



Fetomaternal Outcome in Pregnancy with Eclampsia in Tertiary Care Hospital

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Abstract

Objective - To assess the maternal morbidity and mortality and fetal outcome with eclampsia in pregnancy.

Study Design – Cross sectional study.

Place and Duration of Study – Emergency Department of Obstetrics and Gynecology, VS Hospital, July 2010 to June 2012.

Methodology - 300 patients with eclampsia in pregnancy presented at gynaec emergency department were studied in regard with clinical manifestations, timing, management and fetomaternal outcome.

Result – Over all incidence of eclampsia was 2.8 % with maximum number of emergency cases (85%) among which 78% patients were from low socio economic class. Maximum number of patients belonged to ≤ 25 years (74%) of age group with 68% primigravida. Antepartum, intrapartum and postpartum eclampsia cases were 75%, 14% and 11% respectively. 156 patients had normal vaginal delivery and 144 had undergone cesarean section. Most of the patients responded well to magnesium sulphate therapy and a few required other anticonvulsant therapy. Perinatal mortality rate was 30% and neonatal mortality rate was 9%. Maternal mortality rate 6% due to lack of essential obstetric care, low socio economic status, delayed hospitalization.

Conclusion - Eclampsia is a multisystem disorder of complex origin with high maternal and fetal morbidity and mortality. Proper antenatal care, early diagnosis of preeclampsia, proper management and selective termination will improve maternal and perinatal outcome.

Key Words – Eclampsia, Maternal morbidity, Maternal mortality, Perinatal outcome.

INTRODUCTION

Eclampsia is defined as new onset of grand mal seizure activity and or coma during pregnancy, labour or postpartum in a woman with sign or symptoms of preeclampsia.^{1,2} “Eclampsia “ was derived from Greek word “EKLAMPSIS” which means “ Flash of Lightning”. Castelli in his “Laxicon Medium “defined eclampsia as brightness, lightening, effulgence or shining forth us in a flashing glance³. Eclampsia is most

common in third trimester and become increasingly more frequent as term approach due to improved prenatal care, earlier detection of pre eclampsia and prophylactic use of magnesium sulphate⁴. The time of occurrence vary from last trimester towards the postpartum period. Antepartum convulsions are more dangerous than those after delivery^{5,6}.

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 cases⁷. Eclampsia has remained as one of the leading cause of maternal and perinatal mortality as well as morbidity throughout the world^{8,9}. The major causes of maternal mortality are eclampsia associated with increased risk of abruption, DIC, ARF, cerebral hemorrhage. Every year more than 50,000 maternal deaths occur due to eclampsia, more in developing countries¹⁰. It reduces uteroplacental perfusion and places the fetus at high risk of IUGR, preterm birth and perinatal mortality. Importantly, in patient with atypical eclampsia or prolonged coma, other diagnose should be considered in women with onset of convulsions more than 48 hours postpartum or in women with focal neurological deficit^{1,4}.

The exact etiology of preeclampsia is not known, so that various theories have been described for the etiology of PIH (pregnancy induced hypertension) and hence the disease is called "DISEASE OF THEORIES". Eclampsia is more likely to develop in women who are⁴ –

- Exposed to chorionic villi for the first time;
- Exposed to a superabundance of chorionic villi as in multiple pregnancy, vesicular mole etc;
- Having pre existing vascular disease;
- Genetically predisposed to hypertension developing during pregnancy.

According to Sibai at el^{1,4} currently possible potential causes include the following –

- Abnormal trophoblastic invasion ;
- Immunological factors ;
- Maternal maladaptation to cardiovascular or inflammatory changes of normal pregnancy ;
- Dietary deficiencies ;
- Genetic influences.

Aims and Objective

To study –

1. the incidence of eclampsia
2. age, parity, type of eclampsia and gestational age at the time of eclampsia

3. mode of delivery
4. fetomaternal outcome in patients with eclampsia
5. maternal and fetal complications in patients with eclampsia

MATERIALS AND METHODS

The present study is conducted at a tertiary care hospital during the period of July 2010 to june 2012. 300 patients are studied in regard to clinical manifestations, timing, management and fetomaternal outcome. All patients are managed in the following manner:

