

FREQUENCY OF MAJOR MATERNAL COMPLICATIONS IN PATIENTS WITH SEVERE PREECLAMPSIA

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ABSTRACT

Introduction: Preeclampsia is defined as association of pregnancy induced hypertension and proteinuria. It is a severe form of pregnancy complication and leads to increased maternal mortality and morbidity such as placental abruption, eclampsia and HELLP syndrome. The aim of this study was to determine the frequency of major maternal complications of severe preeclampsia which included eclampsia, placental abruption and HELLP syndrome.

Materials & Methods: This descriptive study of 6 months duration (from April 7, 2010 to October 7, 2010) was conducted in Gynecology & Obstetrics 'C' unit of Ayub Teaching Hospital Abbottabad. Sample size was calculated and all subjects who fulfilled the inclusion criteria underwent a complete workup including history and examination. Data collected on predesigned Performa included demographic variables, obstetrical history, number of fits, ante partum hemorrhage, blood pressure, LDH, AST, platelets, FDPs, proteinuria and renal function. Data were analyzed by SPSS version 10. Means and standard deviations were calculated for obstetrical history and systolic blood pressures. Frequencies were calculated for booked/unbooked status and for maternal complications.

Results: Among 126 patients, 53 (42.06%) developed complications. Twenty two (41.51%) of these developed HELLP syndrome, 20 (37.73%) had placental Abruption, while 11 (20.75%) developed Eclampsia.

Conclusion: Severe preeclampsia is associated with increased risk of maternal adverse outcome. Preeclampsia and eclampsia cannot be completely prevented but maternal complications can be minimized by improvement in obstetrical antenatal care.

Keywords: preeclampsia, placental abruption, eclampsia, HELLP syndrome.

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INTRODUCTION

Preeclampsia is a multisystem disorder of vascular function specific to pregnancy, which is

typically characterized by hypertension, proteinuria, edema and fetal compromise.¹ Hypertensive disorders in pregnancy i.e. Pregnancy Induced Hypertension (PIH) and Preeclampsia complicate 10-15% of all pregnancies at term and are a major cause of maternal and perinatal mortality and morbidity.² Proteinuria is one of the two main criteria for the diagnosis of preeclampsia, but besides being an important diagnostic factor, it is also an important prognostic factor for maternal and perinatal outcome.³

Eclampsia is the end stage of preeclampsia and is characterized by generalized tonic-clonic seizures with or without raised blood pressure and proteinuria, occurring during pregnancy with or without other identifiable cause.⁴ Eclampsia occurs in 1-2% of women with preeclampsia in the developed world.⁵ HELLP syndrome is a serious complication of pregnancy characterized by hemolysis, elevated liver enzymes and low platelet counts occurring in 0.5 to 0.9% of all pregnancies and 10-20% of cases with severe preeclampsia.⁵ Patients with severe preeclampsia have reported relative risk of 3.8% for placental Abruption.⁶

Preeclampsia is a serious obstetric condition that can lead to a number of complications in the mother and fetus. Being a tertiary care hospital Ayub Teaching Hospital (ATH) Abbottabad frequently receives patients with severe preeclampsia. This study was conducted to determine the frequency of major complications of preeclampsia i.e. eclampsia, HELLP syndrome and Abruption placentae, as these are the leading cause of maternal mortality and morbidity. This study will also help to emphasize on good antenatal care so that these major complications could be detected and treated at an early stage to prevent maternal mortality and morbidity.

MATERIALS & METHODS

The study was conducted in Gynecology & Obstetrics 'C' Unit of Ayub Teaching Hospital Abbottabad for a period of six months from April 07, 2010 to October 07, 2010. Sample size was calculated by keeping a prevalence of 20%⁵ for HELLP syndrome and keeping the allowable error of 7%. The sample size thus calculated was 126. Consecutive non probability sampling technique was used. Patients were recruited according to the inclusion criteria of having gestational age of more than 20 weeks, with systolic blood pressure more than or equal to 160 mmHg or diastolic blood pressure of more than or equal to 110 mmHg on at least two occasions taken six hours apart and having significant proteinuria and edema. Patients with singleton pregnancies were included only. Patients with chronic hypertension or renal diseases or having other medical disorders were excluded. Patients were recruited through Out Patients Department (OPD), as emergency from labor ward or as referrals from other practicing Gynecologists. Informed consent was taken and detailed history and examination was performed according to a predesigned Performa. Laboratory investigations were sent after assessment. Patients were managed as indoor patients according to unit protocols and were observed for Eclampsia, Abruptio Placentae and HELLP syndrome by daily investigations and prodromal symptoms. In patients who developed these complications, pregnancy was terminated and the condition managed. Data were entered into the computer

