ORIGINAL RESEARCH

A prospective study of factors affecting maternal and perinatal outcome in eclampsia at government medical college/hospital Nizamabad

[1]Dr Neelima Singh, [2]Dr.Mounika, [3]Dr Badhe Rekha, [4]Dr.N.Sreedevi, [5]Nidhi Singh, [6]Dr Tharani Badikela

[1,3,4]Associate Professor, [2]Senior Resident, Department of Gynaecology and Obstetrics, Government Medical College, Nizamabad, Telangana, India
[5]Research Associate, M.Sc Biotechnology, Department of Genetics, Osmania University, India
[6]Final year MBBS, SVS Medical College, Mahaboobnagar, Telangana, India

Correspondence:
Dr.N.Sreedevi
Associate Professor, Department of Gynaecology and Obstetrics, Government Medical College, Nizamabad, Telangana, India

ABSTRACT
Introduction: Eclampsia is one of the commonest causes of maternal deaths. The various factors influencing maternal and perinatal outcome were evaluated in the present study.
Aim: To determine the factors affecting maternal and perinatal outcomein Eclampsia.
Materials and methods: Present study is a prospective observational study of factors affecting maternal and perinatal outcome in Eclampsia for a period of 6 months.
Results: The incidence of eclampsia in 1.42%. Hypertension, oedema and proteinuria are important signs in eclampsia. The incidence of maternal mortality in the present study was 4% and the common causes of death were acute renal failure and pulmonary oedema. The maternal mortality in correlation with age, parity, blood pressure, duration of labour is not statistical significant. The perinatal mortality in the present study was 24% and corrected perinatal mortality, excluding cases of absent FHS at admission was 18%. Prematurity was the most important cause of neonatal deaths. Perinatal mortality was maximum in unbooked cases (37%) and is statistically significant. Perinatal mortality was maximum, when the number of convulsions were maximum that is in between 6-10 (100%) and it is statistically highly significant.
Conclusions: Prompt control of convulsions and blood pressure along with steps to initiate delivery are the cornerstone and critical in Management of eclampsia.
Keywords: Eclampsia, Convulsions,Maternal mortality, Perinatal mortality.

INTRODUCTION
The term "Eclampsia" is derived from a Greek word meaning "like a flash of lightning". It is defined as onset of convulsion in a woman with preeclampsia that cannot be attributed to other causes. The seizures are generalized and may appear before, during or after labour.
 Eclampsia is a life-threatening emergency that continues to be a major cause of serious maternal morbidity and is still the leading cause of maternal mortality worldwide. The prevalence of eclampsia globally is reported to be 0.3%. It is still a major cause of maternal mortality in India(24.09%, FOGSI study). Approximately 1 in 2000 deliveries are complicated by Eclampsia in developed countries whereas the incidence in developing countries is estimated around 1 in 100 to 1 in 1700 cases. Maternal mortality varies widely at

different places with almost identical management indicating that there may be an important differences in socio-economic condition of a nation and the quality of obstetric care. [1,2] Eclampsia incidence varies widely from country to country and even between different zones of the same country. The incidence of Eclampsia in India varies from 0.179 to 3.7%. Average being 1.8%, however, depends on the availability, accessibility and quality of antenatal care. Consequently, the rates are higher where health care provision is constrained for a variety of reasons. According to Deeley's estimation 50,000 women die worldwide each year due to Eclampsia.In India, maternal mortality ranges from 2.2-9%of all Eclamptic women whereas perinatal mortality varies from 24.5-48%. Eclampsia is more common in nulliparous women of lower socio-economic strata particularly teenageprimigravida who receive inadequate or no antenatal care . The peak incidence is in teenage pregnancy and early 20's, but there is also an increased prevalence in women older than 35 years.[3,4]

