of pregnancy in which high blood pressure and large amounts of protein in urine or other dysfunction of organ is called pre-eclampsia.[2,3] Eclampsia symptoms include convulsions and coma, and other complications are cerebro-vascular accident, pulmonary oedema, renal failure, haemolysis elevated liver enzyme and low platelet count syndrome, disseminated intravascular coagulation and hepatic failure. Maternal mortality is used to judge health care in women

population in a country which reflects public health consciousness, educational, socio-economic status of a country.[4,5] Maternal mortality decreased by 50% during period of 1990 to 2010, but is still high. All maternal deaths i.e. 99% is observed in developing countries. India has a high maternal mortality ratio. The high maternal deaths numbers in few areas are due to inadequate health services, and highlights the gap between the rich and poor.[6] Eclampsia is a major cause even though many initiatives from governments and other concerned agencies have been done in India and Sub-Saharan Africa. The disease is a rare pregnancy complication in developed countries, as effective antenatal screening programmes, advance diagnostic and therapeutic services, and extensive research are effective. In developing countries, such changes are never implied and eclampsia is a very serious problem. The aim of this study is to evaluate and reduce the maternal mortality and perinatal mortality incidence associated with eclampsia.

MATERIALS AND METHODS

This is a study which was conducted in 208 cases of eclampsia in MGMH, Hyderabad and is conducted over a period of January 2017 to August 2017 i.e. over a period of 8 months. The cases were studied in relation to age, parity, level of antenatal Care, gestational age, relation to labor, condition at the time of admission, admission Induction and admission delivery interval, mode of induction and mode of delivery. All women were evaluated in all aspects such as detailed history, measurement of blood pressure, general condition, obstetric examination, neurological status, urine protein. Investigations were done such as blood grouping, typing, complete blood platelet count, RFT, LFT, clotting time, I/O chart, Fetus was evaluated for clinical assessment of gestational age, weight, position, USG measurements such as fetal size, AFI, CTG, Doppler flow studies when needed. Eclampsia is treated by using magnesium sulphate, antihypertensives like nefidipine, labetalol, intravenous fluids line (80 ml/hr), oxygen administration, planning mode of delivery, postnatal care of mother and new born, the anti-hypertensives were continued and follow up was taken upto 4 days postnatally. The women who were pregnant with known seizure disorder were excluded from the study. This study was approved by institutional ethical committee and informed consent was taken from all the patients.

RESULTS

In this study, 20,000 deliveries were conducted every year, out of which, 208 cases of eclampsia were observed among 14,004 cases of deliveries in 8 months period.

Table 1: Demographic distribution in the study

Age Distribution (Age Range in years)			
20-25 years	80.8%		
Less than 20 years	10.6%		
Greater than 20 years	8.6%		
Parity			
Primi gravida	76.9%		
Gravida 2	12%		
Greater than Gravida 2	11.1%		
Level of antenatal care			
Antenatal visits	LSCS	Vaginal	Total
Unbooked	46	128	174
Booked	15	19	34

Table 1 shows that 80.8% were within 20-25 years, 10.6% were having less than 20 years, 8.6% were having greater than 20 years. Primi gravida was seen in 76.9% of patients, gravida 2 was seen in 12% and greater than gravida 2 was seen in 11.1%. Unbooked cases were 174 who underwent antenatal visits out of which 46 had LSCS and 128 had vaginal, 34 booked cases underwent antenatal visits out of which 15 had LSCS and vaginal was seen in 19 cases. Eclampsia is of three types namely antepartum was observed in 133 patients, intrapartum was observed in 55 patients and postpartum was observed in 20 patients. The onset of eclamptic convulsions can be antepartum in 38-53%, intrapartum was in 18-36% and postpartum in 11-44%.

