Eclampsia-prevalent yet preventable complication – experience at tertiary care centre

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ABSTRACT

Introduction: Maternal mortality is not only a health disadvantage, rather it is a social disadvantage as it puts economic burden on the family, community, governments, and nations. **Aim**: It is prospective study of eclampsia for period of 9 months admitted in tertiary care center for treatment. **Materials and Methods**: 152 cases of eclampsia are analysed as to the antenatal care, severity of HTN, type of eclampsia, gestational age, mode of induction, mode of delivery, complications, maternal and perinatal outcome with an aim to revise and improvise existing protocols. **Results**: Total deliveries were 12406and incidence in present study is 1.2%, Age of the women is from 20-36 years in which Primi's were 59.2%, Gestational age is more than 28 weeks in 89% of total incidence mild PIH in 45.8%. Perinatal mortality rate 28.3% which is much lower when compared with patients who delivered vaginally (43.3%)Vaginal delivery were more than LSCS , Abortions were 11.8%, 18 cases were found with IUD 4 maternal deaths,2 cases severe HTN & CVA,1 Aspiration pneumonitis,1 pulmonary embolism. **Conclusion**: Eclampsia a life endangering obstetric emergency. Wide awareness of protocols at referal centres, early treatment and timely referral of pre-eclampsia, availability of MICU and NICU facilities will further improve maternal and foetal outcome.

Key words: Eclampsia, Magnesium sulphate, Maternal complications and perinatal outcomes.

Introduction

Eclampsia is defined as development of grand mal seizures in women with preeclampsia. Term eclampsia is derived from greek word a flash of lightening.80% cases of eclampsia is preceded by severe preeclampsia. Eclampsia is most severe and life threatening manifestation with an estimated risk of 4-5/10,000 live births [1]. It rarely may arise in women with minimally increased blood pressure and no proteinuria. There is significant risk of cardiorespiratory arrest during and after seizure. The FOGSI-ICOG National Eclampsia Registry (NER) reveals eclampsia prevalence among registry as 1.9%.This is 111.725 deliveries analysed and reported by 175 reporting centres. In NER 76.78% were antepartum, 9.5% intrapartum and 13.72% were postpartum [2].Maternal mortality is very high in eclampsia in India about 2-30% depending upon severity of complications and type of eclampsia. Perinatal mortality is also very high to extent of 30-50% depending on gestational age, IUGR and mode of delivery [3]. Eclampsia is most common in young primigravida..The various life threatening complications in mother seen include intracranial haemorrhages, abruption, aspiration, pulmonary edema, acute renal failure and DIC. Although eclampsia remains a cause of maternal and foetal morbidity and mortality in developed countries, the incidence has fallen considerably in developed countries due to high quality antenatal care [4,5]. However, this decline is not yet observed in developing countries [6,7].

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Materials and methods

This is prospective study of 152 cases of eclampsia admitted at MGMH petlaburz, Osmania Medical College, Hyderabad of Telangana state, a 460 bedded hospital. During the period of 9 months from January 2014 to September 2014, among 12,406 deliveries 152 cases of eclampsia were registered. Our incidence of eclampsia is 1.2%.

Inclusion Criteria:

All patients with diagnosis of eclampsia.

Exclusion Criteria:

Patients of epilepsy and other causes os seizures i.e;head injury,meningitis,cerebral malaria.Detailed history was taken from all these cases at the time of admission regarding age, socioeconomic status, parity, gestational age, time of onset, number of convulsions, duration of convulsions as per proforma. Thorough clinical and obstetric examination was done, neurological status assessed, bladder catheterized, bedside tests (Blood pressure, Clotting time, knee jerks, urine output and urine albumin),laboratory investigations done which include complete blood picture, complete urine examination, coagulation profile, Lactate dehydrogenase levels, Liver function tests, Blood sugars, Renal function tests, Serum uric acid levels, Viral markers, Obstetric scan and Doppler studies, CT scan &MRI in some cases.Control of convulsions were done by Pritchard $MgSO_4$ regime which was continued for 24 hours after delivery. Alpha methyl dopa, labetolol and Nifedipine were used as antihypertensives. After stabilizing the patient termination of pregnancy was planned according to clinical findings for vaginal or caesarean birth. Maternal and fetal outcomes were assessed.

Results

Total 12,406 deliveries 152 cases of eclampsia were registered. Our incidence of eclampsia is 1.2% ie 152 cases.

