IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 19, Issue 1 Ser.20 (January. 2020), PP 05-12
www.iosrjournals.org

"Maternal and Perinatal Outcome in Cases of Antepartum Eclampsia"

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ABSTRACT:-

BACKGROUND:-

Eclampsia is the consequence of disease progression in preeclampsia characterized by grandmal tonic clonic seizures in a patient with no other neurological and medical disorders. Eclampsia is a life threatening emergency that continues to be a major cause of maternal and perinatal mortality worldwide. Incidence of eclampsia in developed countries is 1 in 2000 deliveries, in developing countries 1 in 100 to 1 in 1700 cases. In india incidence of eclampsia has been quoted as 1.56%.

With better antenatal care, early recognition and hospital treatment of severe pre-eclampsia patients, the incidence of eclampsia can be decreased. The present study is undertaken to find out maternal and perinatal mortality and morbidity rate in eclampsia and to identify the factors influencing maternal and perinatal outcome.

AIMS AND OBJECTIVES:-

- *To note the incidence of eclampsia.*
- *To study perinatal and maternal outcome in cases of antepartum eclampsia patients.*
- *To study the factors affecting maternal and perinatal outcome in cases of antepartum eclampsia*

MATERIALS AND METHODS:-

This is a prospective observational study carried out at Gandhi hospital over a period of 2 years (November 2016 to May 2018). It is a tertiary care hospital and a major referral center for high risk obstetric cases in Telangana State. 100 pregnant women who were diagnosed with eclampsia were taken into study.

Details were entered in a pre- designed proforma regarding the detailed history of period of gestation, parity, complications during present pregnancy and in previous pregnancies, investigations like CBP, RFT, LFT, urine albumin and additional investigations like coagulation profile was done in selected patients with abnormal clotting time. Maternal outcome regarding gestational age at delivery, mode of delivery, complications occurring during delivery and postpartum were observed.

In all cases fetal outcome was observed in the form of maturity, birth weight, and perinatal morbidity and perinatal mortality.

RESULTS AND ANALYSIS

Incidence of antepartum eclampsia: 2.23%

Incidence of maternal mortality: 7%

Incidence of perinatal mortality: 24%

In this study 20% of eclampsia patients developed complications. The common complications were abruptio placenta, PPH, oliguria, renal failure, PRES, pulmonary edema, HELLP syndrome and status eclampticus

Higher the number of convulsions greater the maternal morbidity. Maternal complications are seen in 66.7% of cases with 5-8 convulsions while only in 15.5% of cases with 1-4 convulsions.

Maternal mortality increases with increase in first fit- admission interval. This is statistically significant (p=0.001)

In this study maternal mortality was 66.7% in those presented with 5-8 episodes of convulsions compared to 5.2% in less than 4 episodes of convulsions. Hence more the number of convulsions episodes more the chances of maternal mortality. Maternal complications also increase with increase in number of convulsions.

Higher perinatal mortality is associated with preterm deliveries 42.5% compared to that in term gestation deliveries 11.7% and this is statistically significant (p=0.001). Perinatal mortality increases with the number of convulsions 100% in those presented with 5 to 8 episodes compared to 21.6% in 1-4episodes and this statistically significant.

CONCLUSION:- *In the present series, the incidence of eclampsia is high which is mainly due to the high referral of eclampsia cases and the study being conducted in tertiary care centre. Both maternal and perinatal*

deaths are high among unbooked cases reflecting poor antenatal care. Early attention and intensive management are essential for the maternal and fetal outcome in eclamptic cases. Unless the social and educational status of women are uplifted and obstetric care is brought to the doorstep, no miracle can be expected.

Date of Submission: 17-01-2020 Date of Acceptance: 04-02-2020

I. Introduction:

Eclampsia is the consequence of disease progression in preeclampsia characterized by grandmal tonic clonic seizures in a patient with no other neurological and medical disorders. Eclampsia is a life threatening emergency that continues to be a major cause of maternal and perinatal mortality worldwide. Incidence of eclampsia in developed countries is 1 in 2000 deliveries, in developing countries 1 in 100 to 1 in 1700 cases. In india incidence of eclampsia has been quoted as 1.56%.

