Original Article

Morbidities among Eclamptic Women of Lower Socioeconomic Community in a Selected Area of Bangladesh

Pervin R[1], Halim KS[2], Ara N[3], Islam SM[4], Nargis F[5]

Abstract

Eclampsia is a serious obstetric emergency with new onset of grand mal seizure during pregnancy or postpartum women having signs symptoms of pre-eclampsia. The sequel of severe pre-eclampsia and eclampsia includes organ failure, loss of consciousness and finally loss of lives of both mother and fetus. This study aimed to evaluate morbidity of eclamptic women at lower socioeconomic community in a selected area of Bangladesh. This descriptive cross sectional study was conducted at Sheikh Hasina Medical College Hospital (SHMC.T) of Tangail district during the period of January to December 2019. During this period 7918 admitted patients from different sub-districts (Upazilas) of this district in obstetrics ward of SHMC.T were observed and 205 diagnosed eclamptic patients were selected as respondents for this study to detect morbidities. The prevalence rate of eclampsia among the obstetrics patients was 2.6%, where 81% of them were found during antepartum/intrapartum and rest of them during postpartum period. The mean age of the eclamptic cases was 23.78±4.94 years and more than half of them were in age group 21-30 years. Most of the cases (84%) were from primary level or able to sign or illiterate and rest was secondary level of education. Mean age of marriage and first pregnancy were 17.81±SD2.19 and 19.39±SD2.5 years respectively, where majority of patients were primigravida. Among the multi gravida about one fourth had 2-4 children, 16.09% had 5-6 children, where 1.46% had ≥7 children and more than three-fourth of cases had 34-37 weeks of gestational period. Among cases 95.1% had hypertension, 94.6% edema, 83.9% convulsion, 39.5% headache with blurring of vision, 22.4% severe abdominal pain, 79.0% proteinuria and 9.76% unconsciousness. Incidence of maternal morbidity during study period was 14.36%, among them 9.4% pulmonary edema, 1.5% renal failure, 0.98% HELLP (Hemolysis, Elevated liver enzyme level and Low Platelet level) syndrome, 0.98% coma and 1.5% placental abruption. Caesarean delivery was 79.2% and 11.70% was detected as postpartum haemorrhage. Among fetal morbidity 19.5% intrauterine growth restriction, 48.8% low birth weight, 39.6% birth asphyxia, and 58.5% preterm baby. During follow up only persistent hypertension was found as morbidity of eclampsia, 19.5%, 9.8% and 7.32% at 2nd week, at 6th week and at 6th months respectively. Regarding health care services 93.7% had available facility and 41.5%, 47.8% and 10.7% lived in >10 kilometers (kms), 5-10 kms and less than 5 km distance respectively. Regarding MCH services; only 5.9% patient received antenatal care (ANC) ≥4 times; more than half of them incompletely received ANC <4 times and 42.0% never visited for ANC. This study reveals various matters of maternal and fetal morbidities commencing from eclamptic condition in lower socioeconomic community. Here important factors for morbidities in eclamptic women like lack of ANC/ PNC, availabilities of MCHC services and others. Pulmonary edema, renal failure, HELLP syndrome, coma and placental abruption are important maternal morbidities. Prematurity, low birth weight, intrauterine growth restriction and birth asphyxia are foremost fetal morbidities. Availabilities of MCH services, complete visit for ANC/ PNC and early diagnosis and management of eclamptic women positively reduce morbidity and will prevent eclampsia.

Keywards: *Eclampsia, morbidities, lower socioeconomic community*

1. *Dr. Rehana Pervin, FCPS (Gynae), Assistant Professor, Department of Gynae & Obstetrics Sheikh Hasina Medical College (SHMC.T), Tangail. E-mail: dr.rehanapervin73@gmail.com

2. Dr. Kazi Shafiqul Halim, Professor, Department of Epidemiology, National Institute of Preventive and Social Medicine (NIPSOM), Mohakhali, Dahaka.

3. Dr. Noor Riffat Ara, Deputy Program Manager, (DPM, MNC & AH), Director General of Health Services (DGHS), Mohakhali, Dhaka.