Table 1: Demographic distribution of patients (n =152)

Age	No.of cases	Percentages
<20 years	56	36.8%
21-25 years	62	40.7%
26-30 years	28	18.4%
31-35 years	06	3.94%
Antenatal care:		
Booked	35	23.1%
Unbooked	117	76.9%
Parity		
Primigravida	90	59.2%
G2	34	22.3%
G3	16	10.5%
G4	12	7.8%

77% of cases were less than 25 years of age. 76.9% of cases were unbooked and referred from peripheral centres.55.2% were referrals. Majority of cases were primigravidae(90).

Table 2: Type of Eclampsia, Gestational age, Number of convulsions in present study

Type of Eclampsia	No of cases.	Percentages.
Antepartum	126	82.8%
Intrapartum	14	9.2%
Postpartum	12	7.8%
Gestational age		
<28weeks	17	11.1%
28-32 weeks	42	27.6%
33-36 weeks	58	38.1%
>36 weeks	35	23.02%
Number of convulsions		
1-2	40	26.3%

3-4	74	48.6%
5-6	30	19.7%
>6	8	5.2%
Regimen		
Pritchard $MgSO_4$ regimen	132	86.8%
Phenytoin	10	6.5%
Diazepam with $MgSO_4$	14	9.2%

82.8% convulsions were antepartum. Majority of convulsions were in gestational age of 33-36 weeks. 50% of patients had 3-4 convulsions at admission. Maternal mortality was maximum in those patients with more number of convulsions. We follow Pritchard $MgSO_4$ regimen in our hospital (86.8%)

Table 3: Mode of Delivery and Mode of induction in study

Mode of Delivery	No. of patients	Percentage
Vaginal Delivery	104	68.4
LSCS	46	30.2
Mode of induction		
Misoprostol	38	41.3
Emecredil	18	19.5
ARM with oxytocin	30	32.6
ARM	12	13.04

68.4% delivered vaginally, 30.2% delivered by LSCS, 2 patients died undelivered. Majority of patients were induced with misoprostol / ARM with oxytocin.

Table 4: Clinical outcome, Maternal and Perinatal complications

Clinical outcome	Number of cases
Vaginal delivery	104 cases
LSCS	46 cases
Died undelivered	2 cases
Came with IUD	18 cases
Maternal death	4 cases
Maternal Complications	
Abruptio placenta	8, vaginal(3), LSCS(5)
PPH	10, vaginal(8), LSCS(2)
Anemia	22
DIC	10
HELLP Syndrome	12
Raised Renal Parameters	8
Postpartum Psychosis	10
Pyrexia	4
Recurrent Convulsions	8
Transfusion Of Blood	10
Transfusion Of FFP	12
Transfusion Of PRP	12
Blurring Of Vision	6
PRES Syndrome	4
DVT	2
Perinatal complications	
IUGR and Oligohydramnios	20
Meconium Stained Liquor	15
IUD	18

Still Births	24
Neonatal Deaths	9
Preterm Births	115
NICU Admissions	108

All cases divided into 2 groups based on mode of delivery 104/152 69.3% delivered vaginally, 30.6% (46/152) delivered by LSCS, 18 cases came with IUD among them 12 delivered vaginally, 6 patients underwent LSCS. Among 4 maternal deaths 2 patients died undelivered with severe hypertension and CVA, 1patient died on first post operative day with recurrent convulsions and aspiration pneumonitis another patient died with pulmonary embolism. All patients were unbooked young primigravidae and they were late referrals.

Table 5: Perinatal outcome in Vaginal delivery

Birth Weight	Total births(104)	Live births(68)	Came with IUD(12)	Still births(24)	Neonatal deaths(9)
Perinatal outcome in Vaginal delivery					
<1KG	16	2	NIL	14	NIL
1-1.5KG	10	8	NIL	2	4
1.6-2KG	20	12	2	6	3
2.1-2.5KG	40	32	6	2	2
2.6-3KG	12	8	4	NIL	NIL
>3KG	6	6	NIL	NIL	NIL
Perinatal outcome in LSCS group					
<1KG	4	1	NIL	3	NIL
1-1.5KG	6	5	NIL	1	NIL
1.6-2KG	14	7	4	3	NIL
2.1-2.5KG	14	12	2	NIL	NIL
2.6-3KG	8	8	NIL	NIL	NIL
>3KG	NIL	NIL	NIL	NIL	NIL

Total live births 59 out of 104 VD, High perinatal mortality rate of 43.3% in vaginal group. Total live births 33 out of 46 LSCS, Perinatal mortality rate 28.3% which is much lower when compared with patients who delivered vaginally (43.3%). Early resort to LSCS will significantly improve perinatal outcome.

