Research Paper

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A Study on Outcome of Antepartum Eclampsia. An Analysis of Factors Contributing to Zero Maternal Mortality in An Institute

Medical Science

KEYWORDS : Eclampsia, maternal mortality, morbidity, MgSO4

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ABSTRACT

Eclampsia is a serious and preventable complication of Preeclampsia contributing significantly to serious maternal morbidity and mortality. This is a retrospective study done between July 2014 to June 2015 (1 year) at a District level, teaching hospital. Majority of the women were Primi, unbooked and 36weeks or more into their pregnancy. All received MgSO4 and antihypertensives. 80% of the women were delivered within 12hrs of convulsions. All the women were delivered within 24 hours of onset of convulsions. 25% had vaginal delivery. 75% (24) had Emergency Caesarean Section. Perinatal mortality was 15%. There were no maternal deaths. Though early screening for Preeclampsia with regular antenatal checkups is ideal to prevent Eclampsia, it may not be achievable due to remote locations, lack of transportation and illiteracy. Timely referral, MgSO4, antihypertensives, delivery within 12hours after convulsions and multidisciplinary management can ensure good outcome in Eclampsia.

Introduction:

Eclampsia is a serious and preventable complication of Preeclampsia contributing significantly to serious maternal morbidity and mortality. It is categorized as high risk pregnancy due to associated complications such as Renal Failure, Disseminated Intravascular Coagulation, HELLP syndrome and coma. When Preeclampsia is detected early by regular antenatal checkups, judicious and timely intervention can prevent Eclampsia. Multidisciplinary management involving Obstetrician, Neonatologist, Anaesthetist and Intensivist is highly recommended for good outcome.

Background:

Our study is carried out at a District level, teaching hospital where 80% of patients are unbooked and from low socio economic strata.

Aims:

1) To study the outcome of pregnancy, 2) to study maternal, neonatal mortality and serious maternal morbidity 3) to determine factors contributing to zero maternal mortality

Materials and methods:

This is a retrospective study done by analysing all the women who were admitted with Antepartum Eclampsia between July 2014 to June 2015 (1 year).

Results:

In one year there were 32 cases of Antepartum Eclampsia. Majority, 75% of the women were young, in the age group of 18-23yrs, 22% were between 24-27yrs. All the women were from rural areas. The distance from where the eclamptic women came to the hospital varied from 20-100km. 31% were referred from other hospitals and 69% were direct arrivals. 82% were primis and multipara>1 were 18%. 75% of women were 36weeks or more into their pregnancy and 25% were between 32-36weeks(Table 1).

Table 1.

Major parameters		percentage
Age	18-23yrs	75%
	24-27yrs	22%
Arrival pattern	Referred	31%
	Direct arrival	69%
Parity	Primi	82%
	Para>1	18%
GA	32-36wks	25%
	>36wks	75%

Only 12.5% were booked cases and 87.5% were unbooked cases. History of Preeclampsia was present in 22%. This group highlights the percentage of women inspite of having been diagnosed with Preeclamsia, could have been prevented from developing Eclampsia. 78% did not have documentation of HTN. One patient underwent bilateral cardiac valve replacement 6years ago.

All the women received MgSo4 according to Pritchard's regime and those women who were referred from other hospitals received loading dose of MgSO4. Labetalol and Nifedipine were the antihypertensives used. Liver function tests, Renal function tests and coagulation profile were done in all the women. 80% of the women were delivered within 12hrs of convulsions. All the women were delivered within 24 hours of onset of convulsions.

Mode of delivery- 25% had vaginal delivery. 75% (24) had Emergency Caesarean Section under spinal anaesthesia. Birth weight of the babies-60.6% of the babies were above 2kg weight and 39.4% were under 2kg weight. There were 5 neonatal deaths. Perinatal mortality was 15%. 8 babies were admitted in NICU. There were no intraoperative or post operative complications. 3 women were admitted in ICU. Maximum stay in ICU was 3days. There were no maternal deaths.(Table 2).

Table 2.

characteristic		percentage
Mode of delivery	Vaginal	25%
	Caesarean section	75%
Convulsion- delivery interval	<12hours	80%
	12-24hours	20%
Birth weight	<2kg	39.4%
	>2kg	60.6%
mortality	perinatal	15%
	maternal	0%

Discussion: WHO estimates Maternal mortality ratio in 2013 as 190/100,000.(1). After haemorrhage and sepsis as direct causes of maternal mortality, Hypertension is cause for mortality in 10% of cases(2). Overall 600,000 women die every year throughout the world due to pregnancy related complications and 50,000 deaths are attributed to Preeclampsia and Eclampsia.(1). Incidence of Hypertensive disorders in India is found to be 10.08 % as observed through the data collected by the National Eclampsia Registry (NER) over the past 3 years. The incidence of Eclampsia is 2.3%.(3)

The incidence of Eclampsia in our study was 2.67%. This is similar to the incidence reported in other studies based in different parts of India.

