

MATERNAL MORTALITY IN ECLAMPSIA

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SUMMARY

A retrospective study carried out at Lokmanya Tilak Municipal General Hospital, Mumbai, to analyse the maternal deaths due to eclampsia. Out of 737 cases of eclampsia treated in the hospital between January 1975 and December 1992, the maternal mortality was 10.72%, which comprised 14.08% of all maternal deaths. Cardiorespiratory problems were the major cause of death, pulmonary oedema being the commonest cause. Multi-organ involvement was found in 84.6% of the cases where autopsy was done. Magnesium sulphate was the safest anti-convulsant agent. Improvement of antenatal care and peripheral centres appears to be the only solution to bring down the mortality rate.

INTRODUCTION

The incidence of eclampsia is an index of civilisation of a country, if by civilisation we mean education and antenatal supervision. Though the incidence of eclampsia and the consequent maternal mortality and morbidity has been brought down drastically in the developed world, in many developing countries the incidence is still

very high. It is a matter of grave concern that the maternal mortality in eclampsia is alarmingly high in some developing countries. This study is an exercise in self introspection. Its aim was to analyse the maternal deaths occurring in patients of eclampsia in a central institute in a developing country.

MATERIAL AND METHODS

A retrospective study was carried out at Lokmanya Tilak Municipal General

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Hospital, Mumbai, in which a comprehensive analysis of 737 cases of eclampsia was done. These patients were managed at the hospital between January 1975 and December 1992, a period of 18 years.

In our study, the incidence of eclampsia was 0.73%. 93.4% of the patients did not have regular antenatal care (less than 3 visits); 62.5% of the patients were primigravidae and 9.9% were grand multipara. 76% of the case were transferred to the hospital from peripheral hospitals or private doctors. In 61.2% cases the period of gestation was more than 37 weeks while in 8.7% cases it was less than 28 weeks. Antepartum eclampsia comprised 51.2% of the cases while intrapartum and postpartum eclampsia comprised 37.5% and 11.4% respectively. 54.5% of the patients had a normal vaginal delivery, 35.7% had operative vaginal delivery and 9.7% underwent a caesarean section. 15 patients died undelivered.

Anti-convulsant regime generally used included lytic cocktail (Menon 1961) in the earlier part of the study and magnesium

sulphate by the Parkland Memorial Hospital regime (Pritchard et al 1984) in the later part of the study. Moreover, in the early part of the study, intravenous thiopentone was used in the more serious cases.

An autopsy was performed in most of the cases to find out the cause of death.

RESULTS AND DISCUSSION

Table I shows a available literature indicates that maternal mortality in eclampsia varies between 0 - 13.5% (Pritchard et al 1984, Fish et al 1972, Porapakham 1979, Lopez Llera et al 1976, Wightman et al 1978, Sibai et al 1981, Menon 1961, Lean et al 1968). In our study the overall mortality rate is 10.74%. However, there is an increase in the maternal mortality of almost two fold in 1985-92 compared to 1975-84; and this is possibly due to the improvement in transport and communications. Two decades ago many patients would have died in the peripheral centres or in transit who today manage to reach the hospital alive, albeit moribund.

Table I
MATERNAL MORTALITY IN ECLAMPSIA

Period	Eclampsia cases	Maternal mortality (%)
1975-80	243	19 (7.82)
1981-84	174	13 (7.48)
1985-88	197	29 (14.72)
1989-92	123	18 (14.63)
Total	737	79 (10.72)

Table II
MATERNAL MORTALITY IN ECLAMPSIA IN
RELATION TO TOTAL MATERNAL DEATHS

Period	Maternal deaths in eclampsia	Total maternal deaths	%
1975-80	19	143	13.29
1981-84	13	114	11.40
1985-88	29	143	20.28
1989-92	18	161	11.18
Total	79	561	14.08

Table III
MATERNAL MORTALITY IN DIFFERENT
ANTECONVULSANT REGIME

Author	Regime	Number of cases	Maternal Mortality (%)
Browne (1950)	Thiopentone	26	7.6
Menon (1961)	Thiopentone	75	16
Our Study	Thiopentone	18	96
Menon (1961)	Lytic Cocktail	402	2.2
Our study	Lytic Cocktail	474	12
Zuspan et al (1964)	Magnesium sulphate IV	59	3.4
Pritchard et al (1984)	Magnesium sulphate IV & IM	245	0.4
Our study	Magnesium sulphate IV & IM	215	6
Kawathekar et al (1973)	Diazepam	16	6.3
Lean et al (1968)	Diazepam	68	5

Table II shows different studies that deaths due to eclampsia (or severe toxæmia) contribute to about 9.6 to 24.3% of all maternal deaths (Atrash et al 1990, Rochat et al 1988, Fish et al 1972, Hibbard 1993).