Table 2: Gestational age, severity

Gestational age	LSCS	Vaginal	Total
< 28 weeks	2	18	20
28-34 weeks	16	64	80
>34 weeks	43	57	100
No. of convulsions	LSCS	Vaginal	Total
≤3	40	99	139
>3 with complications	27	34	61

Table 2 shows that the gestational age of >34 weeks was the highest, LSCS was observed in 43 patients, vaginal was observed in 57 patients. The number of convulsions was ≤3 in 40 patients who had LSCS, 99 patients who had vaginal delivery. The number of convulsions was greater than 3 with complications was seen in 27 patients who had LSCS, 34 patients had vaginal delivery. Complications like cerebro-vascular accident was observed in 8 patients, Haemolysis elevated liver enzyme and low platelet count syndrome (HELLP) was observed in 2 patients, renal failure was observed in 2 patients, abruption was observed in 6 patients, HTN encephalopathy was observed in 1 patient.

Table 3 shows that majority of patients had convulsions with blood pressure of 100-110 mm/Hg and 1/3rd had caesarean section, antihypertensives like nifedipine and labetalol IV were administered to control blood pressure. Vaginal delivery was observed in 138 patients, failed induction or LSCS was observed in 22 patients, LSCS

was observed in 40 patients and 30% of caesarean section rate which had better perinatal survival. Majority delivered by Miso + Oxytocin Induction, thus it is safe and ideal inducing agent especially for term gestation.

Table 3: Blood Pressure at time of admission, mode of induction

Diastolic blood pressure	LSCS	Vaginal	Total
<100 mm/Hg	21	32	56
100-110 mm/Hg	36	73	109
>110 mm/Hg	10	25	35
Misoprostol-oxytocin	20	84	104
Cerviprime-oxytocin	2	--	2
Oxytocin	13	--	13
Emecredyl	8	--	8
Emecredyl+Miso+LSCS	1	--	1
Arm	12	--	12

Table 4: Admission-induction interval, admission-delivery interval

Interval	Number	Fetal Conditions					
		Good	Nursery	Still Birth		IUD	
<2 Hrs	42	30	10	0		2	
2-6 Hrs	63	38	10	0		7	
>6 Hrs	75	50	4	11		10	
Time		LSCS Fetus			Vaginal		
	N	Good	N	IUD	N	Good	N	IUD
< 8 Hrs	19	12	2	5	24	20	1	3
8-24 Hrs	23	8	5	10	72	39	10	23
>24 Hrs	18	3	5	10	44	24	0	20

Table 4 shows that of 42/180 cases i.e. 15% of cases induced with in 2 hrs fetal survival in better and maternal recovery is also good. When induction was delayed, Perinatal outcome falls. Shorter the admission delivery interval better with be the perinatal outcome and will less maternal morbidity. Indications for LSCS were antepartum eclampsia with term gestation (33), antepartum eclampsia with obstretric labour (1), primi with face presentation (1), failed induction (22), cephalo pelvic disproportion (2), fetal distress (1), previous LSCS (1) and twins (1). Early resort to C.S. with IUGR, Doppler abnormalities and CTG abn and preterm with survivable babies in our NICU > 1.3kgs will improve perinatal survival.

Table 5: Perinatal outcome according to gestational age, fetal weight

Gest. Age	LSCS				Vaginal			
	N	Good	N	IUD	N	Good	N	IUD
<28 wks	3	1	0	2	13	1	3	9
28-34 wks	13	10	2	1	58	27	5	26
>34 wks	45	43	-	2	48	36	-	12
Fetal Wt.		LSCS				Vaginal		
	N	Good		Death	N	Good	ND	IUD
< 1 Kg	--	--		--	9	--	3	6
1-1.5 Kg	3	2		1	42	16	15	11
1.6-2 Kg	16	15		1	23	15	5	3
2.1-2.5 Kg	30	27		3	25	19	4	2
>2.5 Kg	12	12		--	16	11	3	2

Table 5 shows that LSCS gives better perinatal outcome than vaginal delivery. Perinatal outcome is better as the fetal weight in increasing earlier resort to caesarean section in LBW babies with further increase the perinatal survival specially with NICU care. 1.6-2 Kg Group, 15/16 LSCS Group (i.e.) 93.75% of babies. Survived, same age group left of vaginal (Excluding IUD) 15/20 babies survived (i.e.) 75% only.

