Vol. 16, No. 2
ORIGINAL PAPER

GYNAECOLOGY & OBSTETRICS

MEDICAL CHANNEL
APRIL - JUNE 2010

ECLAMPSIA; DEPICTING A CHALLENGE OF UNMET NEED FOR PRENATAL CARE

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ABSTRACT

OBJECTIVE: *To describe the frequency of eclampsia, HELLP syndrome in eclampsia & fetomaternal outcome of eclampsia with the use of magnesium sulphate, in patients presenting at gynaecology unit II of Civil hospital Karachi.*
DESIGN: *Cross sectional study*
PLACE & DURATION OF STUDY: *Gynaecolgy Unit II, Civil Hospital Karachi. January to december 2009.*
METHODS: *All consecutive women with the diagnosis of eclampsia during the study period were included. Patients with epilepsy & fits due to other causes were excluded. Eclampsia was defined as generalized tonic clonic convulsions in the absence of neurological, metabolic or other organic cause, occurring after 20 weeks of pregnancy upto 10 days postpartum. Data was collected through a semistructured proforma & details of age, parity, gestation, type of eclampsia, maternal, fetal& neonatal complications were noted. Maternal outcome measures were surgical intensive care admission, HELLP syndrome, renal failure, isolated thrombocytopenia, pulmonary oedema, cardiac failure & death, whereas fetal outcome measures were live births, still births, neonatal deaths, neonatal intensive care admission, preterm births & intrauterine growth restriction(IUGR).*
RESULTS: *Frequency of eclampsia was 17.16/1000 deliveries. Antepartum eclampsia was 49.1% followed by intrapartum eclampsia 28.3% & postpartum eclampsia 22.6%. Frequency of HELLP syndrome in eclampsia was 18.86%. Case fatality rate was 1.88%, whereas 60.37% patients needed intensive care admission. Perinatal mortality rate was 37.5%. Preterm birth rate was 50.0%.IUGR was found in 28.57% cases.*
CONCLUSION: *Eclampsia is still a major obstetric complication & is associated with high rates of HELLP syndrome.*

KEY WORDS: Eclampsia, HELLP syndrome, Preterm

INTRODUCTION

A woman's lifetime risk of maternal death is 1 in 7300 in developed countries against 1 in 75 in developing countries.Hypertensive disorders of pregnancy particularly pre-eclampsia & eclampsia are a major cause of maternal mortality worldwide following hemorrhage & infections. Every year 63000 women die of eclampsia & pre-eclampsia & 99 percent of these deaths occur in low income countries. Eclampsia accounts for 12% of global maternal deaths. Eclampsia is the occurrence of generalized tonic clonic convulsions usually in association with hypertension & or proteinuria after 20 weeks of pregnancy in the absence of neurological or metabolic cause. It can occur antepartum(during pregnancy), intrapartum(during labour) or postpartum(after delivery). In UK the incidence of eclampsia reported in a population-based descriptive survey in the year 2005-6 was found to be decreased from 4.9/10,000in 1992 to 2.7/10,000births in 2005.This survey showed decrease in case fatality rate from 1.8% in 1992 to 0%in 2005. Incidence widely varies across the world ranging from 0.27-0.5/1000 maternities in developed countries[5], to as high as 9 % in developing countries, as reported from Bangladesh. Pakistan being a developing country is still facing challenges of high maternal & perintal mortality. Study from Peshawar reported prevalence of 1.65%, earlier study over 5 year period from our institution reported prevalence of 20/1000 with a mortality rate of 9%.Another study from Abbotabad reported prevalence of eclampsia in 3.23% of deliveries. This

study reported perinatal mortality rate of 35.8% whereas maternal mortality rate of 16.6% was reported by another study from Hayatabad medical complex peshawar. Complications associated with eclampsia are cereberal hemorrhage, pulmonary oedema, adult respiratory distress syndrome(ARDS) cardiac failure, renal failure, HELLP(hemolysis, elevated liver enzymes, low platelets) syndrome. Cereberal hemorrhage is the most frequently reported primary cause of maternal death in eclampsia. , The incidence of eclampsia in association with HELLP syndrome & of HELLP syndrome in association with eclampsia varies. 16percent cases of eclampsia are reported in association with HELLP syndrome & 10 percent cases of HELLP syndrome are reported in association with eclampsia. A review of maternal deaths associated with eclampsia, HELLP syndrome & concurrence of these together revealed that out of a total 304 maternal deaths, concurrent eclampsia & HELLP syndrome was found in 5-6 out of 10 deaths associated with eclampsia or HELLP syndrome, thus presence of HELLP syndrome significantly increases the chances of mortality from eclampsia.[12] There are no studies from tertiary care public sector hospitals of Karachi which have reported frequency of HELLP in eclampsia, Purpose of this study was to document the frequency of eclampsia, frequency of HELLP syndrome in cases of eclampsia & fetomaternal outcome in our unit in order to get an idea of the extent of problem in recent years.