program SPSS version 10. Descriptive analyses were performed and means and standard deviations were calculated for numerical data. Frequencies of HELLP syndrome, Eclampsia and Abruptio placentae were calculated.

RESULTS

A total of 3600 patients were admitted during the study period, out of which 126 (03.5%) patients fulfilling the inclusion criteria were selected.

The ages of the patients ranged from 20-42 years with a mean age of 28.30 ± 5.12 years; 07 (5.55%) patients had ages less than or equal to 20 years, 39 (30.95%) had ages between 21-25 years, 54 (42.85%) patients between 26-30 years, 17 (13.49%) patients between 31-35 years of ages, 4 (3.17%) patients between 36-40 years and 5 (3.97%) patients had ages more than 41 years.

Severe preeclampsia was more common among multiparous women, with 77 (63.33%) patients being multiparous and 49 (36.67%) patients being nulliparous; 13% patients were booked while 87% were unbooked.

In obstetrical history of patients, 86 patients (68.25%) had no history of abortion, while 35 (27.78%) patients had one abortion and 05 (3.97%) patients had 2 abortions in past obstetrical history. There were 11 (8%) who had previous one stillbirth.

Frequency distribution, Mean and SD of systolic blood pressures in patients are shown in Table I.

Table I: Distribution of Systolic Blood Pressures of patients (n=126).

Systolic Blood Pressures (mmHg)	No. of cases	Percentage	Mean \pm SD
160 – 190	50	39.68	200.16 \pm 21.45
191 – 220	60	47.62	
221 – 250	14	11.11	
>250	02	01.59	
Total	126	100	

Fifty three (42.06%) patients developed complications. Twenty two (41.51%) of these developed HELLP syndrome, 20 (37.73%) patients had placental Abruption while 11 (20.75%) patients developed Eclampsia.

Serum LDH was raised in 68% patients, serum AST was raised in 85% patients, while serum FDP was raised in 77% patients. The frequency distribution of proteinuria is shown in Figure 1.

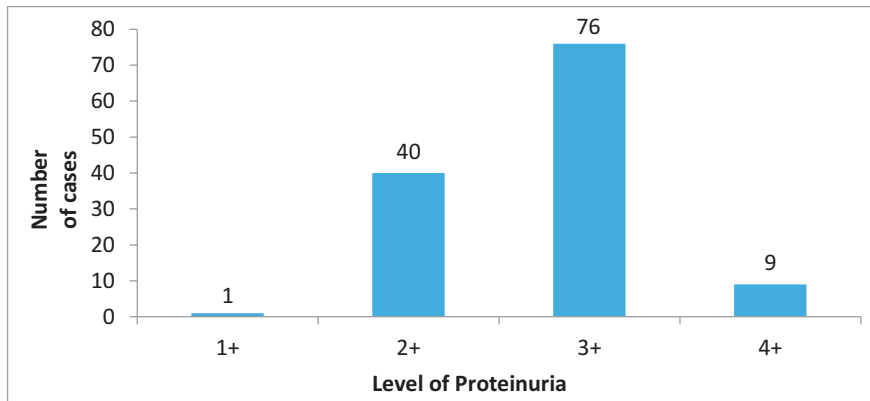


Figure 1: Frequency distribution of different levels of Proteinuria (n=126).

DISCUSSION

Preeclampsia is a major cause of maternal mortality and morbidity, perinatal deaths, preterm births and intrauterine growth restriction, thus emphasizing the importance of appropriate management of this high risk pregnancy.⁷

In current study the incidence of severe preeclampsia is 3.5%, while in one international study⁸ incidence ranges from 0.5% to 7%. It is severe complication of pregnancy, which leads to persisting maternal, fetal morbidity and mortality.

