CLINICAL AUDIT OF SEVERE PREECLAMPSIA & ECLAMPSIA MANAGEMENT AT OBSTETRICS AND GYNECOLOGY DEPARTMENT, UNIT -1 LAHORE GENERAL HOSPITAL

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ORIGINAL ARTICLE

ABSTRACT

Background: In spite of the advancements in the management of preeclampsia/eclampsia in the past two decades, it is still a major cause of maternal and fetal complications, particularly in developing countries like Pakistan.

Objective: To retrospectively assess the quality of the healthcare being provided to pre-eclampsia and eclampsia patients in obstetrics and gynecology department of Lahore General Hospital.

Methodology: This retrospective observational study was done at Obstetrics and gynecology department of Lahore General Hospital, Lahore. The study was completed in 2 months. A total of 30 consecutive pregnant patients having systolic blood pressure ≥160 mmHg and diastolic blood pressure ≥110 mmHg on two different reading four hours apart, proteinuria ≥ 2+ on a urine dipstick and/or eclamptic seizures were included in the study. Cases and management practices were assessed using clinical audit for the level and quality of care.

Results: Mean age of the patients was 31.21±3.62 years. 11(36.67%) patients were of less than 30 years of age whereas 19(63.33%) were of 30 or more than 30 years of age. 22(73.33%) were primigravida and mean gestational age was 33.61±4.28 weeks. Fits developed in 20(66.67%) patients in the antenatal period, 1(3.33%) patient during delivery and 9(30.0%) patients after delivery. 24(80.0%) were managed in high dependency unit of the hospital whereas 6(20.0%) patients needed intensive care. Admission to delivery time of less than 12 hours was reported in 25(83.0%) patients whereas it was ≥12 hours in 5(17.0%) patients. Magnesium Sulphate was given in 29(96.0%) patients. Steroid shots were given in 21(70.0%) patients for fetal lung maturity. All 30(100%) patients were given antihypertensive medications.

Conclusion: Clinical audit is a beneficial tool for assessing and improving the level and quality of care, in comparison to the documented international guidelines. The process is easy and inexpensive and majorly provides cheap solutions. In our audit, suboptimal care was reported. In order to avoid maternal mortalities, level of the care should be improved based on the findings of the current audit.

INTRODUCTION

Gestational Hypertension imposes a substantial health risk to both mother and fetus, causing a significant number of morbidities and mortalities [1]. Preeclampsia is one of the most common hypertensive complications encountered during pregnancy. Approximately 2-15% of all pregnant women experience this complication all around the globe [2, 3]. In 2019, the maternal mortality ratio was reported to be 186 deaths per 100000 live births in Pakistan [4], 34% of which were attributed to be caused by hypertensive disorders of pregnancy [5]. It is characterized by increase in blood pressure and proteins in urine after 20 weeks of gestation. This

condition usually crops up in the 3rd trimester of pregnancy and continues to worsen as the gestation progresses[6].

Severe forms of preeclampsia may be accompanied by a number of conditions such as coagulopathies including thrombocytopenia and terminal organ damages including pulmonary edema, liver and/or kidney dysfunction, and neurologic and visual disorders in mother and distress and growth restriction in fetus [7]. Preeclampsia can develop into eclampsia in severe and neglected cases, where the condition is worsened by the episodes of seizures [8]. Accurate and prompt diagnosis and management is mandatory to overcome the unexpected morbidity and mortality due to this life-threatening condition[9].

A high maternal mortality ratio is considered to be an indicator of the lack of appropriate healthcare services in a certain country [10]. The incidence of maternal morbidity and mortality due to hypertensive disorders of pregnancy has always been a highly debatable topic to determine the quality of healthcare services being provided to the pregnant women [11].

Clinical audit is the best way to improve the quality of healthcare by systematically reviewing the care being provided to the patients [12]. The standard operating procedures of the institution regarding the management and the outcomes of pre-eclampsia and eclampsia are matched against the international criteria and the changes are implemented if needed[13].