DISCUSSION

C K Rajamma *et al*; reported that 9.1% of the total deliveries accounted for hypertensive cases complicating pregnancy, out of which gestational hypertension accounted for 3%, pre-eclampsia 5.5%, and eclampsia 0.7%. In this study, a maximum case were seen in the age groups 20-30 in primigravida belonging to low socio-economic strata. The majority of patients detected to have

high blood pressure at 32-36 weeks of gestation, and a mean gestational age of 35 weeks. Hemolysis, elevated liver enzymes, and low platelets syndrome was the most common maternal complication and intrauterine growth restriction, the most common fetal complication. 21 cases followed by abruptio placentae, acute renal failure, postpartum hemorrhage, and postpartum eclampsia. Maternal mortality occurred in one case. Prematurity/preterm was the most common cause of perinatal death whereas in our study, 80.8% were within 20-25 years, 10.6% were having less than 20 years, 8.6% were having greater than 20 years. Primi gravida was seen in 76.9% of patients, gravida 2 was seen in 12% and greater than gravida 2 was seen in 11.1%. Unbooked cases were 174 who underwent antenatal visits out of which 46 had LSCS and 128 had vaginal, 34 booked cases underwent antenatal visits out of which 15 had LSCS and vaginal was seen in 19 cases. Eclampsia is of three types namely antepartum was observed in 133 patients, intrapartum was observed in 55 patients and postpartum was observed in 20 patients[7]. Baba M Sibai *et al*; reported that 254 cases of eclampsia were managed at this center during a 12 year period, Eighty patients (32%) did not have edema, 58 (23%) had relative hypertension and 49 (19%) did not have proteinuria at the time of convulsions. Eclampsia developed at ≤ 20 weeks in 6 patients and beyond 48 hours post partum in 40 (16%). Convulsions developed in 33 while they were receiving standard doses of magnesium sulfate for preeclampsia during or after birth, and subsequent seizures developed in 36 (14%) after magnesium sulfate therapy was started. There was one maternal death (0.4%) and morbidity was frequent (acute renal failure, 4.7%; pulmonary edema, 4.3%; cardiorespiratory arrest, 3.1%; and aspiration, 2%. The use of multiple drug therapy was associated with significant maternal and neonatal complications. The total perinatal mortality was 11.8%, with the majority of them related to either abruptio placentae or extreme prematurity whereas the gestational age of >34 weeks was the highest, LSCS was observed in 43 patients, vaginal was observed in 57 patients. The number of convulsions was ≤3 in 40 patients who had LSCS, 99 patients who had vaginal delivery. The number of convulsions was greater than 3 with complications was seen in 27 patients who had LSCS, 34 patients had vaginal delivery. Complications like cerebro-vascular accident was observed in 8 patients, Haemolysis elevated liver enzyme and low platelet count syndrome (HELLP) was observed in 2 patients, renal failure was observed in 2 patients, abruption was observed in 6 patients, HTN encephalopathy was observed in 1 patient.[8] Augustin Conde Agudelo *et al*; reported that After an adjustment for 16 major confounding factors, adolescents aged 15 years or younger had higher risks for maternal death, early neonatal death, and anemia compared with women aged 20 to 24 years. Moreover, all age groups of adolescents had higher risks for postpartum hemorrhage, puerperal endometritis, operative vaginal delivery, episiotomy, low birth weight, preterm delivery, and small-for-gestational-age infants. All adolescent mothers had lower risks for cesarean delivery, third-trimester bleeding, and gestational diabetes.[9] Baba M Sibai *et al*; conducted a study in which 112 severe preeclamptic-eclamptic patients with the above syndrome were studied during 8 year period. The incidence of this syndrome was significantly higher in white patients, in patients with delayed diagnosis of preeclampsia and/or delayed delivery, and in multiparous patients. Twenty-six patients had amniocentesis and 16 received opidural anesthetics. There was one maternal bleeding episode associated with epidural anesthetics. The use of steroids in 17 patients did not improve maternal platelet count. The overall perinatal mortality was 367 per 1000 and neonatal morbidity was significant. There were two maternal deaths and two patients with ruptured liver hematoma, and nine had acute renal failure. Thirty-eight percent had intravascular coagulopathy and 20% had abruptio placentae. On follow-up, 44 patients used oral contraceptives without maternal morbidity and 38 patients had 49 subsequent pregnancies. Only one patient had recurrence of the syndrome in subsequent pregnancies.[10] Bassam Haddad *et al*; reported that the days of pregnancy prolongation were significantly higher among those managed at less than 29 weeks (6) compared with the other groups (4). There were 13 perinatal deaths: 12 in those managed at less than 29 weeks and 1 in those managed at 29 to 31 weeks. Neonatal morbidities were significantly higher among those managed at less than 29 weeks compared with the other groups. There were no instances of maternal death or eclampsia. Maternal morbidities were similar among the groups.[11]