Obstetric emergencies in India are different when compared to the developed countries. Eclampsia is a major Obstetric emergency, which requires the mobilization of all personnel and all efforts and adequate management to avoid catastrophic events likematernal and perinatal deaths. The most important aspect of Eclampsia is that in majority of cases it is a preventable calamity. It is one of the leading causes for maternal mortality along with haemorrhage and infection. WHO survey reported 32 maternal deaths, 3.7% of women with eclampsia. But there are minorities of patients in whom Eclampsia may not be preventable as it comes like a "bolt from the blue". For these unfortunate patients and also ignorant patients we can offer service by reducing both maternal and perinatal mortality due to Eclampsia. Although the precise cause of pre-Eclampsia which precedes Eclampsia is not known early detection through antenatal care and proper treatment of severe pre-Eclampsia like administration of magnesium sulphate more than halves the risk of eclampsia in women with pre- eclampsia. It is considered an essential drug by WHOwill prevent progression to Eclampsia. [5] The clinical management of eclampsia has gone through many changes and achieved good results with the introduction of different regimes. The present study is undertaken at Government medical college/hospital to find out maternal and perinatal mortality and morbidity rate in eclampsia and to identify the factors affecting maternal and perinatal outcome.

MATERIALS AND METHODS
Present study is a prospective observational study of factors affecting maternal and perinatal outcome in Eclampsia. Eclampsia patients admitted in Obstetrics and GynaecologyDepartment of Government General Hospital, Nizamabad, during the period of January 2019 to November 2019, were taken into this study.

INCLUSION CRITERIA
Antepartum eclampsia, Intrapartum eclampsia, Postpartum eclampsia, Singleton pregnancy and No other associated medical complication

EXCLUSION CRITERIA
Pregnancy associated medical complications like anaemia, pre-existinghypertension, diabetes mellitus, vascular or renal disease,Previous H/o convulsions secondary to other medical causesand subjects with obstetric factors such asMultiple gestation, Polyhydramnios, H/o IUGR babies in previous pregnancy .

SAMPLING
Eclampsia subjects presenting to GGH Nizamabadat a required given point of time are selected for study (convenient sampling).

SAMPLE SIZE

Sample size is 50. Using "Estimation Methodology" for level of significance (α)5%, allowable error 5% and the incidence of eclampsia in India is 0.179 to 3.7%[6] approximately n~30. For this study a convenient sample of around 50 cases will be considered

n=4PQ/L2

L=Absolute error = 5%

P=1.8%

Q=100-P=100-1.8 =98.2%,

n=4x1.8x98.2/5x5 =707.04/25 =28.28(~30).

For this study a convenient sample of around 50 cases are considered.

Name, age and socio-economic status of the patient.Detailed history regarding the antenatal checkups was taken.

Detailed history was taken regarding the convulsions i.e., total number of convulsions, time of onset of first convulsion, interval between the convulsions, history of loss of consciousness and the time gap between the onset of convulsion and the admission to the hospital. H/o of swelling of legs and face, H/o of premonitory symptoms like headache, vomiting, giddiness, blurring of vision and epigastric pain. Detailed obstetric history, past history, family history and personal history were noted.

After sedating the patient a thorough general and physical examination was done. An obstetric examination was done to note the duration of pregnancy, condition of foetus and whether the patient is in labour. In all cases basic investigations were carried out. Serum magnesium (This is an extra investigation done in patients, who throw a repeat convulsion even after loading dose and while receiving intravenous maintenance dose of MgSO4. Blood samples were obtained immediately at (or) with in 10 minutes of onset of convulsions).General nursing care, fluid and electrolyte balance were maintained, urine output was monitored with an indwelling catheter.

MEDICAL MANAGEMENT

a) **Anticonvulsants:** To keep the patient sedated and to prevent convulsions, MgSo4 therapy was used (Zuspan's regimen)-4gms of Mgso4 in 20ml of 5% dextrose was given intravenously slowly over a period of 15-20 minutes and therapeutic level was maintained by IV infusion of 10gms of MgSo4 in 500ml of 5% dextrose at a rate of 1gm/hr and it was continued for 24 hrs following delivery. The toxicity signs of MgSo4 were carefully monitored like; absence of patellar reflex, decreased respiratory rate (less than 14/min), decrease in urine output (less than 100ml in 4hrs). If any signs of toxicity were found, MgSo4 infusion was stopped and antidote injection i.e., calcium gluconate, 1gm slow IV was given.

b) **Antihypertensives**

c) **Antibiotics**

d) **Obstetric Management**

An attempt was made in each case after the control of fits to find out, if the patient was in labour and if in labour, 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, Extraamnioticemcredil installation 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 per se 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 babies delivered were followed up during the neonatal period for complications.