MATERIAL & METHODS.

Cross sectional descriptive study conducted over a period of 1 year from January to December 2009 at Obstetrics & Gynaecology Unit II Civil Hospital Karachi. Purpose of this study was to review all cases presenting in the department diagnosed as eclampsia to describe the current frequencies of eclampsia, HELLP syndrome in cases of eclampsia & fetomaternal outcome. As a departmental protocol magnesium sulphate is the anticonvulsant used in all patients with the diagnosis of Eclampsia, according to Pritchard protocol.[4] Eclampsia was defined as the occurrence of generalized tonic clonic convulsions in association with hypertension & or proteinuria after 20 weeks of pregnancy in the absence of neurologic, metabolic or other organic cause.[4]

Antepartum eclampsia was defined as the one occurring before the onset of labour, **intrapartum eclampsia** was defined as onset of eclampsia during labour & **postpartum eclampsia was defined** as onset

FIG: I

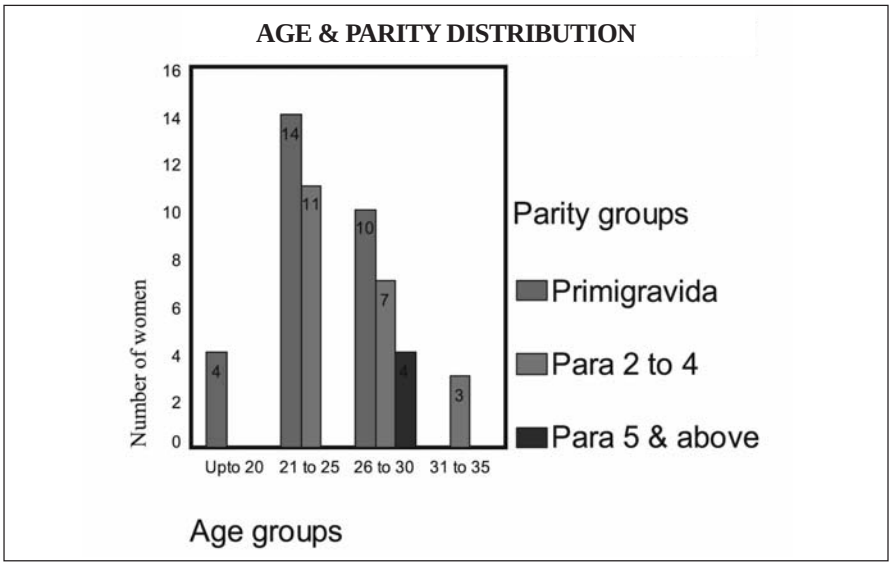


FIG.II
RISK FACTORS FOR ECLAMPSIA APART FROM NULLIPARITY

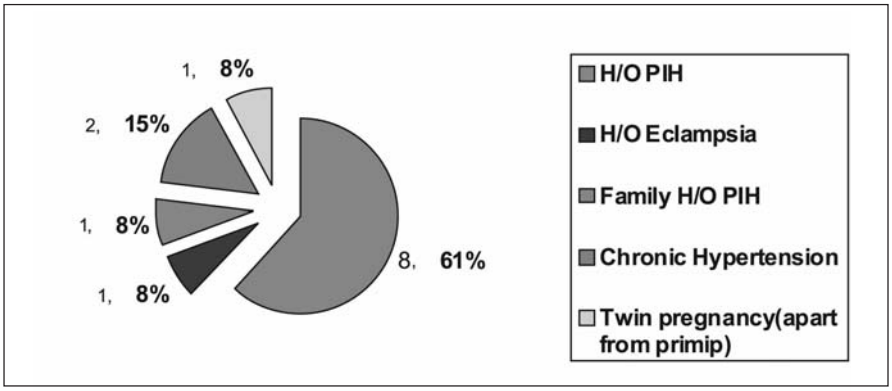
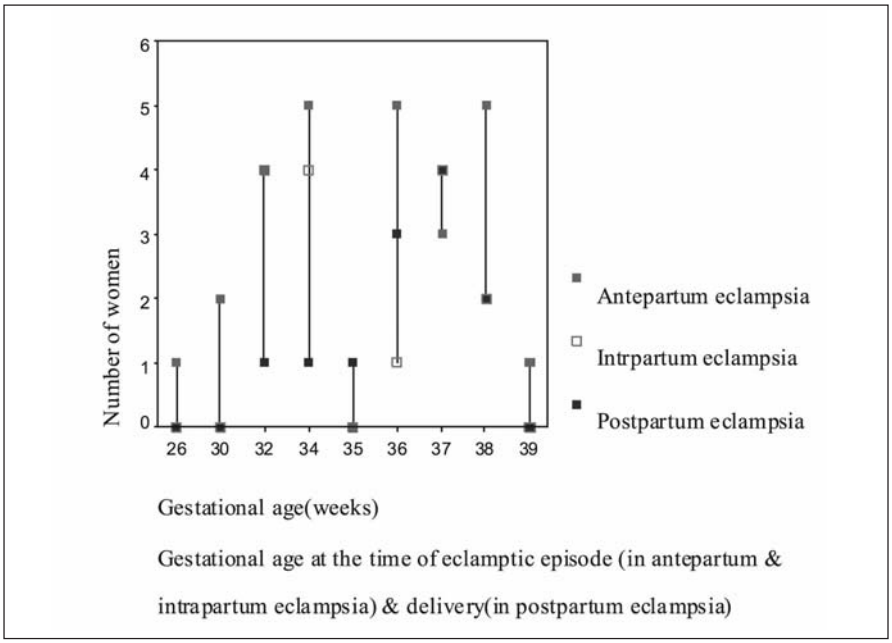


FIG: III



of eclampsia after delivery of the baby.
Low birth weight was defined as babies weighing below 2.5 kg. **Intrauterine growth restriction** was defined as babies weighing below 10 th centile for gestational age.
Preterm birth was defined as delivery before 37 completed weeks of pregnancy.
Stillbirth was defined as birth of babies weighing 500gram or more who did not show sign of life. (heart beat, respiration, umbilical cord pulsation).