According to Doeley's estimation, globally about 50,000 women die of eclampsia annually. Majority of these deaths occur in developing countries and most of these are preventable. In India, maternal mortality and morbidity ranges from 8-14%. A low maternal mortality of 2.2% was reported by Menon[1].The perinatal mortality ranges from 14.6% to 47.4%[2] .Because "Eclampsia still kills", it is worthwhile to periodically review this major problem of obstetric care[3]. With better antenatal care, early recognition and hospital treatment of severe pre-eclampsia patients, the incidence of eclampsia can be decreased. But there are a minority of patients in whom eclampsia may not be preventable. For these unfortunate patients and also ignorant patients, we can offer service by reducing both maternal and perinatal mortality due to eclampsia rather than prevention of eclampsia. The present study is undertaken to find out maternal and perinatal mortality and morbidity rate in eclampsia and to identify the factors influencing maternal and perinatal outcome.

II. Aims And Objectives:-

- To note the incidence of eclampsia.
- To study perinatal and maternal outcome in cases of antepartum eclampsia patients.
- To study the factors affecting maternal and perinatal outcome in cases of antepartum eclampsia

III. Materials And Methods:-

This is a prospective observational study carried out at Gandhi hospital over a period of 2 years (November 2016 to May 2018). It is a tertiary care hospital and a major referral center for high risk obstetric cases in Telangana State. 100 pregnant women who were diagnosed with eclampsia were taken into study.

Written informed consent was taken from all women recruited into the study after explaining the nature of study. Details were entered in a pre- designed proforma regarding the detailed history of period of gestation, parity, complications during present pregnancy and in previous pregnancies, investigations like CBP, RFT, LFT, urine albumin and additional investigations like coagulation profile was done in selected patients with abnormal clotting time. Maternal outcome regarding gestational age at delivery, mode of delivery, complications occurring during delivery and postpartum were observed.

In all cases fetal outcome was observed in the form of maturity, birth weight, and perinatal morbidity and perinatal mortality.

Inclusion criteria:

Eclampsia patients admitted through labour room during the period of two years(November 2016 to May 2018)

Exclusion criteria:

1. Patients refusal or inability to provide informed consent
2. Patients who are known cases of epilepsy, other neurological disorders.
3. Patients with other conditions like Diabetes mellitus, renal disorders, heart diseases, thyroid disorders, maternal infections and autoimmune disorders

INTERVENTIONS :

1) General nursing care, fluid and electrolyte balance were maintained, urine output was monitored with an indwelling catheter.

2) Medical Management:

a) Anticonvulsants : To keep the patient sedated and to prevent convulsions, MgSo4 therapy was used (Pritchard regimen). The toxicity signs of MgSo4 were carefully monitored like; absence of patellar reflex, decreased respiratory rate (less than 14/min), decrease in the urine output (less than 100ml in 4hrs). If any signs of toxicity were found, MgSo4 was stopped and antidote injection i.e., calcium gluconate, 1gm slow IV was given.

b) Antihypertensives
3) Obstetric Management:
An attempt was made in each case after the control of fits to find out, if the patient was in labor and if in labor, how far advanced. If not in labor, whether the cervix was favourable for induction. If the cervix was favourable and the CPD was ruled out, labor was induced with either, syntocinon drip, ARM, prostaglandin E1, Extra amniotic emcredil instillation etc.,and patient was allowed for vaginal delivery.
Second stage is shortened by assisting the delivery by forceps or vacuum extractor. Lower segment caesarean section is done for eclampsia perse in cases of status eclampticus and if the convulsions recur or are not controlled in 10-12hrs after starting the treatment.

FOLLOW-UP :
All the mothers were followed up for evidence of decrease in blood pressure, evidence of proteinuria or any other complications of eclampsia. All the babies delivered were followed up during neonatal period for complications.
Statistical analysis has been done using the Chi-square test.
Results (both perinatal and maternal deaths) are presented as number and percentages.
Chi-square test was used to analyse the categorical data.
A p-value of ≤ 0.05 was considered for statistical significance.