Discussion

Eclampsia is a life threatening obstetric emergency prevalent in developing countries due to inadequate antenatal care, low socioeconomic status with lack of transport facilities.Eclampsia is more commonly seen in young primigravidae. In the present study, eclampsia is more commonly seen in primigravidae in age group of 21-25 years with 90 cases while in less than 20 years of age group there are 56 cases. Maximum number of cases were unbooked with 117 cases and majority of cases (55.2%) were referred from peripheral health care centres, reflecting lack of adequate antenatal care, lack of proper health care facilities in peripheries and lack of proper transport facilities to tertiary care centre.35 booked cases which have developed eclampsia might reflect unpredictable nature and atypical eclampsia which develops in women with nearly normal blood pressure with no or minimal signs of eclampsia. Eclampsia is most common in third trimester. In our study maximum number of cases were seen in the gestational age of 33-36 weeks i.e;58 cases followed by 42 cases in 28-32 weeks and 35 cases in term patients similar to study done by Sunita et al.[8] Majority of cases(126) were seen in antepartum period supporting the dictum that termination is the treatment of eclampsia. This is supported by study of Edgar M Ndabine et al [9]. 12 cases developed convulsions in postpartum period in our study. Pathogenesis of postpartum eclampsia is expected due to release of FDP after separation of placenta during postpartum period. MAGPIE TRIAL ($MgSO_4$ for prevention of eclampsia) Collaborative group 2002 administered and compared prophylactic $MgSO_4$ with placebo in 10000

women. Women who were given mgso4 had 58% significant lower risk of eclampsia than with placebo. Hence ACOG 2002a, taskforce 2013 recommends prophylactic mgso4 should be given in all cases of severe pre-eclampsia. It has been established that good antenatal care and prophylactic $MgSO_4$ and prompt timely delivery prevents eclampsia.

Table 6: Comparative Studies

STUDY	No Of Patients	PNMR	MMR
Pritchard[10]	245	10%	0.4%
Sibai[11]	254	5%	0.5%
Ecclampsia And Collobarative Study Group[12]	841	24.8%	3.8%
GMH Study[8]	240	28.3%	3.2%
Present Study At MGMH Hyderabad(2014)	152	25%	2.6%

PNMR- perinatal mortality rate: MMR-Maternal mortality rate

The definitive treatment of eclampsia is delivery irrespective of gestational age to reduce the risk of maternal mortality and morbidity. Once eclampsia develops there is no role of expectant management. Sibai and Barton [13]reviewed recently that expectant management may lead to severe maternal complications.Mode of delivery was decided by taking into consideration several factors like gestational age, bishop score, condition of fetus, whether patient is in labour. In this study 104 cases were delivered vaginally which is also the preferable mode of delivery taking into consideration poor status of mother and increased risk of morbidity if subjected to surgery.46 cases were delivered by caesarean section, 2 patients died undelivered thus making rate of caesarean 30.0% which is comparatively low as compared to other studies by Sunita *et al* [8] and Edgar M Ndabine *et al* [9]Eclampsia leads to number of life threatening complications some of which give very little time for obstetricians to act. In our study 8 cases had abruption placentae, 10 cases had PPH, 12 cases developed HELLP syndrome, 10 cases had DIC,8 cases had acute kidney injury,4 cases had PRES syndrome. There were 4 maternal deaths. Perinatal mortality mainly depends on gestational age, birth weight, IUGR, prematurity, birth asphyxia. In our study perinatal mortality rate was 43.3% in vaginal delivery group as compared to caesarean group which has perinatal mortality rate of 28.3% which is comparable to other studies. Majority of cases will be referred to tertiary care centre very late affecting the perinatal outcome and also maternal mortality and near miss. Strengthening the PHCs and subcentres with adequate facilities to identify the high risk cases and early management of unpredictable cases might prove to be beneficial in reducing the perinatal and maternal mortality associated with this deadly disease. Strengthening of the peripheries by BEmoNC AND CEmoNC TRAINING is recommended. Our 108 Ambulance services are effective in reducing the second delay of maternal mortality.

Conclusion

As most of cases of eclampsia is preceded by severe pre-eclampsia, majority of cases might be prevented by proper antenatal care, timely identification of signs and symptoms of eclampsia, proper training of staff especially in peripheral centres so that they can recognize high risk cases and refer them to tertiary care centre which is equipped to deal with complications associated with eclampsia.$MgSO_4$ is the drug of choice in preventing and controlling convulsions. Early termination of pregnancy improves maternal and perinatal outcome. Neonatal salvagability is better by early resort to LSCS. There is no increased incidence of PPH after giving Magnesium therapy. Our maternal mortality rate is 2.6% which is comparable with other studies. Strengthening of the tertiary care centres with MICU and NICU facilities, better equipped HDU with good ventilator support, dialysis for renal failure and facilities for availability of blood and blood components are essential for better outcome of eclampsia patients.

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