Complications of Eclampsia in 100 Consecutive Cases (Complicated Eclampsia)

A. R. Mahale[1*], A. U.Patil[2#]

[1]Professor and Head, Department of OBGY

MIMSR Medical College, Vishwanathpuram, Ambajogai Road, Latur - 413531, Maharashtra, INDIA.

[2]Medical Officer, Rural Hospital, Wani-422215, Dindori, Nashik, Maharashtra, INDIA.

Corresponding Addresses:

[*]mahales@hotmail.com, [#]abhiluvme@rediffmail.com

Research Article

Abstract: **Objectives:** To know the incidence of complicated eclampsia, maternal and perinatal mortality in complicated eclampsia and the socio - economic profile of eclampsia patient. **Methods:** It is an observational prospective study of cases of eclampsia at a district hospital setup. Clinical and laboratory data of 100 consecutive eclampsia admissions was analyzed to know the incidence of complicated eclampsia and the nature of complications. The maternal and perinatal mortality was compared in two groups of eclampsia, complicated and uncomplicated. Z-test and chi-sq test were used for comparison. **Results:** The incidence of eclampsia was 1for 32 cases of pregnancies. 15% cases were of complicated eclampsia. The socio-economic status of complicated and uncomplicated eclampsia did not differ statistically. All maternal deaths (6/15) have occurred in complicated group, having more than one organ system affection. Perinatal mortality is not significantly different in complicated and uncomplicated eclampsia. Magnesium sulphate is still not commonly used in periphery. **Conclusion:** categorizing eclampsia into complicated and uncomplicated helps to know prognosis and plan medical care. There is need to introduce magnesium sulphate to peripheral practitioners.

Keywords: Eclampsia, Complicated eclampsia, Maternal mortality.

Introduction

Pre- eclampsia, eclampsia are unpredictable multi- organ disorders unique to human pregnancy. Eclampsia complicating human pregnancy is common and forms one of the deadly triad, along with hemorrhage and infection. It is associated with significant maternal and neonatal morbidity and mortality worldwide. Its incidence is 1 in 500 to 1 In 30 pregnancies in India[1]. It is estimated that in developing countries 10% of all maternal death are associated with eclampsia[2]. Complications responsible for most maternal death include cerebrovascular accident (hemorrhage, thrombosis) pulmonary edema, cardiac arrest, and renal, hepatic and respiratory failure. Conde-Angudelo and Kafury - Goeta divided eclampsia into uncomplicated and complicated.[3] They defined complicated eclampsia as eclampsia complicated by intracerebral hemorrhage, pulmonary edema, disseminated intravascular coagulation, abruptio placentae, HELLP syndrome, pulmonary aspiration, renal, hepatic or respiratory failure. Research in understanding of pathophysiology of eclampsia, popularization of magnesium sulphate regimen for convulsion control and opening of field of critical care in obstetrics has made this classification possible. The eclampsia patient converting into complicated eclampsia is stopped by keen observation and timely intervention to halt pathogenetic process. This would lead to decrease in multi- system complication, maternal morbidity and mortality. Purpose of this study was to study the incidence of complicated eclampsia, maternal and perinatal mortality associated with it and to know the socio-economic profile of eclampsia patient.

Material and Methods

From 27 May 2006 to 31st Dec. 2006, 100 consecutive eclampsia patient treated prospectively in Government Medical College and Gurugovind Singhji Memorial Hospital Nanded were analysed. It is a district hospital where patients are referred from places in approximately 100 Km. radiuses. It serves urban as well as rural population. Most patients belong to low and low-mid socio-economic class. Clinical and laboratory data of 100-eclampsia patient was analyzed to know the incidence of complicated eclampsia and the nature of complications. Eclampsia cases for inclusion in this study were defined as- Seizures occurring antepartum after completing 20 weeks of pregnancy, intrapartum, postpartum in the presence of clinical features of preeclampsia that cannot be attributed to other causes. Complicated case of eclampsia was defined as eclampsia complicated by intracerebral hemorrhage, pulmonary edema, disseminated intravascular coagulation, abruptio placentae, hemolysis, elevated liver enzymes, low platelet (HELLP) syndrome, pulmonary aspiration or renal, hepatic or respiratory failures[3]. During the study period the management of eclampsia patient remained unchanged and it continued as per the protocol practiced earlier. All cases diagnosed to have eclampsia by the