IV. Results And Analysis

Total no. of antenatal admissions during the study period: 16,150
Total number of pre eclampsia cases: 1520
Total number of cases of antepartum eclampsia: 361
Incidence of antepartum eclampsia: 2.23%
No. of cases with complications:17
No. of maternal deaths: 7
Incidence of maternal mortality: 7%
Incidence of perinatal mortality: 24%
In this study 20% of eclampsia patients developed complications. The common complications were abruptio placenta, PPH, oliguria, renal failure, PRES, pulmonary edema, HELLP syndrome and status eclampticus

TABLE- 1 : MATERNAL COMPLICATIONS

MATERNAL COMPLICATIONS	Frequency	Percent
AKI/OLIGURIA	8	8.0
PRES	1	1.0
APH	5	5.0
HELLP syndrome	3	3.0
PPH	2	2.0
Status eclampticus	1	1.0

TABLE-2: MATERNAL COMPLICATIONS IN RELATION TO NUMBER OF CONVULSIONS

			MATERNAL COMPLICATIONS		Total
			NO	YES	
C	1 TO 4	Count	82	15	97
		%	84.5%	15.5%	100.0%
	5 TO 8	Count	1	2	3
		%	33.3%	66.7%	100.0%
Total		Count	83	17	100
		%	83.0%	17.0%	100.0%

Chi square = 5.407, P value = 0.02 (S)

Higher the number of convulsions greater the maternal morbidity. Maternal complications are seen in 66.7% of cases with 5-8 convulsions while only in 15.5% of cases with 1-4 convulsions. This relation is statistically significant.

MATERNAL MORTALITY

There were 7 maternal deaths out of 100 cases, therefore the incidence of maternal mortality is 7%.
The causes of maternal death were:

TABLE NO-3: CAUSE OF DEATH

CAUSEOF MATERNAL DEATH	Frequency	Percent
ARF	1	14.3
ARF WITH SEPSIS	1	14.3
Aspiration pneumonitis	1	14.3
HELLP syndrome with DIC	1	14.3
PULMONARY EDEMA	3	42.8
Total	7	100.0

Out of 7 maternal deaths 3 patients of antepartum eclampsia died due to pulmonary edema, 1 patient died due to HELLP syndrome with DIC, 1 patient due to aspiration pneumonia, 1 patient due to Acute Renal Failure and 1 due to Acute Renal Failure with Sepsis.

In this study out of 100 cases, 80% were unbooked and 20% were booked cases. There were 6 maternal deaths in unbooked cases (7.5%) and 1 maternal death in booked cases (6%). However this is not statistically significant.

TABLE-4: MATERNAL MORTALITY IN RELATION TO 1ST CONVULSION TO ADMISSION INTERVAL

			MATERNAL MORTALITY		Total
			NO	YES	
CTOA	1 TO 5	Count	51	1	52
		%	98.1%	1.9%	100.0%
	6 TO 10	Count	39	1	40
		%	97.5%	2.5%	100.0%
	>11	Count	3	5	8
		%	37.5%	62.5%	100.0%
Total		Count	93	7	100
		%	93.0%	7.0%	100.0%

Chi square = 41.156, P value = 0.001 (S)

In this study half of the cases presented more than 6 hours after onset of convulsions. Out of 7 maternal deaths 6 were among those presented after 6 hours of onset of convulsions. Maternal mortality increases with increase in first fit- admission interval. This is statistically significant (p=0.001)

TABLE-5: MATERNAL MORTALITY IN RELATION TO NO. OF CONVULSIONS

			MATERNAL MORTALITY		Total
			NO	YES	
CONVULSIONS	1 TO 4	Count	92	5	97
		%	94.8%	5.2%	100.0%
	5 TO 8	Count	1	2	3
		%	33.3%	66.7%	100.0%
Total		Count	93	7	100
		%	93.0%	7.0%	100.0%

Chi square = 16.913, P value = 0.001 (S)
In this study among 7 maternal deaths 5 deaths were among those with 1-4 convulsions and 2 were among those presented with 5to 8 convulsions. This is statistically significant (p=0.001)

PERINATAL MORTALITY AND MORBIDITY

Total number of cases	100
Total number of births	100
Number of live births	90
No of cases with absent FHS At admission	6
No of fresh still births	4
Number of neonatal deaths	14
Total perinatal deaths:	24

Incidence of uncorrected perinatal mortality is 24%
Incidence of corrected perinatal mortality was 18%(excluding absent FHS at admission)

TABLE -6 :PERINATAL OUTCOME

PERINATAL OUTCOME	Frequency	Percent
IUD	6	6.0
LIVE BIRTH	90	90.0
STILL BIRTH	4	4.0
Total	100	100.0

