



Criteria based audit in the management of eclampsia at a public sector tertiary care hospital in Karachi, Pakistan



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ARTICLE INFO

Keywords:

Eclampsia
Criteria based audit
Pakistan

ABSTRACT

Objective: To evaluate the practice of Eclampsia management at a tertiary care public sector hospital.

Patients & methods: We conducted criteria based audit of 93 Eclampsia patients admitted in Gynae unit III, Civil hospital and Dow University of Health Sciences Karachi, between 1st January 2016 and 31st December 2016. Management practices were assessed using evidence-based criteria for care. A clinical criteria for standards of care were developed from Royal College of Obstetrician & Gynecologist (RCOG/NICE) guidelines, World Health Organization (WHO) manual, twelve criteria were identified for the audit purpose.

Result: Total deliveries during study periods were 5323, with 93 cases were of Eclampsia, giving prevalence of 1.7%. Majority were antepartum (67%), followed by postpartum (21%) cases. Mean age of patients was 25 years while mean parity was 1.4. Majority 48% were un-booked and 36% were referred. Cesarean section was the main mode of delivery (53%) while 24% delivered vaginally. Live birth rate was 65%. History and examination was performed in 98% of patients. MgSO₄ loading dose was given in 81%, antihypertensive labetalol/hydralazine were given in 29% of cases with acute severe hypertension. Initial investigation were sent in 84% of patients and repeat investigations within 12 h were done in 74% of cases. Reflexes were monitored in 12% of cases, consultant was informed in 37% of cases, management plan was made in 74% of cases, 98% patients were delivered within 12 h of admission.

Conclusion: Suboptimal care was observed in monitoring of patients after magnesium sulphate, and in the management plan of patients.

1. Introduction

Eclampsia remains the major cause of maternal morbidity and mortality. The burden of disease is far greater in developing countries, compared to developed countries. Every one in ten women will die from eclampsia. Around 10–15% of direct maternal deaths are attributed to preeclampsia and eclampsia [1]. Though there is lack of national figures, the available figures place eclampsia as the second direct cause of maternal death in Pakistan [2]. The crude incidence of eclampsia for Pakistan have been calculated to be around 2.7% [3]. Currently maternal mortality in Pakistan is 276 per 100,000 maternities. Though magnesium sulphate has been available for more than a decade now, it was introduced in the country's essential list of medicines in 2007, maternal deaths due to eclampsia are still common. Eclampsia is not only associated with increased maternal morbidity and mortality, but is also responsible for increased perinatal mortality. Lack of antenatal care, basic health facilities, education and poverty are considered as the main factors for increased maternal morbidity and mortality.

Criteria-based audit (CBA) is an important tool in identifying quality of care and management. CBA relies on evidence based practices in improving patient care. CBA has been used to improve upon obstetric care in both developed and developing countries [4]. There are five steps in audit cycle which include 1) establishing criteria for best practice 2) identification of current practices 3) feedback and setting local standards 4) implementing changes in practice 5) re evaluation of changes in the practice [5]. Such audit can play dual role in clinical care, not only it can help in setting up of evidence based practice, but also sets standard for improved clinical care.

Gaps in the management of patients with eclampsia have been identified in both developed as well as developing countries [6,7]. In a survey from Netherlands, main causes of maternal mortality due to eclampsia included gaps in midwifery practice, failure to recognize proteinuria as an important sign, insufficient use of anti hypertensives and anticonvulsants by obstetricians, and failure in timely referral [8]. In this article, we identified the current practices for management of eclampsia in the department and compared it with standard practice,

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using criteria based audit. A set of criteria were identified through literature search, World Health Organization guidelines, NICE (National Institute of Clinical Excellence) guidelines in the management of hypertensive diseases for evaluating the current practice in the management of eclampsia [5,9,10].