specialist on duty (lecturer) were included in the study. Cases where mark "?" was put, before diagnosis- "eclampsia", were not included. All cases of eclampsia that developed complications listed in above definition any time after admission along with all those cases who were admitted with complications were included in the study. Total 100 consecutive admissions of eclampsia were included in this study. Eclamptic women those coming from Gram Panchayat area were considered rural and those coming from Nagarpalika and Mahanagarpalika were considered as urban. Combining clinical features and laboratory data did diagnosis of complicated eclampsia. Hb%, Blood Group, Urine, Albumin, Sugar, Coagulation profile (Bleeding time, Clotting time), Liver function tests, Kidney function tests were available for all cases. Opthalmic fundus examination, ultrasonography of abdomen was subject to availability of experts. Platelet count was available to all cases only during office hours and was therefore offered to cases, which continued to need it even after emergency hours. CT scan of brain was advised only in those cases where patients were comatose for more than 12 hours, and hospital regulations permitted. As per hospital rules, patient pay for cost of CT scan if not belonging to "below poverty line" category. X-ray chest was advised for all those cases that had adventitious sounds on auscultation. The maternal and perinatal mortality were analysed. Socio-economic status was assessed. Statistician was involved in sample size calculation and data analysis. The incidence of eclampsia in India is 1 in 500 pregnancies to 1 in 30 pregnancies. At our institution it is 3 in 100 labour room admissions. This gives p1= 0.20%, p2 =3.33%, p= 3.00%. Therefore, $n = z^2pq/ (p1-p2)^2$; = 4x 3x 97= 118. So, n for this study was decided as 100 (sample size). Statistical tests used in analyzing data in this study are z-test, chi-sq test, t-test (for proportion, for incidence).

Results

The study was carried over a period of 5 months from 27.05.2006 to 06.11.2006. During this period, there were 3228 births. Incidence of eclampsia is 30.97 / 1000 births. 15 women belonged to complicated eclampsia group giving an incidence of 4.64 / 1000 births. Incidence of uncomplicated eclampsia (85 cases) is 26.33 / 1000 birth.

Table 1: Eclampsia type, survival and death

	Complicated (n=15)			**Uncomplicated (n=85)**			**Total**
	Ante-partum	**Intra-partum**	**Post-partum**	**Ante-partum**	**Intra-partum**	**Post-partum**	
Survival	8	1	-----	66	2	17	94
Death	4	1	1	-----	-----	----	6
Total	12	2	1	66	2	17	100

Table-1 shows distribution of cases according to type of eclampsia, and its relation to death and survival. There were no deaths in uncomplicated group, all the six deaths occurred in women having complications.

Table 2: Social status

	Complicated	**Uncomplicated**	**Total**	**Statistical tests**
Rural (%)	14 (17.72%)	65 (82.27%)	79	Chi-sq test, p>0.05. No significant difference
Urban (%)	01 (4.76%)	20 (95.24%)	21	
Unregistered Cases (%)	12 (80.00)	55 (64.71)	67	Chi-sq test, p>0.05. No significant difference
Registered Cases (%)	03 (20.00)	30 (30.29)	33	
Average Income In Rs. (Range) ± SD	Rs.1253.33 (500 to 4000) ± 1315.73	Rs.1242.35 (100 to 10000) ± 923.40		t-test, p>0.05. No significant difference

The residential status (urban/ rural), antenatal registration status, and the economic status (average income), did not differ in complicated and un-complicated groups (Table-2).

Table 3: Type of complication and survival

S. No.	**Case No.**	**Complications**	**Outcome**
1	05	ARF, HELLP syndrome	Survived
2	11	DIC, Aspiration Pneumonitis	Mortality
3	29	Pulmonary Edema, Respiratory Failure	Mortality
4	30	DIC, ARF, Septicemic Shock	Mortality
5	45	ARF, Respiratory Failure	Survived
6	61	HELLP Syndrome, DIC Hepatic failure	Mortality
7	64	ARDS, ARF, Cerebral Infarcts	Mortality

8	84	Respiratory Failure, Intracranial Hemorrhage	Mortality
9	88	ARF, HELLP Syndrome	Survived
10	50	HELLP Syndrome	Survived
11	51	Pulmonary Edema	Survived
12	52	Pulmonary Edema	Survived
13	74	Abruptio Placentae	Survived
14	75	ARF	Survived
15	97	ARF	Survived

Only three cases having multisystem affection survived, rest 6 died. Single system complication cases did not culminate into death.