STATISTICAL ANALYSIS
The data was entered in Microsoft excel 2016. The analysis was done using Statistical Package for Social Sciences Version 21.0 for Windows (SPSS 21.0). The variables were summarized and expressed as mean and standard deviation.

$X2 = \Sigma(0 - E)2/E$

O: Observed

E: Expected

Results (both perinatal and maternal deaths) are presented as numbers and percentages. Chi-square test was used to analyse categorical data. A p-value of $\leq$ **0.05** was considered for statistical significance. Ethics committee of our institution has reviewed the protocol and approved the study. Informed consent was taken from all patients in the study. Scientific committee of our institution has reviewed the protocol and approved the study.

RESULTS
A total of 3,500 deliveries were conducted in the Government General Hospital,Nizamabad in the year 2019, with 50 cases of eclampsia, which accounted for 1.42% of the deliveries were conducted. There were 2 maternal deaths out of 50 cases, therefore the incidence of maternal mortality is 4%. Of the 2 maternal deaths, 1 patients died due to pulmonary oedema, 1 is due to acute renal failure.

Table-1: Maternal mortality in relation to Maternal Deaths

Age (Yrs)	No. of cases	Maternal Deaths	Percentage
<20	14	1	7.1
21-25	30	1	3.3
26-30	5	-	-
>30	1	-	-
X^2=0.65 P=0.89, Not Significant			
Socioeconomic status			
Low	47	2	4.3
Middle	3	-	-
X^2=0.13 P=0.72 NS(Not significant)			
First fit-Admission interval (hours)			
1-5 hours	24	-	0
6-10 hours	23	2	8.7
>11 hours	3	-	-
Total	50	2	4
X^2=2.45 p<0.29 NS(Not significant)			
Antenatal Care			
Unbooked	27	2	7.4
Booked	23	0	-
X^2 =1.78, P=0.18, Not significant			
Blood Pressure			

<140/90	11	-	-
140/90-160/110	17	1	5.9
>160/110	22	1	4.5
$X^2 = 0.63$, P=0.73, NS (Not Significant)			
Parity			
P0	37	1	2.7
P1	11	1	9.1
P2	2	-	-
X^2=0.99, P=0.61, NS (Not significant) 51			
No. of Convulsions			
1-5	43	-	-
6-10	7	2	28.6
X^2=12.8,P<0.001, HS (Highly Significant)			
C-D interval (Hrs)			
6-12	16	-	-
13-24	24	1	4.2
>24	10	1	10
X^2=1.61 , P=0.45, NS (Not Significant)			
Duration of Labor (Hrs)			
6-10	17	-	-
10-20	15	2	13.3
X^2=2.60, P=0.11 , NS (Not significant)			

Majority of cases (48%) have presented more than 6 hours after onset of convulsions.Maternal mortality increases with increase in first fit- admission interval.However statistically not significant. Majority of the patients belong to low socio-economic status (94%), 6% belong to middle class.The majority of maternal deaths occurred in low socio-economic group (4.3%). However, statistically this is not significant (P-0.72). Out of 50 cases, 54% were unbooked and 46% were booked.While 2 maternal deaths (7.4%) occurred in unbooked cases and there is maternal death in booked cases.However statistically this is not significant (P=0.18). Although maternal mortality was higher in patients with higher admission blood pressure, this was found to be statistically not significant (P=0.73).