Reducing maternal mortality ratio is one of the major components of the sustainable development goals (SDGs) [14] and in spite of the commendable efforts by the ongoing Maternal, Neonatal and Child Health program in Pakistan, the country still has an alarming rate of morbidity and mortality caused by the hypertensive disorders of pregnancy [5, 15]. The purpose of this clinical audit was to assess the quality of the healthcare being provided to pre-eclampsia and eclampsia patients in obstetrics and gynecology department of Lahore General Hospital based on the local and international guidelines available.

MATERIALS AND METHODS

Study design: A retrospective observational study

Settings: The study was executed at the Obstetrics and Gynecology department, Lahore General Hospital, Lahore.

Duration: The study was completed in 2 months after the approval of synopsis.

Sampling technique: Convenient sampling technique was utilized to gather the data.

SAMPLING CRITERIA:

Inclusion criteria:

- All pregnant patients having systolic blood pressure ≥160 mmHg and diastolic blood pressure ≥110 mmHg, proteinuria ≥ 2+ on a urine dipstick and/or eclamptic seizures.
- Patients fulfilling the above criteria and having any of
  - Thrombocytopenia (<100,000/-L)
  - High serum creatinine (≥1.1 mg/L)
  - Deranged liver enzymes (alanine aminotransferase or aspartate aminotransferase >40 IU/L)
  - Neurological or visual disturbances
  - Pulmonary edema

Exclusion criteria:

- Diabetic patients
- Patients with other organ diseases in absence of preeclampsia

Data collection procedure:

Ethical approval was taken from the institutional ethical committee. Clinical audit was carried out using the criteria-based audit framework 16. Firstly, all pregnant women presented to the obstetrics and gynecology department, Lahore General Hospital, Lahore were stratified for risk assessment. Secondly,

precautionary measures were taken for high risk patients. Multidisciplinary team was taken on board for patent management and care including senior gynecologists and obstetricians, senior neonatologists, senior intensivists, medical officers and nurses. Baseline clinical investigations were carried out in high risk patents. 30 consecutive patients fulfilling the inclusion criteria were included. Data was taken either directly from the patients or from the files of the patients presented with preeclampsia or eclampsia. Demographic and clinical details of each patient were noted in pre-structured proforma. Follow-up of maternal and fetal condition and management was closely taken into consideration. Use of Antihypertensive management and magnesium Sulphate was noted.

Data analysis:

Data was analyzed utilizing SPSS version 26. Numerical data was documented as mean and standard deviation whereas categorical data was presented as frequencies and percentages.

RESULTS:

A total of 30 patients presented with preeclampsia or eclampsia were included in the study. Demographic details of patients are shown in table 1. Mean age of the patients was 31.21±3.62 years. 11(36.67%) patients were of less than 30 years of age whereas 19(63.33%) were of 30 or more than 30 years of age. 22(73.33%) were primigravida while 8(26.67%) were multigravida. Mean gestational age was 33.61±4.28 weeks.

Table 1: demographic features of patients (n=30)

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Parameters	n	%
Age (years)		
Mean±S.D.	31.21±3.62	
<30	11	36.67
≥30	19	63.33
Parity		
Primiparity	22	73.33
Multiparity	8	26.67
Gestational age (weeks)		
Mean±S.D.	33.61±4.28	
<32	6	20.0
≥32	24	80.0

Table 2 demonstrated the distribution of study sample according to clinical features and patients' management. Fits developed in 20(66.67%) patients in the antenatal period, 1(3.33%) patient during delivery and 9(30.0%) patients after delivery. 24(80.0%) were managed in high dependency unit of the hospital whereas 6(20.0%) patients needed intensive care. Mean admission to delivery time was 8.16±4.22 hours. Admission to delivery time of less than 12 hours was reported in 25(83.0%) patients whereas it was ≥12 hours in 5(17.0%) patients. Magnesium Sulphate was given in 29(96.0%) patients. Steroid shots were given in 21(70.0%) patients for fetal lung maturity. All 30(100%) patients were given antihypertensive medications