IMMEDIATE MANAGEMENT ON ADMISSION

- Patient shifted to a railed cot in a semi dark noiseless and cool room ;
- Vital data – T, PR, RR, BP were taken. Systemic examination is done (RS, CVS, AS, CNS) ;
- Mouth gag is inserted and suction is done with electric suction machine, nasal oxygen is given by oxygen mask, catheterization is done and urine sample taken for urine protein and routine microscopic examination ;
- Proteinuria in urine tested by sulphosalicylic acid test in which equal amount of urine (2-3 ml) and 3-5% sulphosalicylic acid are taken in sterile test tube and presence of albumin is detected by turbidity of the urine ;
- I/V is line secured and blood samples are taken for blood grouping, Rh, cross match , complete blood count, blood sugar, blood urea, serum creatinine , serum uric acid, plasma fibrinogen, bleeding time, clotting time, prothrombin time and activated partial thromboplastin time
- ANTICONVULSANT THERAPY : 4 gm MgSO₄ as 20% solution I.V. at a rate not to exceed of 1gm/min. Immediately followed by 10 gm of 50% MgSO₄, one half (5gm) injected deeply in upper outer quadrant of both buttocks through a 3 inch

long 20 gauge needle. (Addition of 1ml of 2% lidocaine minimizes discomfort) ;

- ANTIHYPERTENSIVE THERAPY: Inj Labetelol 20 mg i.v. bolus is given. If not effective within 10 minutes, this is followed by 40 mg , then 80 mg every 10 minutes but not to exceed a 220 mg total dose per episode treated ;
- When convulsion are not controlled by inj. MgSO₄ , inj. Levetiracetam or inj. Phenytoin was given according to physician or neurophysician ;
- 10% dextrose drip is started to maintain fluid and calories ;
- Then the patient is allowed to settle down and complete history is asked from the relatives ;
- Then obstetrical examination is done by per abdominal and per vaginal examination ;
- Prophylactic antibiotics are given ;
- Patients of eclampsia are managed by team approach which include obstetrician, anaesthetist, physician, neurophysician and neonatologist;
- X-ray chest and ECG are taken as per advised by physician.

SUBSEQUENT MANAGEMENT

- Vitals and fetal heart sounds are examined at half hourly interval. Urine output is measured every hourly.
- Patient is closely watched for complaints like headache, visual disturbances, nausea, vomiting, epigastric pain.
- Inj. MgSO₄, 5 gm i.m. is given every 6 hourly interval, if patellar reflex is present, urine output is more than 100 ml/4hours, respiratory rate more than 14/min.
- Inj. MgSO₄ is continued for 24 hours.

OBSTETRIC MANAGEMENT

Induction of delivery is done after patient became calm and stable;

- If cervix is favourable, induction or augmentation done with inj. oxytocin i.v.

infusion drip along with artificial rupture of membrane;

- If unfavourable, cervix is ripened with prostaglandin gel. In case of failed induction or for obstetrical indications, cesarean section is done under anaesthesia according to anaesthetist. All babies are examined by neonatologist immediately after delivery for their general health.
- In their postpartum period, all patients are placed on a low salt diet, kept bed rest and on oral antihypertensive like Tab. Labetelol 100-400 mg every 6-12 hourly or Tab. Nifedipine 10 mg every 6-8 hourly and sedatives are given. Baby is also taken care for its general health and growth. All patients are examined carefully and findings recorded in discharged card. All patients are called for follow up after 7 days then after 15 days and then after 5 weeks.
- As a follow up care, in all patients blood pressure is recorded, urine is examined for protein, and contraceptive advice is given.

RESULT AND DISCUSSION

300 patients of eclampsia were admitted in hospital during the study period with incidence 2.8% (According to Biswas A et al¹¹ incidence was 2.2%). Maximum patients with age of ≤ 25 years and above 33 weeks of gestation .68% patients were primigravida and 32% patients were multigravida (According to Coghil AE et al¹², 26% patients of eclampsia were below 20 years and 70% patients were primigravida.). 85% patients were emergency patients with referred cases and 15% were registered patients. (According to Olakunle K et al¹³ 88.9% were emergency cases) Out of 300, 174 patients had AURA, 99(56.8%) patients had headache , 36(20.6%) had blurring of vision, 24(13.7%) had vomiting , 15(8%) had epigastric pain. Out of 300 patients, 225(75%) were conscious, 45(15%) drowsy, 24(8%) stupor, and 6(2%) comatous state.