In patients below 20 years of age, maternal mortality was 7.1%, while it was 3.3% in the age group below 25 years. However statistically this is not significant (P=0.89). The above observation shows that maternal mortality increases as the parity increases. The maternal mortality was 9.1% in para 1 and above, as compared to 2.7% in Nulliparous women. But this was not statistically significant (P=0.61). Maternal mortality was significantly higher in patients who had 6 or more episodes of convulsions (P<0.001).

With a convulsion delivery interval of >24 hours, maternal mortality was 10% as against 4.2% when convulsion delivery was 13-24 hours and 0% when convulsion delivery interval was < 12 hours. However, this was not statistically significant. (P=0.45).

Out of 50 cases studied, LSCS was done in 18 patients, so maternal mortality in relation to duration of labor was determined in only 32 patients. There is no statistically significant correlation between duration of labor and maternal mortality (P=0.11).

In the present study, out of 50 cases, no patients had recurrence of convulsions. In both loading dose of 2gm MgSO4 was repeated and maintenance dose was adjusted to 2 gm/hr following which there was no recurrence of convulsions. So there is no role of measuring serum magnesium levels.

Table-2: Proteinuria and oedema in present study

Proteinuria	Number of cases	Percentages
Nil	0	0
+1	1	2
+2	13	26
+3	25	50
+4	11	22
Edema		
Absent	0	0
Present	50	100

Proteinuria was noted in all 50 cases (100%). Maximum number of convulsions are seen in patients with grade +3,+4 proteinuria. Maternal mortality is seen in patients having +3,+4 of proteinuria.

Table-3: Maternal Complications

Maternal Complications	No. of cases	Maternal Deaths
Transient oliguria	10	1(12.5%)
Unconsciousness	4	-
Abruptio placenta	2	-
Pulmonary oedema	1	1(100%)
Pyrexia of unknown origin (PUO)	1	-
Total	18	2

In this study out of 50 cases, 18 cases (36%) developed complications. The common complications were unconsciousness, transient oliguria and pulmonary oedema. The maternal mortality being 12.5%, 100% respectively.

PERINATAL MORTALITY AND MORBIDITY
- Total number of cases 50
- Total number of babies 50
- Number of live births 43
- Number of cases with absent 03 FHS at admission
- No. of fresh stillbirths 04
- No. of Neonatal deaths 05

Total perinatal deaths: 3 + 4+ 5 = 12

Incidence of uncorrected perinatal mortality is 24 %. Incidence of corrected perinatal mortality is 18 % (Excluding cases of absent FHS at admission).

Out of 12 perinatal deaths, there were 5 neonatal deaths (41.6%), the most common cause being prematurity (60%).

Table-4: perinatal mortality in relation to perinatal death

Age (Yrs)	No. of cases	Perinatal Deaths	Percentage
<20	14	2	14.3
21-25	30	8	26.7
26-30	5	2	40.0
>30	1	-	-
X^2=1.86,P=0.60, NS (Not Significant)			
Socioeconomic			
Low	47	11	23.4

Middle	3	1	33.3
X^2=0.15, P=0.70, Not Significant			
Antenatal care			
Booked	23	2	8.7
Unbooked	27	10	24.0
X^2=5.47, P<0.05, S (Significant)			
Parity			
P0	37	7	18.9
P1	11	3	27.3
P2	2	2	100.0
X^2=6.92, P=0.03, Significant.			
Gestational Age (weeks)			
34-36 weeks	20	9	45.0
37 and above	30	3	10.0
X^2=8.06 P< 0.01 S (significant)			
Blood Pressure			
<140/90	11	1	9.1
140/90-160/110	17	3	17.6
>160/110	22	8	36.4
X^2=3.56 P<0.17, NS (Not Significant)			
No. of Convulsions			
1-5	43	5	11.6
6-10	7	7	100
X^2=25.78 P<0.001, Highly Significant			
C-D Interval (Hrs)			
6-12	16	3	18.8
13-24	24	6	25.0
>24	10	3	30.0
X^2=0.45, P<0.80, NS (Not Significant)			
Duration of Labor			
6-10	17	5	29.4
10-20	15	7	42.9
X^2=1.01, P=0.31, NS (Not Significant)			

Majority of perinatal deaths were in middle socio-economic group 33.4%.This was found to be statistically not significant (P=0.70). Perinatal deaths were significantly higher in unbooked cases (P<0.05) .