Perinatal death was defined as stillbirths & neonatal deaths within first seven days of life whereas perinatal mortality rate was defined as number of stillbirths and neonatal deaths within seven days of life per 1000 live births & stillbirths.
Patients were diagnosed to have HELLP syndrome with features of thrombocytopenia (platelet count below 100,000) & elevated liver enzymes(alanine aminotransferase ALT>70iu/l), raised LDH(lactic dehydrogenase) [4,13] Acute Renal failure was diagnosed with a raised serum creatinine above 1.41mg/dl(125µmol/L in the absence of prior history of renal disease. Non probability purposive sampling was done to include all cases of eclampsia presenting on emergency days of obstetrics & gynaecology Unit II, CHK. Details of patient's age, parity gestational age, type of eclampsia , mode of delivery, maternal outcomes of eclampsia measured in terms of surgical intensive care admission, ventilatory support for >24 hours, acute renal failure, HELLP syndrome, severe pulmonary oedema necessitating ventilatory support, & maternal death were recorded from case records on a semistructured proforma. Fetal outcome measures included live births, still births, neonatal intensive care admissions, preterm births, birth weights, neonatal deaths which were similarly recoded. Descriptive statistics were used & percentages were calculated for qualitative data i.e maternal & perinatal outcome measures whereas continuous variables such as age, parity & gestational age are presented as means ± S.D. Data was analyzed by SPSS version 11.