4. Dr. Syed Monirul Islam, Asstant Professor, Department of Cardiac Surgery, Sir Salimullah Medical College, Dhaka.

5. Dr. Fatema Nargis, Medical Officer, OSD, DGHS; Attached: BG Press Medical; Centre, Tejgaon, Dhaka

* For correspondence

INTRODUCTION

Eclampsia is a serious disease, especially in developing countries it is a major health issue and the second leading cause of maternal mortality in Bangladesh, according to report of BMMS 2010[1]; it contributes 20% of maternal mortality in Bangladesh.

In preeclampsia hypertension and proteinuria are present and when convulsions occur in addition to these sign the condition is referred to as eclampsia[2]. The clinical mani-

festations of maternal preeclampsia are hypertension and proteinuria with or without co-existing systemic abnormalities involving the kidney, liver or blood. There is also a fetal manifestation of preeclampsia involving fetal growth restriction, reduced amniotic fluid and abnormal fetal oxygenation. HELLP syndrome is severe form of preeclampsia which involve hemolytic anemia, elevated liver enzyme and low platelet count[2]. Most case of eclampsia occurs in third trimester of pregnancy, with about 80% of eclamptic seizures occurring intrapartum or within the first 48 hours following delivery[3]. Multiple risk factors are known for development of pre eclampsia, including primiparity, maternal age over 40 years, chronic hypertension or diabetes, multiple gestation and prior history of pre eclampsia[4]. Prognosis of eclampsia is uncertain which depends on many factors, these are long interval between onset of fit and start of treatment, number of fit, coma, temperature over102^{0}F with pulse rate>120minutes, Blood pressure >200mmHg systolic, oliguria (<400ml/24 hours) with proteinuria>5gm/24 hours, non-respond to treatment and jaundice. The perinatal mortality is very high to the extent is about 30-50%, causes are mainly prematurity-spontaneous or induce, intrauterine asphyxia, effects of drugs and trauma during operative delivery.[3]

This descriptive study determines pattern of morbidities of eclampsia occurred in lower socioeconomic community in a selected area of Bangladesh.

METHODOLOGY

This descriptive cross sectional study was conducted at Tangail district of Bangladesh and SHMC.T was selected as a focal point for data collection. Patients were referred from different sub-districts (Sub-D) of this district and uniform representation of sample collection was maintained for each Sub-D. This study was carried out during the period of January to December 2019. All the patients of pregnant and post-partum women admitted in obstetrics ward of SHMC.T were included in this study. During study period total 7918 patients were admitted to obstetrics ward, among them 205 were eclamptic patients and selected as respondents in this study to detect morbidities. Ethical approval was taken from Bangladesh Medical Research Council (BMRC) and both verbal and written consent of patient were taken prior to data collection. Data was collected by random sampling through semi-structured questionnaire and check list. Face to face interview of patient/ patient's

attendance, patient's examination, record review and bed side urine albumin test were done. Morbidities were diagnosed by examining clinical signs/ symptoms and by investigations reports (bilirubin, SGPT, SGOT, LDH, platelets count). Patients were followed from admission to discharge then at 2nd weeks, 6th weeks and 6th months follow-up for long term morbidities. Data were analyzed by Statistical Package for the Social Science (SPSS).

RESULTS

The study result has been presented in tabular and graphical form as follows-.
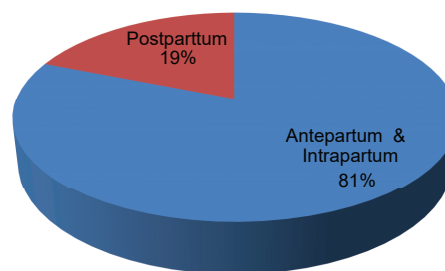

Fig.-1: *Distribution of respondents according to types of eclamptic women.*

Figure: 1 Shows that among 7918 admitted patients were in obstetrics ward of SHMC.T 205 patients were eclamptic. Appraised incidence of eclamptic women in this district was 26/ 1000 women of their natal period. Among them 166(81%) was antepartum intrapartum and 39(19%) postpartum period.

Table I shows participant's age, ranged from 11 years to 40 years with a mean of 23.78 (±4.94) years. The highest, lowest and median age was 45, 18 and 34 years respectively. About 110,(53.7%) of the respondents were in the age group of 21-30 years which is the highest among other groups. In contrast, 80 (39.0%) of the respondents in the 11-20 age group, and slightly more than that, 15 (7.3%) of the respondents represented the group of 31-40 years old.