Perinatal mortality was 40% when maternal age was ≤ 25 years as against 26.7% when maternal age was <25 years. However this is not statistically significant (P=0.60) . The above observations show that perinatal mortality increases as the parity increases. Perinatal mortality being 18.9% in primiparous women as against 100% in para 2 and above. This was found to be statistically significant (P=0.03). Perinatal mortality was significantly higher when gestational age was <36 weeks.(P<0.01). Perinatal mortality was significantly higher in patients with blood pressure more than 160/100 mm of Hg. However this was statistically not significant (P<0.17). These patients were not on any treatment for hypertension during

antenatal period.Hence they had uncontrolled hypertension leading to eclampsia and increased perinatal mortality.

Perinatal mortality increases with the number of convulsions. This was found to be statistically significant(P<0.001).

Perinatal mortality increases with increasing convulsion delivery interval especially when convulsion delivery interval is >24 hours.Statistically this was found to be not significant (P<0.80).

Although there is an increase in the perinatal mortality with increase in the duration of labor, this was not statistically significant. (P=0.31).

Table -5: Maternal and perinatal mortality in relation to mode of delivery

Mode of Delivery	No.of cases	Maternal Deaths +	% of age	Perinatal Deaths++	% age
Vaginal	32	2	6.2	11	34.4
LSCS	18	-	-	1	5.6
Total	50	2	4.0	12	24.0

+:X^2=1.17 P=0.28 NS (Not Significant)

++: X^2=5.25 P=0.02 HS (Highly Significant)

Perinatal mortality was significantly less in those delivered by LSCS (P=0.02). Although there were no maternal death in the 18 cases delivered by LSCS, this was found to be statistically not significant (P=1.17)

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.

Table-6: Incidence of eclampsia reported by various authors

Incidence of eclampsia	Year	Incidence (%)
Mathew et al	1971	3.06
Shradha jain et al[7]	1988	1.00
S.Swain et al[8]	1993	2.2
PN Nobis[9]	2002	1.85
Suman Somegowda et al[10]	2007	0.4%-1.4%
P.N.Nobis et al[9]	2016	0.18%-3.7%
Present study	2019	1.42%
Socioeconomic status		
Saima et al.[8]	2012	67.96%
Arup kumar Majhi.[11]	2001	82%
Present study,	2019	94%
Author and Year		
Savita Ravi Singh et al [12]	2009	82%
Arup Kumar Majhi [11]	2001	82.3%
Present study		54%

The incidence in the present study is 1.42% as against , 0.179 to 3.7[6]% in 2016 reported by vanawalla, Ghamande S , 0.14 to 1.4% in2007 reported by Suman Somegouda et al[10], 2.79% and 1.85% reported by Arup Kumar Majhi (2001)[11]and Nobis PN, (2002)[6]respectively. 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 referral hospital.

In this series, most of the women (94%) had come from the low socioeconomic status. According to Saima et al (2012) majority of the patients (67.96%) belong to low income group. According to Arup Kumar Majhi (2001)[11], majority of the patients (82%) belonged to poor socio-economic status which is largely related to health consciousness and health and family welfare of the people. This indicates that socioeconomic status, poor nutrition and inadequate antenatal care, have a close relationship with eclampsia and increase perinatal and maternal mortality.

In the present study, the majority of women (54%) were unbooked. Maternal and perinatal mortality in this group was higher. About 82% of eclampsia patients in the study done by Savita. Ravi Singh et al[12] and 82.3% of patients in that of Arup Kumar Majhi 2001[11], did not have regular ANC's. It has been universally accepted that the adequate standard antenatal care has immense value in reducing the incidence of eclampsia by early detection of preeclampsia and its prompt management. Sibai et al[13] 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 46% of eclamptic women were booked and still developed eclamptic convulsions.