TABLE -7: CAUSEOF PERINATAL DEATHS

CAUSE OF PERINATAL DEATH	Frequency	Percent
Birth asphyxia(Still births)	4	4.0
IUD	6	6.0
Meconium aspiration syndrome	2	2.0
Neonatal sepsis	2	3.0
Prematurity	10	10.0

Out of 24 perinatal deaths, there were 14 neonatal deaths the most common cause being prematurity

TABLE-8: PERINATAL MORTALITY IN RELATION TO GESTATIONAL AGE

			PERINATAL MORTALITY		Total
			NO	YES	
GA	PRE TERM	Count	23	17	40
		%	57.5%	42.5%	100.0%
	TERM	Count	53	7	60
		%	88.3%	11.7%	100.0%
Total		Count	76	24	100
		%	76.0%	24.0%	100.0%

Chi square = 12.509, P value = 0.001 (S)
Higher perinatal mortality is associated with preterm deliveries 42.5% compared to that in term gestation deliveries 11.7% and this is statistically significant (p=0.001)

TABLE-9: PERINATALMORTALITY IN RELATION TO NUMBER OF CONVULSIONS

			PERINATAL MORTALITY		Total
			NO	YES	
CONVULSIONS	1 TO 4	Count	76	21	97
		%	78.4%	21.6%	100.0%
	5 TO 8	Count	0	3	3
		%	0.0%	100.0%	100.0%
Total		Count	76	24	100
		%	76.0%	24.0%	100.0%

Chi square = 9.794, P value = 0.002 (S) Majority of patients in this study presented with 1to 4 convulsion episodes. Perinatal mortality increases with the number of convulsions 100% in those presented with 5 to 8 episodes compared to 21.6% in 1-4episodes and this statistically significant (p=0.002).Chi square = 9.794, P value = 0.002 (S)

V. Discussion

The incidence of eclampsia and the total number of deaths from eclampsia have come down dramatically in developed countries. This has been achieved with improvements in prenatal care and management. However, in developing countries eclampsia still stands as one of the major complications of pregnancy. The incidence of eclampsia in the present study is 2.23% as against 0.14 to 1.4%in 2007 reported by Suman Somegouda et al[4], 2.79%and 1.85% reported by Arup Kumar Majhi (2001)[5] and Nobis PN[6], (2002)1respectively. But it is very much higher in comparison to western reports. The higher incidence in the present study is due to, lack of proper antenatal care and also because the study is undertaken in a tertiary referral hospital.

SOCIO-ECONOMIC STATUS

In this series, most of the women (94%) had come from the low socio-economic status. According to Saima et al (2012) majority of the patients (67.96%) belong to low income group which is largely related with health consciousness andhealth and family welfare of the people. Maternal complications are more in low socioeconomic group 17%. All maternal deaths and perinatal mortality in this study occurred in the low socio-economic group.

This indicates that socioeconomic status, poor nutrition and inadequate antenatal care, have close relationship with eclampsia and increased maternal complications and perinatal and maternal mortality.

REFERRAL STATUS:

Out of 100 cases in the study, 80% (80 cases) were referred to Gandhi hospital from other hospitals like primary health centres, community health centres and private hospitals for better institutional management. Non referral cases were 20% (20 cases) and had prior antenatal visits at Gandhi hospital. Majority of these referral cases had complications and increased maternal and perinatal mortality due to delay in referral or due to failure to reach in time because of lack of transportation.

ANTENATAL CARE :

In the present study, majority of the women (80%) were unbooked. Maternal and perinatal mortality in this group was higher. 82% of eclampsia patients in the study done by Savita Ravi Singh et al (2009) and 82.3% of patients in that of Arup Kumar Majhi 2001[5], did not have regular ANC's.

According to Swain et al 1993[7] eclampsia was more common in mothers deprived of antenatal care. According to study conducted by Agrawal Mohini Praveen Kumar[8] less number of visits was associated with more threat and complications.