Table I: Distribution of the respondents according to age of eclamptic women (n=205)

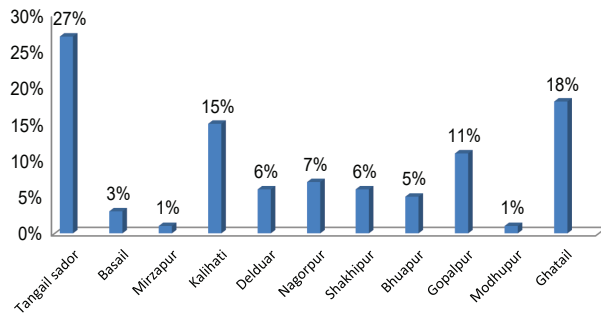| Age group (years)	Frequency (f)	Percentage (%)	Mean±SD
11-20	80	39.0	23.78 ± 4.94
21-30	110	53.7	
31-40	15	7.3	
Total	205	100.0	

Fig.-2: *Distribution of respondents according to area (n=205).*

Figure: 2 shows the distribution of respondents in different Sub-D, 55(27%) were from Tangailsadar, 7(3%) fromBasail, 01(1%) Mirzapur, 30(15%) Kalihat, 12(6%) Delduar, 15(7%) Nagarpur, 13(6%) Shakhipur, 12(5%) Bhuapur, 21(11%) Gopalpur, 2(1%) Modhupur, and 37(18%) Ghatail sub-districts.
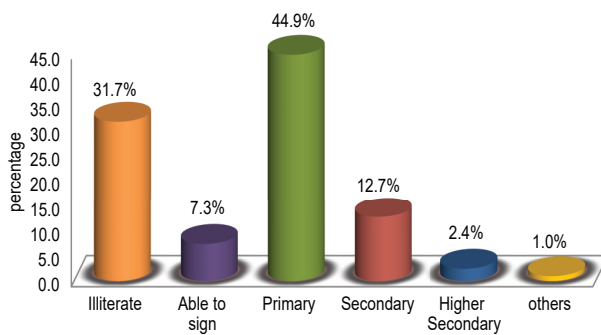

Fig.-3: *Distribution of respondents according to educational status (n=205).*

Figure: 3 shows the distribution of educational status; 92 (44.9%) had completed primary level, 65 (31.7%) were illiterate, 26 (12.7%) had completed secondary level, 15 (7.3%) was able to sign their name, 5 (2.4%) had completed higher secondary and rest of the respondents 2 (1.0%) were in others level of education.

Table II shows the distribution of occupation and family income, 201 (98.0%) were housewives, 2 (1%) others occupation, where 1 (0.5%) service and business. Monthly family income ranged from 00.00 Tk-30000TK with a mean of 9129.27 (±4493.91) Tk, median incomes was 8000Tk. The monthly income 00.0-10000Tk was 161 (78.5%), then 10001-20000Tk was 42 (20.3%), and the rest 2 (4%) of them 20001Tk and above.

Table II: istribution of respondents according to occupation and family income. (n=205)

Characteristics Occupation of respondents	Frequency (f)	Percentages (%)
Housewife	201	98.0
Service	1	0.5
Business	1	0.5
Others	2	1.0
Total	205	100.0
Monthly Family Income		
Upto 10000	161	78.5
10001-20000	42	20.5
20001 to above	2	1.0
Total	205	100.0

Table III shows the distribution of first marriage and age at first pregnancy; the mean age at first marriage was 17.81 years± SD 2.19 and age range at first marriage 11-29 years. The mean age at first pregnancy was 19.39 years± SD 2.58 and age range first pregnancy was 14-30 years.

Table- III : Distribution of respondents according to age at marriage and age at First Pregnancy. (n=205)

	Age at marriage	Age at first pregnancy
Mean	17.81	19.39
Std. Error of Mean	.153	.180
Std. Deviation	2.191	2.577
Range	18	16
Minimum	11	14
Maximum	29	30

Table IV shows the distribution of parity, 117 (57.07%) were primipara, 88 (42.93%) multipara; according to number of children, 52 (25.37%) had 2-4 children, 33 (16.09%) had 5-6 children and 3 (1.46%) had more than 7 children. Time duration between present and previous pregnancy, 59 (28.78%) had 1-5 years' time space between past and present pregnancies, 12(5.85%) had more than 5 years, 17 (8.3%) had less than 1 year. Primigravida was 117 (57.07%).