In the present study, mean maternal age came out to be 28.30 ± 5.12 years, with minimum age of 20 years and maximum age of 42 years, which is quite comparable to one international study in which mean age is 27.5 ± 5.6 years.⁹

Most patients with severe preeclampsia were between 26-30 years of age (42.85%). The next frequent age group was 21 to 25 years (30.9%). Most of the cases belonged to the age group of 20 to 30 years while teenagers were only 5.5% which is contrast to an international study¹⁰ which showed 66.9% of patients to be teenagers. This reflects a decreasing trend of teenage marriages in our society.

Majority of women with severe preeclampsia were either primigravidae or with second or third pregnancy i.e. 75.4% which matches an international study conducted in Kuwait (2008).¹¹ This also matches to the results given by another study (2002).¹²

Systolic hypertension was found in 47.62% patients who presented with systolic blood pressures of 190-220 mmHg on admission, which is quite alarming and serious factor and indicates poor antenatal care in our society.

Majority (87%) of the patient who presented with severe preeclampsia were unbooked. Only 13% patients were booked with poor compliance and irregular visits. This figure matches a national study conducted in Hyderabad and Lahore^{13,14} and also an international study conducted in Nepal.¹⁵

Among 126 patients of severe preeclampsia, 42% developed complications which included Eclampsia, HELLP syndrome and Abruption Placentae. This result match with the study conducted in South Africa where the reported major maternal complications were 41%.¹⁶ The percentage of maternal complications in the present study is 6% lower than a national study conducted in Peshawar.¹⁷ This may be as a

result of immediate availability of all possible resources and competent professional care.

Among the complications 17.46% patients developed HELLP syndrome which is quite comparable to a review study by Haram K, Svendsen E in 2009.¹⁸ This figure also matches that of a national study (18%) conducted in Civil Hospital Karachi.¹⁹ The incidence of HELLP syndrome is 11% higher in a study conducted in Turkey where documented incidence of HELLP syndrome was 29% in patients who presented with severe preeclampsia.²⁰

The second most frequent complication in patients with severe preeclampsia was placental Abruption i.e. 15%. This is a little higher when compared to a study conducted in the same hospital i.e. 12%,²¹ while it is three times higher when compared to an international study conducted in Kuwait where the incidence was 4.5%.¹¹ This high incidence of placental abruption seen in our setup is because our hospital receives patients from more than three hilly districts who were mainly unbooked and very late referrals. Late referrals are due to poverty, difficult approach from far flung areas, social restrictions, and non-availability of doctors.

Among 126 patients who presented with severe preeclampsia 68% had raised LDH levels. This indicated hemolysis while 85% patients had raised AST levels which indicates hepatic involvement in these patients while 77% patients shown raised FDP levels. Among 126 patients, 40% presented with 1.0 gm/24 hrs urine proteinuria while 76% presented with 3.0 gm/24 hrs and 9% presented with 5.0 gm/24 hrs

urine proteinuria. Adverse maternal outcome was significantly associated with higher proteinuria. This result of the present study is also confirmed in an international study conducted in Australia.²² Among the 126 patients of the present study, 18% had platelet counts below 100,000/mm³ and most of those cases were complicated with HELLP syndrome.

There were three maternal deaths in the present study among 126 patients, giving a fatality rate of 3%. These patients died due to multiple complications including intracranial bleed secondary to HELLP syndrome and pulmonary edema. This fatality is quite lower than a study conducted in Peshawar where it was 16%.²³

CONCLUSION

Significant numbers of young pregnant females and mothers still face the life threatening challenges and serious complications of preeclampsia. Though preeclampsia and eclampsia cannot be completely prevented, improvement in obstetrical care with high index of suspicion even in lower risk patients can minimize the frequencies of these conditions.

RECOMMENDATION

Improvement in antenatal services, early detection and aggressive management of severe preeclampsia are recommended as routine measures to reduce the incidence of its dreadful complications. Further targeted and guided research is needed towards developing newer approaches to achieve the goals set up by safe motherhood concepts.

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