It has been universally accepted that the adequate standard antenatal care has immense value in reducing the incidence of eclampsia by early detection of pre-eclampsia and its prompt management. Sibai et al (1981)[9] had pointed out non preventable eclampsia, the incidence of which was very difficult to reduce. It was a notable fact in our series also that 20% of eclamptic women were booked and still developed eclamptic convulsions. Significant increase in perinatal mortality in antepartum and intrapartum eclampsia is probably due to increase in duration of labour and birth asphyxia

NUMBER OF CONVULSIONS :

As the saying goes, each fit brings the patient, a step closure towards the grave, this study shows statistically significant correlation with maternal complications, maternal, perinatal mortality and the number of convulsions. In this study maternal mortality was 66.7% in those presented with 5-8 episodes of convulsions compared to 5.2% in less than 4 episodes of convulsions. Hence more the number of convulsions episodes more the chances of maternal mortality. Maternal complications also increase with increase in number of convulsions. Perinatal mortality also increases with number of convulsions. There was 100% perinatal mortality rate with 5 to 8 convulsion episodes as against 21.6% with 1 to 4 convulsion episodes. The results were similar to those observed by Rajesri et al (2011) [10] and BS. Dhananjaya (2009) [11] and Swain S. (1993) [7].

CONVULSION - DELIVERY INTERVAL :

In the present series, convulsion delivery interval is directly proportional to maternal and perinatal mortality. Chances of maternal complications increase with increase in convulsion to delivery interval. However, increase in maternal mortality with increasing first fit to delivery interval was statistically not significant. Similar observation have been made by Rajesri et al (2011) [10] and Swain s.(1993) [7]. The perinatal mortality increases when the interval between the first fit and the delivery increases, due to prolonged exposure to intrapartum asphyxia. Although statistically not significant, there is direct correlation between the perinatal mortality and duration of labor. This may be due to the simple reason that fetus is exposed to intrauterine asphyxia for a longer time.

GESTATIONAL AGE :

In the present series perinatal mortality was high (42.5%%) when the duration of gestation was < 36 weeks compared to11.7% in >36weeks which was found to be statistically highly significant (P=0.001).
Similar observations were made by Dhanajaya et al (2009) [11] and Agrawal Mohini Praveen Kumar et al(2017) [8].Therefore prematurity is the main cause of high perinatal mortality.

CAUSES OF MATERNAL MORTALITY

In this study majority of maternal deaths were due to pulmonary edema- 3 cases out of 7 maternal deaths, other causes being acute renal failure, sepsis, aspiration pneumonia and HELLP syndrome with DIC.

INCIDENCE AND CAUSES OF PERINATAL MORTALITY

Incidence of perinatal mortality in present study is 24% Causes of perinatal mortality in this study were prematurity, birth asphyxia, meconium aspiration syndrome and neonatal sepsis. Prematurity is the most common cause of perinatal mortality in this study.

Maternal and perinatal mortality in eclampsia is still very high and no appreciable change has been observed in last 30 years. Menon reported a G perinatal mortality of 30% and maternal mortality of 2.2%. In the

present series, incidence of maternal mortality is 7% and perinatal mortality is 24%. Prematurity is the main cause of neonatal deaths. The high mortality rate in our series is probably due to late arrival of the patients and many in moribund condition. Considerable number of cases have come from far distance (80% from more than 70 kms). Delay in presentation is due to lack of proper transportation. And most of the cases had received haphazard combination of sedative and anticonvulsants in primary health centres where there is a little or no experience regarding the management of eclampsia. Moreover several patients suffered one or more seizures during their transfer to the hospital. So, proper control of convulsions and blood pressure before and during shifting the patient to higher centres may improve outcome in these cases.

VI. Conclusion

Eclampsia still remains a major problem in developing countries. It is one of the important cause of maternal and perinatal morbidity and mortality due to lack of proper ANC, low socio-economic status and lack of education.

In the present series, the incidence of eclampsia is high which is mainly due to the high referral of eclampsia cases and the study being conducted in tertiary care centre. Both maternal and perinatal deaths are high among unbooked cases reflecting poor antenatal care. Both maternal and perinatal mortality rate are still disappointing. One maternal death occurs in approximately every 15 eclamptic women.

Early attention and intensive management are essential for the maternal and fetal outcome in eclamptic cases. Unless the social and educational status of women are uplifted and obstetric care is brought to the doorstep, no miracle can be expected. A moderate reduction of death of mother and fetus in our institution was possible due to wider use of magnesium sulphate, timed delivery, proper implementation of emergency obstetric care facilities to mother with eclampsia. Moreover, this is a study done in referral centre and the actual situation in the society as a whole remains unclear.

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Dr.Dandra Bhavya1, etal. "Maternal and Perinatal Outcome in Cases of Antepartum Eclampsia". *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 19(1), 2020, pp. 05-12.