In the present study, all patients were hypertensive and all patients had oedema and proteinuria. According to Sibai Baha M.[14] 32% did not have oedema, 23% had relative hypertension, and 19% did not have proteinuria at the time of convulsions. Proteinuria is usually a late development in the course of preeclampsia. In this study maximum maternal and perinatal mortality was found when the blood pressure was above 160/110 mm Hg. According to Chesley,Kanner A patelM,Prajapati S[15]the systolic blood pressure of more than 200 mm of Hg is included in Eden's criteria to denote the severity of eclampsia and the mortality increases with the severity of eclampsia.

In this series 88% of victims were below the age of 25 years and 74% were nulliparous women. Eclampsia cases were more common primigravida and young age group. But maternal mortality was high in multigravida. According to Kavita Ravi Sing,warden M,EureleB, Agida ET, Adeka ,Jibril KA[16] 90% of cases were <30 years and were primigravida. According to Agudelo-Agustinconde[17], although nulliparity and young maternal age are well accepted risk factors for eclampsia, they were not found to be associated with the development of complicated eclampsia.The increased incidence of severe illness in multiparous and older women with eclampsia may be related to the rising prevalence of essential hypertension that occurs with aging. Fisher et al performed kidney biopsies on both nulliparous and multiparous patients with preeclampsia. They found prevalences of chronic renal lesions in 16.3% and 51.0% respectively. These findings could explain the higher rate of complications found in eclamptic multiparous.

In our series, all cases (100%) were of antepartum eclampsia. The maternal and perinatal mortality in antepartum eclampsia was 1.2 and 61.7% respectively. Significant increase in perinatal mortality in antepartum and intrapartum eclampsia is probably due to increase in duration of labor and birth asphyxia. As the saying goes, each fit brings the patient, a step closure towards the grave,this study shows statistically significant correlation with maternal, perinatal mortality and the number of convulsions. The results were similar to those observed by Rajesri et al (2011)[18]and BS. Dhananjaya (2009)[19]and Swain S. (1993)[8].

In the present series, convulsion delivery interval is directly proportional to maternal and perinatal mortality. However, increase in maternal mortality with increasing first fit to delivery interval was statistically not significant. Similar observations have been made by Rajesri et al (2011)[18]and Swain S. (1993)[8]. The perinatal mortality increases when the

interval between the first fit and the delivery increases, due to prolonged exposure to intrapartum asphyxia.

In this study, maternal mortality increased with the increase in the duration of labour. Although statistically not significant, there is a direct correlation between the perinatal mortality and duration of labour. This may be due to the simple reason that foetus is exposed to intrauterine asphyxia for a longer time.

In the present series perinatal mortality was high (70.6%) when the duration of gestation was < 36 weeks, which was found to be highly significant (P<0.001). Similar observations were made by Dhananjaya et al[19] (2009). Therefore prematurity is the main cause of high perinatal mortality. In the present series, out of 50 cases no one had repeat convulsion with zupan's regime. There is no general agreement as to the mode of delivery in eclampsia. George IO(2009)[20], Onwuhafua PI(2006)[21],kanner A patel M, Prajapati S chavda D(2016)[15], have favoured caesarean section to reduce maternal and perinatal mortality. In our study, also perinatal mortality was lowest (5.6%) in 18 cases where caesarean section was performed. However, maternal mortality in relation to mode of delivery was statistically not significant. Maternal and perinatal mortality in eclampsia is still very high and no appreciable change has been observed in the last 30 years. Menon reported a perinatal mortality of 30% and maternal mortality of 2.2%. In the present series, incidence of maternal mortality is 0.68% and perinatal mortality is 24%. Prematurity is the main cause of neonatal deaths. The high mortality rate in our series is probably due to the 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 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 centers may improve outcome in these cases.