TABLE I

MATERNAL OUTCOME MEASURES	N %	**FETAL OUTCOME MEASURES?**	N *%
Intensive care admission	32(60.37%)	**LIVEBIRTHS^**	39(69.64%)
Prolonged ventilatory support	8(15.09%)	**OUTCOME NOT KNOWN**	6(10.71%)
Renal failure	7(13.20%)	**PERINATAL DEATHS**	21(37.5%)
HELLP syndrome	10(18.86%)	**STILLBIRTHS**	11(19.64%)
Combined HELLP & Renal failure	5(9.43%)	**NEONATAL DEATHS***	10(17.85%)
Pulmonary oedema-ARDS?	02(3.7%)	****NICU**	5(8.9%)
Thrombocytopenia Grade II,II* (without HELLP)**	10(18.86%)	**PRETERM BIRTHS**	28(50.0%)
Maternal Death	1(1.88%)	**BIRTH WEIGHT<2.5KG**	32(57.14%)
		BIRTH WEIGHT >2.5KG?	16(28.57%)
		IUGR	16(28.57%)

***** calculated out of 56 as 3 twin pairs.
*Adult respiratory distress syndrome
^ Livebirths including 10cases of neonatal deaths.
*% calculated out of 56 births as 3 twin pairs.
**NICU Neonatal intensive care admissions excluding 5 neonatal deaths in NICU.
***Grade II=Platelet count beow100,000 upto 50,000, Grade II= <50,000
*In 8 cases birth weight was not known so >2.5&<2.5 kg do not add upto total birth weights in 56 births.

RESULTS:
A total of 53 cases presented at our unit during one year study period. There were 3087 deliveries during study period giving a frequency of 17.16/1000 deliveries. Unbooked patients were 92.4% (n=49)out of these 20.40% n=10 were referred from other health facilities. Booked patients were 7.5% n=4, 3 had one or two visits in pregnancy & had missed their visits in preceding 4-6 weeks while only one was a known case of mitral valve prolapse with normal cardiac function, regular attender with well controlled pregnancy induced hypertension who developed intrapartum eclampsia.
Mean age was 26.6 years±3.70 S.D ranging from 19 to 35 years. Mean & median parity was 0.989 ±1.41 S.D & 1.00 respectively. Maximum parity was 7.Primigravida were most frequent i.e 52.83% n=28 followed by multipara(parity2-4) 39.6% & grandmultipara 7.5%. fig I shows (age & parity groups) maximum(47.2%) patients were in 21-25 years among this group 56%n=14 were primigravidae 44% n=11 were para 2-4. The next frequent age group was 26 -30 years i.e 39.6% (n=21), among this group 47.6% n=10 were primigravidae and 33.33% n=7 were para 2-4. Antepartum eclampsia was most frequent 49.1% n=26 followed by Intrapartum (n=15) & postpartum eclampsia (n=12), with nearly equal contributions. Fig. II shows risk factors for Eclampsia apart from Nulliparity.
Mean gestational age was 35.11 weeks±2.67SD.Fig III shows different gestational ages in antepartum, intrapartum & postpartum eclampsia.
Table I shows maternal & perinatal outcome data. There was one maternal death in eclamptic patients due to pulmonary oedema, cardiac failure & HELLP syndrome in a 26 year unmarried girl, thus giving a case fatality rate of 1.88%. Out of a total 32 intensive care admissions for ventilatory support &

monitoring, 8 patients needed prolonged ventilatory support beyond 48 hours. Major maternal complications in association with eclampsia were HELLP syndrome & renal failure. 9.43% n=5 had both of these together, one patient expired who also had severe pulmonary oedema with left sided cardiac failure whereas another 2 (3.77%) patients had acute renal failure & yet another 5(9.43%) patients had HELLP syndrome as individual associated complications. There was no case of cereberal hemorrhage. Thrombocytopenia (low platelet count) not associated with any other hematologic or biochemical marker abnormality was found in 18.86% n=10 patients. Out of these 80% n= 8 patients had grade I (platelet 100000-150000) & 20% n=2 patients had grade II (platelets 50000-100,000) Among perinatal outcome measures (Table I), live birth rate was 67.85%, out of 56 deliveries as 3 were twin pairs. Outcome was not known in 6 cases of postpartum eclampsia. Perinatal mortality rate was 37.5%, whereas information on birth weight was missing in 8 cases of postpartum eclampsia. Preterm birth rate was 50.0%n=28, & 28.57%n=8 of these were very preterm i.e 28-32 weeks & 64.28% n=18 were moderately preterm(33-36 weeks) whereas 7.14% n=2 were extremely preterm twin pair. Mode of delivery was vaginal birth in 45.3%(including two twin deliveries) & caesarean in 54.7% (including one for twins at 26 weeks)