Treatment of Eclampsia consists of resuscitation, MgSO4, Antihypertensives, timely delivery and careful fluid management. Maternal Mortality has reduced significantly since the introduction of MgSO4 for prevention and treatment of eclampsia(17,18). Other than MgSO4, mode of delivery and time interval between convulsions and delivery significantly affect both perinatal and

maternal outcome.

It is clear that treatment of eclampsia is delivery and vaginal delivery may be achieved either spontaneously or by induction of labour if the bishops score is >6. However if it is estimated that time interval may be prolonged as in cases of unfavourable cervix in awaiting normal delivery, then it is recommended to go for Caesarean Section.

The studies which have analyzed the causes for death in patients with Eclampsia, factors such as time interval between the onset of convulsions to delivery were specifically looked into in few studies. In a study which analysed the relationship between the time interval between convulsion and delivery and perinatal mortality, it was found that perinatal mortality was the least when the time interval was <6hrs (18%) and it increases to 47% when the time interval is >18hrs. It was also found that as the time interval between treatment and delivery increases, perinatal mortality increases. (10).

The present study also demonstrated that perinatal mortality is less in caesarean section group than in vaginal delivery group. (Table 3)

Table 3. Comparison of studies done in India.

Characteristic		Present study	Babbar K et al	Trivedi K et al	Kaur P	Rajasri G yaliwal et al	Bhalerao A et al
No of cases		32	521	70	50	98	55
Study period (in years)		1	5	1	2	10	3
Incidence		2.67%	3.5%	1%	7.4%	1.82%	0.9%
% of Primis		82%	70.8%	68%	56%	NA	72.73%
Predominant Age group		18-23yrs	20-24yrs	<24yrs	21-30yrs	NA	<25yrs
GA		>36wks	term	>35wks	>37wks	NA	33-37wks
Mode of delivery	vaginal	25%	69.7%	55%	80%	67.3%	43.64%
	LSCS	75%	30.3%	45%	20%	32.7%	56.36%
Mortality	maternal	0%	8.4%	Not available	6%	Not available	5.45%
	perinatal	15%	38.8%		44%	35%	25.45%
Complications		nil	30%	21%	38%	NA	30%

In India majority of the population live in rural areas with poor access to health care facilities. Many a times they can not reach the hospital due to lack of transportation. In such cases sometimes patients reach hospital after several hours after developing convulsions. Even in those circumstances prolonged admission delivery interval adversely affects the maternal outcome due to the complications already set in.

One study has analysed the causes of maternal deaths in Eclampsia and it was found that more than 60% received MgSO4 >12hrs after convulsions. 33% of the women who died were delivered within 12hrs of admission but >12hrs after convulsion. (4). One study shows that increased convulsion delivery is associated with adverse perinatal and maternal outcomes. This study has showed that when the interval was <12hrs, the perinatal mortality was just under 2% and no maternal mortality. As the interval increases to more than 12-24hours the perinatal and maternal mortality increased.(7). A study which specifically studied the effect of fit- delivery interval on maternal and fetal outcome, concluded that an interval of 10-15hours had good maternal and fetal outcome.(15).

There may be a relationship between mode of delivery and the incidence of complications which is likely due to prolonged time taken to achieve vaginal delivery in those who are not in labour. In one study when incidence of complications and mode of delivery was analysed, more complications were noted in the vaginal delivery route than Caesarean section.(8)

In India the preferred mode of delivery in antepartum eclampsia is still vaginal delivery. However recently there is a significant rise in caesarean section varying from 40-70% in some studies. (13,16) When trends in choice of mode of delivery, delivery outcomes were analysed in 608 cases of antepartum and intrapartum eclampsia, it was noted that caesarean section rate was very high (71.05%). Majority of caesarean sections were done to promptly deliver those patients who were in early labour or not in labour, thus, unlikely to deliver vaginally within 6 hours. In this study, maternal mortality rate and perinatal mortality rate were much lower with early caesarean section (0.95% and 3.80% respectively) than with vaginal delivery. Both also steadily increased with increasing admission--delivery interval. Though our study has limitations in terms of number of cases, it shows zero maternal mortality with timely intervention and delivery where 75% women were delivered by Csection and 80% were delivered within 12hours of convulsions.

Conclusion: It is prudent to prevent severe Preeclampsia/Eclampsia and thus reduce the mortality by good prenatal care as shown in the developed countries (11,14,17,18). This can only be achieved by strengthening the existing health care facilities, ensure that all women have antenatal checkups, enhance the referral system and transportation facilities. Until the desired goals are achieved, proper measures such as timely referral, administration of MgSO4 before referral at any health care facility, appropriate antihypertensive management, timely delivery, fluid management can ensure good outcome in Eclampsia. As the specific treatment of Eclampsia is delivery, an interval of 6-12 hrs is considered optimal and is associated with significant reduction in both perinatal and maternal mortality.

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