Table IV : Distribution of respondents according to parity: (n=205)

Characteristics	Frequency (f)	Percentages (%)
Parity		
Primipara	117	57.07
Multipara	88	42.93
Total	205	100.0
Number of Children		
Primigravida	117	57.07
2-4 children	52	25.37
5-6 children	33	16.09
=>7 children	03	1.46
Total	205	100.0
Duration of present and previous pregnancy		
<1 year	17	8.3
1-5 year	59	28.78
> 5 year	12	5.85
Not applicable	117	57.07
Total	205	100.0

Table V shows the distribution of history of (H/O) eclampsia, 193 (94.14%) had no H/O of and 12 (5.86%) had H/O of eclampsia.

Table V: Distribution of respondents according to H/O eclampsia (n=205)

Characteristics	Frequency (f)	Percentages (%)
History of eclampsia		
No	193	94.14
Yes	12	5.86
Total	205	100.0

Table VI shows the distribution of gestational period, 159 (77.6%) were in moderate to late preterm (34-37 weeks), 19 (9.3%) were in very preterm period (28-33 weeks) and 27 (13.2%) were in full term (≥38 weeks).

Table VI : Distribution of respondents gestational period during delivery (n=205)

Characteristics	Frequency (f)	Percentages (%)
Gestational Period		
Very preterm (28-33) weeks	19	9.3
Moderate to late Preterm (34-37) weeks	159	77.6
Full term(≥38 weeks)	27	13.2
Total	205	100.0

Table VII shows the distribution of denger signs, 195 (95.1) had hypertension, 194 (94.6%) had edema, 172 (33%) had convulsion, 14 (6.8%) had P/V bleeding, 81(39.5%) had headache with blurring of vision, 46 (22.4%) had severe abdominal pain, 162 (79.0%) had proteinuria, 33 (16.1%) difficulty of breathing and 20 (9.76) unconsciousness.

Table VII: Distribution of Respondents according to Danger Sign (n=205)

Danger sign during pregnancy	Present f (%)	Absent f (%)
Hypertension	195(95.1)	10(4.9)
Edema	194 (94.6)	11 (5.4)
Convulsion	172(83.9)	33(16.1)
Headache with blurring vision	81(39.5)	124 (60.5)
Severe abdominal pain	46 (22.4)	159 (77.6)
Per vaginal bleeding	14(6.8%)	191(93.2%)
Proteinuria	162(79.0)	43(21.0)
Difficulty in breathing	33(16.1)	172(83.9)
Unconsciousness	20(9.76)	185(90.23)

*multiple responses

Table VIII shows the distribution of maternal of eclamptic women, 19 (9.4%) had pulmonary edema, 3 (1.5%) had Renal failure, 02 (0.98%) had HELLP syndrome, 02 (0.98%) had Coma, 3 (1.5%) had placental abruption, 160 (79.2%) Cesarean delivery and 24 (11.70%) PPH.

Table VIII: Information related to maternal morbidities due to eclampsia (n=205)

Maternal morbidities	Frequency (%)	Percentage (%)
Pulmonary edema	19	9.4
Renal Failure	3	1.5
HELLP Syndrome	2	0.98
Coma	2	0.98
Placental abruption	3	1.5
Cesarean delivery	160	79.2
Postpartum hemorrhage (PPH)	24	11.70

*multiple responses

Table IX shows the distribution of fetal morbidity, 40 (19.5%) had intrauterine growth restriction, 100 (48.8%) had LBW baby, 80 (39.6%) had problem with birth asphyxia and 120 (58.5%) had preterm baby.

Table IX: Information related to fetal morbidities due to eclampsia(n=205)

Fetal Morbidities	Frequency (f)	Percentage (%)
Intrauterine growth restriction	40	19.5
Low birth weight (LBW)	100	48.8
Birth asphyaxia	80	39.02
Preterm baby	120	58.5

*multiple respones

Table X shows the morbidities during follow up, 40 (19.51%), 20 ((9.75%) and 15(7.32%) had persistent hypertension at 2nd week, 6th week and at 6th month of follow up respectively. Others morbidities, anemia, secondary PPH, wound infection, 6 (2.92%) had at 2nd weeks, and 8(4.9%) had at 6th weeks.