Maximum number of patients presented with severe blood pressure ($\geq 160/110$ mmHg) according to table V. 279 patients were presented with oedema and 96(32%) patients had +++ and 93(31%) had ++++ proteinuria. Out of 300 patients, 276 (92%) patients responded well to MgSO₄ therapy while 24(8%) patients required other anticonvulsants like phenytoin and diazepam etc .156(52%) pregnancies had normal vaginal delivery including 3(1%) vacuum delivery and 3(1%) forcep delivery. Remaining underwent cesarean section (According to Tukur J. et al¹⁴ incidence of vaginal delivery and cesarean section were 48.3% and 51.7%). Mostly all cesarean

sections were done to shorten the duration of labour, fasten the delivery of baby and to improve fetomaternal outcome.

In this study perinatal mortality rate was 30%, most of it due to prematurity and birth asphyxia (According to Onwuhfua PI¹⁵, perinatal mortality rate was 40.9%). Maternal complications were according to table IX. Out of these, maternal mortality due to status eclampticus 6(2%), DIC+PRES 3(1%), ARF 3(1%), septicemia 3 (1%), postpartum hemorrhage 3(1%) totaling to 6% compared to Olakunle PI et al¹³ study was 6.7%.

TABLES

AGE

Age (years)	Frequency	Percentage (%)
<20	90	30
21-25	132	44
26-30	57	19
>30	21	7

PARITY

Gravida	Frequency	Percentage (%)
Primigravida	204	68
Two	57	19
Three or >	39	13

REGISTERED / EMERGENCY

Patients	Frequency	Percentage (%)
Registered	45	15
Emergency	255	85

TYPES OF ECLAMPSIA

Type of Eclampsia	Frequency	Percentage (%)
Antepartum	225	75
Intrapartum	42	14
Postpartum	33	11

BLOOD PRESSURE

BP(mmHg)	Frequency	Percentage (%)
Systolic		
<160(non severe)	123	41
≥ 160 (severe)	177	59
Diastolic		
<110(non severe)	201	67
≥ 110 (severe)	99	33

EFFICACY OF MAGNESIUM SULPHATE THERAPY (PRITCHARDS REGIMEN) IN PATIENTS OF ECLAMPSIA

	Frequency	Percentage (%)
Good response with MgSO ₄ therapy	276	92
Other anticonvulsant required	24	8

MODE OF TERMINATION OF PREGNANCY

Mode	Frequency	Percentage (%)
Vaginal delivery	156	52
Cesarean section	144	48

FETAL OUTCOME

Preterm (N=117)	Frequency	Percentage (%)
Live birth	72	24
Still birth	45	15
Full term(N=183)		
Live birth	165	55
Still birth	18	6

MATERNAL MORBIDITY AND COMPLICATIONS

	Frequency	Percentage (%)
Blurring of vision	33	11
CNS complications	21	7
Infection	18	6
DIC	18	6
PPH	12	4
APH	9	3
Pulmonary oedema	3	1
Aspiration pneumonitis	3	1

MATERNAL MORTALITY

Cause of death	Frequency	Percentage (%)
Status eclampticus	6	2
DIC+PRES	3	1
Acute renal failure	3	1
Septicemia	3	1
Postpartum hemorrhage	3	1
Total	18	6

CONCLUSION

Eclampsia is a multi system disorder of complex origin. Exact pathophysiology is unknown. Eclampsia is not a totally preventable disease but its incidence can be decreased by proper antenatal care. Early diagnosis of cases of preeclampsia, their proper management and selective termination will improve maternal and perinatal outcome. This study suggests that MgSO₄ therapy is considered as the best therapy and is very effective in preventing and controlling

convulsions in cases of eclampsia. Termination of pregnancy is the primary treatment for eclampsia. Induction of labour with oxytocin and prostaglandins decreases the duration of labour. If vaginal delivery fails, cesarean section is also a safe option. Cesarean section has definite place to improve fetomaternal prognosis.

Incidence of complications in cesarean section has become very low due to better operative techniques, proper anaesthesia and skillful surgeons. Planned delivery in the best hospital

environment under expert obstetricians can reduce complications and maternal mortality in the patients of eclampsia.

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ABBREVIATIONS

- APH - Ante Partum Hemorrhage
 AS - Abdominal System
 BP - Blood Pressure
 CVS - Cardiovascular System
 CNS - Central Nervous System
 DIC - Disseminated Intravascular Coagulation
 I.V. - Intravenous
 MgSO₄ – Magnesium Sulphate
 PPH – Post Partum Hemorrhage
 PRES – Posterior Reversible Encephalopathy Syndrome
 RR – Respiratory Rate