Table 2: Distribution of study sample according to clinical features and patients' management (n=30)

Audit criteria	n	%
Development of fits		
Antepartum	20	66.67
Partum	1	3.33
Postpartum	9	30.00
Management of pre-eclampsia and eclampsia		
Hospital stay		
HDU Stay	24	80.0
ICU Stay	6	20.0
Admission to delivery time (hours)		
Mean±S.D.	8.16±4.22	
<12	25	83
≥12	5	17
Magnesium Sulphate given (Loading and maintenance dose)		
Yes	29	96.0
No	1	4.0
Steroids given for fetal lung maturity		
Yes	21	70.0
No	9	30.0
Antihypertensives given	30	100.0

Table 2: N = Number of study participants; % =Percentage of study participants; HDU = High dependency unit; ICU = Intensive care unit; S.D. = standard deviation

DISCUSSION

Preeclampsia and eclampsia has been associated with negative outcomes in both mother and fetus [17]. Neglected cases of preeclampsia can result in the development of eclamptic seizures and other serious complications [18]. Clinical audits are a group of criteria used to assess the quality of the medical care provided to the patients and outcomes of the care provided [19]. The main principle outcome of the audit is that performance is monitored to make sure that appropriate steps are being carried out for the patient management, and if not, it gives a framework to make improvements in the patient care[19].

Clinical audits have become a routine practice in the developed countries for the appropriate patient care and positive patient outcomes [20]. But in under-developed countries, there is a scarce reported literature available regarding the clinical audits in obstetrics and gynecology. As there are a number of barriers encountered in the developing countries that may restrict the successful implementation of the audit. So this clinical audit was carried out in order to assess the clinical care given to

manage the patients presented with preeclampsia or eclampsia.

The current audit results documented that there were deficits in the reporting and management of preeclampsia and eclampsia as compared to the available guidelines and standards. Baseline and clinical reports were incomplete in many of the files. In absence of complete medical documentation, it is cumbersome to identify and intervene the gaps reported in the audit results.

This study showed that antihypertensive medicines were given in all 30(100%) patients presented with preeclampsia or eclampsia whereas 29(96%) patients received magnesium Sulphate in loading (4g) and maintenance doses (1g/h). These results are comparable with results from the other studies[21]. A study executed in UK by Reiley et al. documented that antihypertensives were administered in 88% patients whereas magnesium Sulphate was given in 55% of the severe preeclamptic patients and 100% of the eclamptic patients. No recurrent convulsions were reported[20]. Another study conducted in Zambia reported that 158(100%) patients received antihypertensive and magnesium sulphate. All patients were admitted in the intensive care units[22].

The current study reported that eclamptic seizures were encountered in 20(66.67%), 1(3.33%), and 9(30.0%) patients in antepartum, partum, and postpartum periods, respectively. A study performed by Kidanto et al. reported that 47%, 41% and 12% patients developed fits in antepartum, partum, and postpartum periods, respectively [23]. For eclampsia, it is recommended that delivery should be performed within 12 hours of admission. A study by Paras et al. documented that 98% of the patients delivered within 12 hours[21]. Whereas in the present study, only 83% patients delivered within 12 hours of admission.

The positive impact of the clinical audits include the improvements in the level and quality of care after the initial results, with commitments from the complete staffs of obstetrics and gynecology departments, as reported by a number of studies[11,12,19,21,23,24].

Limitations of study:

The major limitation of the study was the small sample size and retrospective nature of the study. This made the findings of the present study inconclusive in assessing the accordance of institutional guidelines to the international guidelines for the management of preeclampsia and eclampsia.

Conclusion:

Clinical audit is a beneficial tool for assessing and improving the level and quality of care, in comparison to the documented international guidelines. The process is easy and inexpensive and majorly provides cheap solutions. In our audit, suboptimal care was reported. In order to avoid maternal mortalities, level of the care should be improved based on the findings of the current audit.

AUTHORS CONTRIBUTION

SG: Data collection and analysis,
FR: Literature review,
MUI: Data management,
HML: Writeup
RW: Supervisor

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