Table X: Distribution of respondents according to morbidities during follow up (n=205)

Morbidities	2nd weeks	6th weeks	6th months
Persistent hypertension	40(19.51%)	20(9.76%)	15(7.32%)
Others Morbidities (anemia, PPH wound infection)	6(2.92%)	8(3.90%)	00
Nomorbidities found	159(77.57%)	177(86.34%)	190(92.68%)

Table XI shows the information related to health care service from respondents, 192 (93.7%) had availability of health care facility, 13 (6.3%) had no availability. Distance of health care facility from the residence of respondents 98 (47.8%) came from 5-10 Kilometers (kms) distance, 85 (41.5%) from more than 10 kms and 22 (10.7%) from less than 5 kms distance to health care facility. Regarding ANC visits, 107 (52.2%) partially (less than 4 times) visited for ANC during gestational period, 86 (42.0%) never visited for any type of ANC, 12 (5.9%) completed the full ANC visit (≥ 4 times).

Table II: Information related to health care service (n=205)

Characteristics	Frequency (f)	Percentages (%)
Availability of health care facility		
Yes	192	93.7
No	13	6.3
Total	205	100.0
Distance of health care facility		
<5km	22	10.7
5-10 km	98	47.8
≥10 km	85	41.5
Total	205	100.0
H/O ante-natal checkup		
Complete(≥ 4 times)	12	5.9
Partial (< 4 times)	107	52.2
Never	86	42.0
Total	205	100.0

LIMITATIONS OF THE STUDY

The study population was included from one selected district of Bangladesh and data were collected from one health facility. Some patients of the selected district attended to other health facilities and some patients from border areas receive MCHC services form adjoining districts. Findings of this study may infrequently match with the actual data of the whole district and even whole country. Most of patient didn't attend any postnatal follow up; hence in some cases we collected information electronically. The study was conducted for short period with moderate sample size.

DISCUSSION

Eclampsia is still one of the important and common obstetrics Emergency in developing country like Bangladesh which has significant role of maternal and Fetal morbidities and mortalities. In this study incidence of eclampsia was 2.6% which is comparable to other developing countries with the incidence of 1 in 100 to 1 in 1700 pregnencies.[5,6,7]. Simillar study done by Raji et al[8] found incidence of eclampsia 0.83%. In our study 81% respondents were antepartum and intrapartum, 19% were postpartum eclampsia; similar to study Tamina et al[9], reported that antepartum and intrapartum eclampsia 92%, postpartum 10%. This study observed that majority (53.7%) respondents belonged to age 21-30 years. The mean age of respondents was 23.78(±4.94) years. NADEEM SHAZAD et al[10] observed mean age 25.17±4.9

years and maximum age group 26-30 years. Ahmed Mahran et al[11] showed that maternal age was major risk factor with 42.2% patients aged <20 years. In this study all respondents came from rural area of Tangail district and 27% from Tangail sadar, 3% Basail, 1% Mirzapur, 15% Kalihati, 6% Delduar, 7% Nagarpur, 6% shakhipur, 5% Bhuapur, 11% Gopalpur, 1% Modhupur and 18% Ghatail. Nearly half of respondents (44.9%) had completed primary level of education and 31.7% were illiterate 12.7% had completed secondary level and 7.3% able to sign. Most of respondents were housewives and belong to lower economic condition (had monthly income up to 0-10,000 taka). Ahmed mahar et al[11] showed that low socioeconomic standard obviously affected the incidence of the eclampsia. Two-third patient had no education at all and 24.8% received primary education. Meleseet al[12] showed that higher the women's educational status, lower the perinatal unfavorable outcomes of severe eclampsia. The mean age at marriage was 17.81 years ±SD 2.19 and the mean age at first pregnancy was 19.39±SD2.57. Maximum age during first pregnancy was 30 years where minimum age was 14 years. Ahmed Meharan et al.[11] showed short duration of marriage was found increase risk of eclampsia. In this study 57.07% were primipara, 42.93% multipara. Among multiparous 25.3% had 2-4 children, 16.09% had 5-6 children and 1.46% had ≥7 children. Space between present and previous pregnancy 28.78%) had 1-5 years, 5.85% had ≥5years and 17(8.3%) had <01 year gap. Pipkin FB et al[13], Duckit k et al[14] observed nulliparity is a well-known risk factor for eclampsia. Raji et al[8]found 69.2% had primigravida, 27.4% had parity 2-4 while 3.4% had parity between p_5 and p_6. NADEEM SHAHZAD et al[10] found 63% was primigravida and 28% had parity 2-4, whereas 6% was p_5 –p_6 and 3% had ≥7. In this study 5.86% had previous H/O pre eclampsia. Ahmed Mahranet al[11] identified previous H/O pre eclampsia in 59.6% cases. This study observed more than three-fourth had 34-37 weeks of gestation, 13.2% had ≥38 weeks and 9.3%) had 28-33 weeks of gestation. Study by NADEEM SHAHZAD et al[10] showed, 39% of patient presented at gestational age of 31-36 weeks while 39% had gestational age of 37 weeks or above. It is observed that risk of eclampsia in third trimester is more. In this study 95.1% hypertention, 94.6% edema, 83.9% convulsion, 6.8 per vaginal bleeding, 39.5% headache with blurring of vision, 22.4% abdominal pain, 79.0% proteinuria, difficulty in breathing in 16.1% and 9.76% had unconsciousness; similar to study Mattar F et al[15]. Raji et al[8] and Ahmed mahran et al[11]. Among the maternal morbidity (14.63%) this study finds of