Table -7: Incidence of perinatal mortality by various Authors

Author and year	Mortality(%)
Douglas and Redman(1994) [22]	7.3
Arupkumar Majhi(2001) [11]	39.9
BS Dhananjay et al(2009)[23]	30
PN Nobis et al[5]	24.5
Present study	24

CONCLUSION
- Eclampsia remains a major problem in developing countries.
- Eclampsia is a multisystem disorder of pregnancy and the puerperium, complicating approximately 3 to 4% of all deliveries in developing countries.
- In this study eclampsia accounted for 1.42% of the total deliveries conducted during the study period at a Tertiary Care Hospital of Telangana India
- The incidence of eclampsia though on a declining path remains a major obstetric problem and leading cause of Maternal Deaths even today, especially in the developing countries often taking its toll on the mother and foetus.
- The fact that eclampsia is largely a preventable disease is established by the negligible incidence of eclampsia with proper antenatal care and prompt treatment of pre-eclampsia.
- Early attention and intensive management are essential for improving maternal and foetal outcome in eclamptic cases.

- The factors found to be at least partially responsible for failure to prevent eclampsia were physician error, magnesium failure in giving prehospital loading dose Intransit, late postpartum onset, early onset, abrupt onset and lack of prenatal care.
- Also prompt referral to FRU /TH with prehospital referral treatment and shifting in dedicated transport are mainstay of survival and critical step in management
- In the present study the occurrence of eclampsia is high which is mainly due to high referral cases for further management. Moreover, this is a study done in referral centre and the actual situation in the society remainsunclear.
- Though the exact aetiology is unknown the incidence varies with age, socioeconomic status, nutritional status and quality of antenatal care in different parts of the world.

Prompt control of convulsions and blood pressure along with steps to initiate delivery form the basis and corner stone in effective Management of eclampsia for improving maternal and Perinatal Outcomes.

RECOMMENDATIONS
- ✓ Early detection of High Risks with prompt attention, action and focussed intensive management are essential for improving maternal and foetal outcome in Eclamptic cases.
- ✓ Cases should be referred to the referral hospital at the earliest with pre Hospital referral treatment of establishing Airway. IV life Lineand inj Magnesium Sulphate loading doseto improve Maternal & Perinatal Outcomes definitive
- ✓ Also the social and education status of women are important prognostic factors as improvement possiblewith increased Awareness of risks and active participation of subjects – mothers and their families in imparting of Antenatal care.
- ✓ A moderate differential reduction in Morbidity Mortality profiles of mother and foetus in our institution due to mandatory use of Standard treatment protocols -STP – Injection Magnesium sulphate, timed early/prompt delivery, proper implementation of emergency obstetric care protocol to all mothers with eclampsia.

LIMITATIONS
Present study was an hospital-based study with referrals from within the state and neighbouring state so incidence may be higher. Not all sections of the community representation as government facilities are used by large majority of population in lower socioeconomic strata with more numbers of illiteracy, poverty, malnourishmentand unresponsivity.
The subjects thus lack awareness thereby lesser or no knowledge regarding the grave consequences of a raised Blood pressure and or eclampsia.
 So, due precaution should be taken while projecting the study results into the community. Moreover, this is a study done in referral centre and the actual situation in the society remains unclear in a Hospital based studies

REFERENCES
1. Abalos E, Cuesta C, Carroli G, Qureshi Z, Widmer M, Vogel JP, Souza JP, WHO Multicountry Survey on Maternal and Newborn Health Research Network.Pre eclampsia, eclampsia and adverse maternal and perinatal outcomes: a secondary analysis of the World Health Organization Multicountry Survey on Maternal and Newborn Health. BJOG: An International Journal of Obstetrics & Gynaecology. 2014 Mar;121:14- 24.
2. Khaki J. Factors associated with the utilization of postnatal care services among Malawian women. Malawi Medical Journal. 2019;31(1):2-11.
3. Nobis PN, Hajong A. Eclampsia in India through the decades. The Journal of Obstetrics and Gynecology of India. 2016 Oct 1;66(1):172-6.