DISCUSSION:

A high frequency of eclampsia & almost all in unbooked patients shows that lack of antenatal as our major problem. This frequency of 1.71% is higher than reported in local study from Peshawar where it was 10.4/1000 deliveries [11] whereas another study from faisalabad reported frequency of 1.4% & from sobraj hospital Karachi it was reported in 2004 as 0.51%.But this is lower than reported from Abbottabad. [10] Despite being a major city, relatively higher frequency seen at tertiary hospital of Karachi is a cause for concern. Antepartum, intrapartum & postpartum eclampsia in 49.1%, 28.3% & 22.6% conforms to the usually described time of onset in 38-53% cases as antepartum,18-36% as intrapartum & 11-44% in postpartum period. Apart from leading group of primigravida , among multipara, subanalysis showed women in their second pregnancy constituted 18.86% of all cases n=10, with 7 of them had pregnancy induced hypertension(PIH) in last pregnancy & one had chronic hypertension while in remaining multipara & grandmultipara (n=15),5 patients had risk factors, out of them 1 had family history of PIH, one had multiple pregnancy, 1 had history of eclampsia, 1 had history of PIH, & another 1 had history of hypertension. Thus a total of 20.75% n=12 had history of PIH, hypertension or eclampsia. Thus there is a need in prenatal care to identify such patients & screen them with available modalities such as uterine artery Doppler in order to take preventive steps in management. There was only one maternal death giving a case fatality rate of 1.88% which is quite lower than 8% quoted from a study from Peshawar, 16.9% in another study from Peshawar [8] and13.6% from faisalabad.[20] This may be as a result of immediate availability of ventilatory support with intensive care management & use of magnesium sulphate in our study as in our unit all patients received magnesium sulphate upto 24 hours following the last fit, except for two patients with oliguria & markedly raised creatinine in whom it was withheld. Intensive care admission rates of 60.37% parallel with those quoted in a population based descriptive study from U.K, where it was 56%. HELLP syndrome signifies the severity of preeclampsia & eclampsia, [12] & in our study a frequency of 18.86% denotes that patients attending public sector hospital have severe disease spectrum. Cause of the only maternal death was severe pulmonary oedema & ARDS, she also had HELLP syndrome and renal failure. Coagulopathy necessitating blood component therapy was found in only one patient in association with HELLP syndrome. Renal failure was found concomitantly with HELLP syndrome in 5 cases(9.43%) whereas another 2 cases had renal failure solely. Five patients out of these 7 had return of normal renal function without dialysis whereas two needed dialysis.10(18.86%)patients had isolated thrombocytopenia, comprising 2 with grade III(platelet count below50,000) & eight with grade II(50,000-100,000) thrombocytopenia. Perinatal mortality rate of 37.5% was found in our study. Among still births 4(36.36%) were at term pregnancy after 37 weeks, 1(9.09%) had IUGR at 36 weeks, & 6(54.54%) were preterm still births. Prematurity was the leading cause of neonatal deaths as well in 70%(n=7), followed by antepartum asphyxia in 20% and septic meningitis in 1(10%) case. Out of a total of 10 NICU admissions, five neonatal deaths occurred in NICU admissions, resulting from prematurity in three cases, one from meningitis & one due to birth asphyxia. Five were survivors, including three IUGR babies & 2 babies admitted due to prematurity & respiratory distress. IUGR was found in 28.57%n=16 cases, NICU admission in 3 of them(18.75%). Preterm birth rate of 50.0% is lower than found in a study from Peshawar, where it was 83%. Frequency of very preterm births(28-32 weeks) was 14.28% & moderately preterm births(33-36 weeks)was 32.14%. Only one case(1.78%out of 53 cases) 3.57% n=2 were extremely preterm twin pair birth by hysterotomy at 26 weeks of pregnancy.

CONCLUSION:

This study highlights that we are still facing the challenge of this life threatening complication, depicting a severe disease spectrum. It reflects upon the unmet need of prenatal care in our community. Limitation of our study is that though case fatality rate is low in this study it may be due to prompt intensive care given at tertiary hospital in a major city of Karachi which may not be the case when patients are not able to get these facilities in some other parts of our country.

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