CONCLUSION

Perinatal outcome is better as the fetal weight in increasing earlier resort to caesarean section in LBW babies with further increase the perinatal survival specially with NICU care. 1.6-2 Kg Group – 15/16 LSCS Group (i.e.) 93.75% of babies. Survived, same age group left of vaginal (Excluding IUD) 15/20 babies survived (i.e.) 75% only. Thus caesarean section done for LBW fetuses will improve the perinatal survival though fetuses with good weight may be left for vaginal deliveries.

REFERENCES

1. Majhi AK, Chakraborty PS, Mukhopadhaya A. Eclampsia-present scenario in a referred medical college hospital. J Obstet Gynaecol India 2001; 51:143-7.
2. Shear RM, Rinfret D, Leduc L. Should we offer expectant management in cases of severe preterm preeclampsia with fetal growth restriction? Am J Obstet Gynecol 2005; 192:1119-25.
3. Garner PR, D'Alton ME, Dudley DK, Huard P, Hardie M. Preeclampsia in diabetic pregnancies. Am J Obstet Gynecol 1990; 163:505-8.
4. Shaheen S, Tahir S. Management and outcome of severe pre-eclampsia. APMC 2008; 2:30.
5. Sullivan CA, Magann EF, Perry KG Jr, Roberts WE, Blake PG, Martin JN Jr.The recurrence risk of the syndrome of hemolysis, elevated liver enzymes, and low platelets (HELLP) in subsequent gestations. Am J Obstet Gynecol 1994; 171:940-3.
6. Alokendu C, Geeta B. Management of severe hypertension in pregnancy. J Obstet Gynaecol India 2000; 50:111-5.
7. C K Rajamma, P Sridevi; Maternal and perinatal mortality and morbidity in hypertensive disorder complicating pregnancy; International Journal of scientific study; February 2016; Vol 3; Issue 11; 206-209.
8. Baba M Sibai, Maternal-perinatal outcome in 254 consecutive cases of Eclampsia, American Journal of Obstetrics and Gynaecology; September 1990, Volume 163, Issue 3, Pages 1049–1054.
9. AgustinConde-AgudeloMD, MPH[ab]José M.Belizán MD, PhD[b]CristinaLammersMD, MPH; Maternal-perinatal morbidity and mortality associated with adolescent pregnancy in Latin America: Cross-sectional study; American Journal of Obstetrics and Gynecology; Volume 192, Issue 2, February 2005, Pages 342-349.
10. Baba M Sibai, Mark M Taslimi, Adel El Nazer, Erol Amon, Bill C Mabie, George M Ryan; Maternal-perinatal outcome associated with the syndrome of hemolysis, elevated liver enzymes, and low platelets in severe preeclampsia-eclampsia; American Journal of Obstetrics and Gynecology; September 1986; Volume 155, Issue 3, pg 461-690.
11. Bassam Haddad, Stephanie Deis, Francois Goffinet, Bernard J Paniel, Dominique Cabrol, Maternal and perinatal outcomes during expectant management of 239 severe preeclamptic women between 24 and 33 weeks' gestation; American Journal of Obstetrics and Gynecology; volume 190, Issue 6, June 2004, Pg 1590-1595.

Source of Support: None Declared
Conflict of Interest: None Declared