pulmonary edema 9.4%, Renal failure 1.5%, HELLP syndrome 0.98%, coma 0.98% and abruption placentae 1.5%, chMadhuri et al.[16] and Mosammot Rashida Begum et al[17] found incidence of eclampsia with different complication was 21% which included renal failure 0.7%, hepatic failure 0.5%, heart failure 0.5%, coma 2.9%, pulmonary edema 10.3% and DIC 1.0% which was similar to this study. CS and PPH are not complication of eclampsia but risk for this complication is high. In this study 79.2% had CS and 11.70% developed PPH. Tulfinel et al[18] reported 72% CS which is similar to this study. chMadhuri et al[16] reported 6.53% PPH. In this study fetal morbidities was high and among them, 58.5% had preterm baby, 48.8% LBW, 19.5% intrauterine growth restriction and 39.02% had problem with birth asphyxia. chMadhuri et al[16] reported 30.49% prematurity, 41.47% LBW, 10% IUGR , 14.17% intrauterine death. Eclampsia is reported with high perinatal mortality and morbidity. It is established that early delivery reduce maternal morbidity but induced fetal prematurity. During follow up period as sequel of eclampsia only persistent hypertension was found but other morbidities like wound infection, anemia secondary PPH found in some cases; 19.5% at 2nd weeks, 9.75% at 6th weeks and 7.32% had persistent hypertension at 6th months. Others morbidities were observed in 2.92% at 2nd weeks, and 4.9% at 6th weeks. Others morbidities are not complication of eclampsia but these worsen patient condition. We observed information related to health service, 93.7% had availability of health care facilities and 6.3% had no availability, where 41.5% had ≥10Km distance, 47.8% had 5-10 Km and 10.7%) had <5Km. Study finds that 5.9% completed ≥4 ANC, 52.2%) taken partial (<4) ANC and 42% never received ANC. Ahmed Mahran et al[11] showed, 30% did not attend ANC throughout pregnancy, 64.4% had <4 ANC. Antenatal care is important point to identify preeclamptic state.

CONCLUSION

This study reveals that eclampsia is still important cause of maternal and fetal morbidity in lower socioeconomic community. Nulliparity, primigravida, less interval in between pregnancy, pregnancy at early age, lack of education, lack of ANC and lack of health care service availabilities are important factors for morbidities in Eclamptic women. Pulmonary edema, renal failure, HELLP syndrome, coma and placental abruption are important maternal morbidities slowing to achieve MDG goal. Prematurity, low birth weight, intrauterine growth restriction and birth asphyxia are important fetal morbidities adding bulge in child health care. Proper

antenatal care, available health care facility, early diagnosis of pre eclamptic condition, proper treatment of pre eclampsia and appropriate referreal can prevent eclmpsia and its morbidity.

RECMMONDATION

The huge prevalence rate of eclampsia during antepartum/ intrapartum period might be the major concern of health care providers. Assurance of MCH services for every pregnant women throughout their natal period by continuous upgrading their database and by settling ANC & PNC (postnatal care) at Community Clinic. Prompt referral of eclamptic women to higher level health care facilities would reduce the morbidities and mortality during natal period. Thus complete visit to MCH services during natal period, early diagnosis and management of pre-eclamptic condition positively will reduce morbidity and will prevent eclampsia.

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