4. Misra R. Ian Donald's Practical Obstetric Problem, 6/e. BI Publications Pvt Ltd; 2006;300- 301.
5. Agida ET, Adeka BI, Jibril KA. Pregnancy outcome in eclamptics at the University of Abuja Teaching Hospital, Gwagwalada, Abuja: a 3 year review. Nigerian journal of clinical practice. 2010;13(4).
6. Nobis PN, Hajong A. Eclampsia in India through the decades. The Journal of Obstetrics and Gynecology of India. 2016 Oct 1;66(1):172-6.
7. Ambad RS, Dhok A. The role of serum urea, creatinine, uric acid in diagnosis of pre-eclampsia and eclampsia. International Journal of Medical and Biomedical Studies. 2019 Sep 18;3(9).
8. Swain S, Ojha KN, Prakash A, Bhatia BD. Maternal and perinatal mortality due to eclampsia. Indian pediatrics. 1993 Jun;30(6):771-3.
9. Nobis PN. Maternal outcome in eclampsia. J ObstetGynecol Asia. 2002;6:25-8.
10. Gaddi Suman S. Somegowda.'Maternal and Perinatal outcome in eclampsia in a district hospital. J ObstetGynecol Ind. 2007 Jul;57(4):324-26.
11. Majhi AK. Eclampsia-present scenario in a referral medical college hospital. J ObstetGynaecol India. 2001;51:143-7.
12. Kumari P, Singh S, Khatun S. Comparative study of vaginal delivery and caesarean section in antepartum eclampsia at tertiary care hospital. Int J Reprod Contracept Obstet Gynecol. 2017;6(2):457-60.
13. Sibai BM, McCUBBIN JH, Anderson GD, Lipshitz JE, Dilts JP. Eclampsia. I. Observations from 67 recent cases. Obstetrics and gynecology. 1981 Nov;58(5):609-13.
14. Sibai BM. Eclampsia: VI. Maternal-perinatal outcome in 254 consecutive cases. American journal of obstetrics and gynecology. 1990 Sep 1;163(3):1049-54.
15. Pradhan T, Rijal P, Rai R, Bhatta RD, Thapa BD, Regmi MC. Adverse Maternal and Fetal Outcome in Patients with Eclampsia. Journal of Nepal Health Research Council. 2018;16(41):425-7.
16. Agida ET, Adeka BI, Jibril KA. Pregnancy outcome in eclamptics at the University of Abuja Teaching Hospital, Gwagwalada, Abuja: a 3 year review. Nigerian journal of clinical practice. 2010;13(4).
17. Condé-Agudelo A, Kafury-Goeta AC. Case-control study of risk factors for complicated eclampsia. Obstetrics &Gynecology. 1997 Aug 1;90(2):172-5.
18. Paes MM, Diniz AL. Chronic perfusion changes and reduction in preeclampsia incidence in pregnant smokers: An ophthalmic artery Doppler study. The Journal of Maternal-Fetal& Neonatal Medicine. 2015 Nov 22;28(17):2074-9.
19. Pairu J, Bharathi KN, Kristine G. Maternal and perinatal outcome in pregnancy induced hypertension and pre-eclampsia. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2016;5(7):2166-70.
20. George IO, Jeremiah I. Perinatal outcome of babies delivered to eclamptic mothers: a prospective study from a Nigerian tertiary hospital. International journal of biomedical science: IJBS. 2009 Dec;5(4):390
21. Onwuhafua PI, Oguntayo A. Perinatal mortality associated with eclampsia in Kaduna, Northern Nigeria. Nigerian journal of medicine: Journal of the National Association of Resident Doctors of Nigeria. 2006;15(4):397-400.
22. Douglas KA, Redman CW. Eclampsia in the united kingdom. Bmj. 1994 Nov 26;309(6966):1395-400.
23. Dhananjay BS, Dayananda G, Sendilkumaran D, Murthy N. A study of factors affecting perinatal mortality in eclampsia. J Physiol Biomed Sci. 2009;22(2):2-5.