Table III shows that the view point of maternal safety, magnesium sulphate therapy (intravenous and intramuscular) appears to be the anticonvulsant of choice. Lytic cocktail therapy impairs the level of consciousness of the patient with depression of protective reflexes, and increases the incidence of aspiration pneumonitis. Our experience with diazepam is limited; however, its adverse effects on the baby has limited its use. Intravenous phenytoin has been tried in cases of pre-eclampsia with encouraging results, but its role in eclampsia is yet to be evaluated. One other smaller study has reported no mortality with diazepam and 2% mortality with magnesium sulphate (Crowther 1990).

Table IV shows cardio respiratory causes appear to be the commonest cause of deaths in eclampsia, though cerebrovascular and central nervous system complications have been found to be the commonest cause of death in other studies (Atrash et al 1990, Porapakkam 1979, Hibbard 1973).

Table V shows one reason for the high mortality rate is misdiagnosis of eclampsia, where other central nervous system disorders are diagnosed and treated as eclampsia and sometimes add to the mortality. We even had a case of intracerebral teniasis presenting as eclampsia, where correct diagnosis was established only after a computed tomography of the brain. We recommend that a CT scan of the brain is essential whenever there is slightest doubt about the diagnosis.

Table IV
CAUSES OF MATERNAL DEATH IN ECLAMPSIA

Years	1975-80	1981-84	1985-88	1989-92	Total	(%)
Cerebro-vascular	5	5	7	7	24	(30.4)
Cardio-respiratory	7	5	15	5	32	(40.5)
Renal	6	2	3	4	15	(19.0)
Hepatic	1	-	1	1	3	
Post-partum shock	-	1	3	-	4	
Others	-	-	-	1	1	

Associated DIC - 4 cases

Table V
POST MORTEM FINDINGS IN CEREBROVASCULAR
CAUSES (N = 18)

Findings	Number of cases	%
Cerebral oedema	6	33.3
Subarachnoid Haemorrhage	4	22.2
Intraventricular Haemorrhage	1	
Cerebral Infarction	1	
Subdural Haematoma	1 :	
Cerebral Abscess	1 :	
Cerebral Malaria	1 : Unrelated	33.3
Pyogenic Meningitis	2 : Finding	
No Positive Findings	1 :	

Table VI
POST MORTEM FINDINGS IN CARDIORESPIRATORY
CAUSES (N = 24)

Findings	Number of cases	(%)
Pulmonary Haemorrhage and A.R.D.S.	3	(12.5)
Bronchopneumonia	4	(16.7)
Pulmonary Oedema	11	(45.8)
Aspiration	4	(16.7)
No Positive Findings	2	(8.3)

Table VI shows all over the developing world the commonest cause of death in eclampsia has been established as cerebrovascular complications in general,

Table VII
ORGAN INVOLVEMENT IN AUTOPSY

Number of organs involved	Number of Cases	(%)
0	1	(1.9)
1	7	(13.5)
2	9	(17.3)
3	17	(32.7)
4	18	(34.6)

and intracranial haemorrhage in particular. However, in our study, cardio-respiratory complications, and more specifically pulmonary oedema is the commonest cause of death. Pulmonary oedema secondary to aspiration pneumonia is a not-so-uncommon complication of lytic cocktail regimen, a therapy which was quite popular in India (including our institution) earlier. The incidence of aspiration pneumonia has somewhat decreased because of discontinuation of the use of lytic cocktail.

Table VII shows that eclampsia is a multi organ system disorder. Similar observation has been made earlier (Lopez et al 1976) and kidney has been found to be the organ most commonly involved.

CONCLUSION

Eclampsia still remains a major cause of concern on our smooth sailing to a healthier world. It is indeed surprising to see the high incidence of eclampsia and the

consequent high mortality rate even in the nineties. While giant leaps have been taken in the field of obstetrics, there are areas in the developing countries where primary health care is virtually non-existent. This study, in a way, highlights the unbalanced approach to health problems. On one hand the tertiary hospitals are equipped with latest state-of-the-art equipments, while in the rural areas primary health care exists only on paper! This puts a heavy burden on the tertiary hospitals and because in a country like India the distances are very large, the problem of late referrals compounds the complication rate. Antenatal care has to be disseminated to reach the most under-privileged. The ultimate answer undoubtedly lies in improving the social, economic and educational status of women. The immediate task is to improve primary health care.

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