Out of 15 complicated cases 9 cases had muti-organ affection, 6 died from this group. No woman died from group of six cases, which had only single organ affection (Table 3).

Table 4: Types of Complications

Complications	No. of Cases	Percentage
Renal Failure	07	25
* HELLP Syndrome	04	14.28
Pulmonary Edema	03	10.71
DIC	03	10.71
Cerebral Edema	03	10.71
Respiratory Failure	03	10.71
Intracerebral hemorrhage	02	7.14
Abruptio placentae	01	3.57
Pulmonary aspiration	01	3.57
Hepatic failure	01	3.57
Atonic PPH	01	3.57
Total	29	

Many cases had more than one complication hence the no. of cases is 28 instead of 15. *HELLP Syndrome includes partial as well as complete.

The commonest complication was renal failure (7 cases); next common was HELLP Syndrome (4 cases). The other complications were intracerebral hemorrhage (2 cases), disseminated intravascular coagulation (3 cases), cerebral edema (3 cases), pulmonary complications were described in 7 instances (edema 3 cases, aspiration 1 case, respiratory failure 3 cases), hepatic failure, placental abruption and atonic pph in one case each. Many cases had more than one complication (Table 4).

Table 5: Drugs used at peripheral Hospitals (n=29)

Drugs	Complicated	%	Uncomplicated	%	Total
Inj. MgSO4	3	20.00	8	9.41	11
Inj. Diazepam	2	13.33	18	21.17	20
Tab. Nifodepin	2	13.33	15	7.64	17
Inj. Mannitol	0	0	1	1.17	1
Inj. Phenytoin Sodium	1	6.66	1	1.17	2
Inj. Frusemide	0	0	1	1.17	1
Inj. Promethazine (Phenargan)	1	6.66	2	2.35	3
Tab. Alpha Methyl- dopa	0	0	2	2.35	2

Diazepam is more frequently used at periphery than magnesium sulphate.

Perinatal mortality did not differ statistically in complicated and uncomplicated groups. 15 complicated cases had 8 perinatal losses, 85 uncomplicated cases had 26 perinatal losses (z test; $p>0.05$, insignificant difference). Referral notes were analyzed to know the treatment given by referring doctor (Table 5). These referring doctors used magnesium sulfate in very few cases; diazepam was commonly used.

Discussion

Eclampsia is one of the most dreaded complications of pregnancy. Because of its suddenness the patient's relatives are apprehensive and are interested in knowing the prognosis. Treating doctor needs to give an answer that is supported by scientific data. In this regard categorization of eclampsia patients into complicated and uncomplicated is helpful. This categorization can be explained to the patient's relatives using obvious clinical data and laboratory reports. As complicated eclampsia has a definite risk of death, this categorization also helps in decision of transferring patients to critical care units. After establishing diagnosis of eclampsia, which is often easy, the patient should be rapidly and thoroughly

assessed for complications. For this clinical data, laboratory investigation and imaging techniques need to be used. This should become a standard practice in eclampsia management. In spite of worldwide proven success of magnesium sulphate in controlling eclampsia convulsions, peripheral healthcare practitioners are still seen to use other less effective drugs. Linking evidence-based medicine to the drug marketing-cum-doctor education might help rapid spread of right messages to the peripheral doctors.

Conclusion

Although eclampsia in itself is a complication of pregnancy, it needs to be categorized into complicated and uncomplicated depending upon the presence (complicated) or absence (uncomplicated) of organ/ system dysfunction or failure. In this observational study, uncomplicated eclampsia group had no maternal mortality. Six deaths, from this study of 100 cases of eclampsia, belonged to complicated eclampsia group. All these 6 cases had more than one organ dysfunction; cases of complicated eclampsia having single organ dysfunction had no deaths. Thus eclampsia cases having organ/ system dysfunction should be transferred to and cared in critical care units, and should be made aware of possible bad outcome. Magnesium sulfate is yet unknown to many peripheral doctors.

References

1. Dutta D.C., Hypertensive disorder in pregnancies, In : Text book of obstetrics 6th Edition, Culcutta, Central, 2004, P-233.
2. Duley L. Maternal mortality associated with hypertensive disorder of pregnancy in Africa, Asia, Latin America and the caribbean Br. J. Obstet Gynaecol 1992 ; 99 : 547- 53.
3. Conde - Angudelo, Kafury - Goeta. Case control study of risk factors for complicated eclampsia. Obstet Gynecol 1997 : 90 : 172 - 5.