2. Patients & methods

This study was carried out at the department of Obstetrics & Gynecology Unit III, Civil Hospital & Dow Medical College in the year 2016, over a period of 12 months. Civil Hospital Karachi is a tertiary care hospital, with more than 2000 bed capacity, and receives patient from two provinces of country, Sind and Baluchistan. The annual delivery rate for the hospital is around 15,000 deliveries annually. For administrative purpose, the obstetric unit is divided in three independent units. Each unit has its own consultant, academic staff and postgraduates. On average each unit has around 6 academic staff, and 25 postgraduate residents to provide emergency cover. Each unit provides emergency care on twice weekly basis. Emergency cases are dealt by postgraduate students, with availability of senior staff for emergency obstetric and gynecological procedures if required. Cases diagnosed as eclampsia are first seen by the duty residents. Depending on the level of consciousness, intensive care help is sought for women with poor Glasgow coma scale. Magnesium sulphate is available in the delivery suite and is used as anticonvulsant. It is given as a loading dose, followed by intramuscular maintenance dose. Anti hypertensive drugs available in the delivery suite include hydralazine and labetalol. The chief resident examines the woman, and after pelvic examination and medical history decides about the mode of delivery. The decision should be shared with on call faculty. A cesarean section is performed by the resident under general anesthesia, and the patient is shifted to the intensive care intubated for a minimum of 12–24 h. Once the blood pressure is settled, she is shifted to the obstetric ward. Laboratory facilities available for the patients include Complete blood picture, urine detailed report, liver and renal function tests, lactate dehydrogenase, arterial blood gases, coagulation studies including prothrombin, partial thromboplastin time are available round the clock in the hospital laboratory. A set of clinical criteria extracted from Royal College of Obstetrician & Gynecologist (RCOG) guidelines, World Health Organization (WHO) manual were identified for the audit purpose [9,10].

The aim of this study was to evaluate the practice of Eclampsia management at the department. All the patients with eclampsia, admitted in the delivery suite were included in the study, their medical records were retrieved from the hospital files. Information retrieved from medical files included demographic data, gestational age, mode of delivery, maternal and neonatal outcome, duration of hospital and intensive care stay and laboratory investigations. Eclampsia was defined as presence of tonic clonic fit ≥ 24 weeks of gestation with hypertension and proteinuria. Antenatal booking was defined as if woman had a minimum of three visits at any medical facility. Magnesium sulphate is given according to Pritchard protocol of 4 gm intravenous diluted in 20 cc saline, given over 15–20 min, followed by 5 g intramuscularly 4 hourly on alternate buttocks for 24 h.

The study was approved by the Institutional review board. Approval number IRB-851/DUHS/Approval/2017/54.

3. Results

There were total of 93 cases of eclampsia during the study period from January–December 2016, over a period of 12 months. Total number of deliveries during the study period were 5323, giving a prevalence of eclampsia 1.7%, in this hospital based study. Majority of the cases were seen in antepartum period 67%, versus postpartum 21%. Only 26(27%) of women had some form of booking at any health facility, and had a minimum of three antenatal hospitals visits (see

Table 1
Basic characteristics of women diagnosed with Eclampsia.

Variables	
Mean age (years)	25 \pm 5.7
years	38(40%)
26–30	29(31%)
31–35	14(15%)
≥ 35 years	12(12%)
Parity	1.41
Gestational age (weeks)	35 \pm 2.99
<i>Booking status</i>	
Booked	26 (27%)
Non booked	48(51%)
Referred	36(38%)
Not documented	19(20%)
<i>Type of eclampsia</i>	
Antenatal	63(67%)
Intra partum	3 (3%)
Post partum	20(21%)
Not documented	7 (7.5%)
Mean # of fits (range 1–22)	3.3
Mean diastolic blood pressure (mm hg)	92 mm hg
<i>Mode of delivery</i>	
Spontaneous vaginal delivery	23(24%)
Emergency Cesarean section	50(53%)
Instrumental delivery	14 (15%)
Not documented	6 (6.4%)
<i>Gender</i>	
Male	42(45%)
Female	32(34%)
Not documented	19 (20%)

Table 1). All these women were referred from surrounding municipal hospital, or secondary care hospitals of the Sind and Baluchistan province. Mean number of fits in the women were 3, with one woman having a total of 22 fits, by the time she reached health facility. Emergency Cesarean section was done in 50(53%), and only 23(24%) had spontaneous vaginal delivery. The mean gestational age at birth was 35 weeks, and the mean birth weight of newborn was 2.3 kg.

Table 2 summarizes the care given to the women admitted in the labor suite with eclampsia. 76(81%) patients received magnesium sulphate loading dose. Antihypertensive treatment (labetalol/hydralazine) was given only in 29(31%) women, and 64(68%) did not receive any drug to control hypertension. Mean diastolic pressure in women with eclampsia was 92 mmhg. Tendon reflexes were monitored in only 12 women. Only 35 women with eclampsia were discussed with on call consultant obstetrician, regarding management and medical treatment.

Table 2
Audit criteria for patients admitted with Eclampsia.

Audit criteria	Yes	No	Not documented
1 Seen by resident within 1 h of admission, thorough history	92(98%)	1	
2 General examination (vitals)	92(98%)	1	
3 Inform consultant obstetrician, plan management within 1 h of admission	35(37%)	10(10%)	48(51%)
4 Anticonvulsants given	76(81%)		17(18%)
Anti hypertensive given	29 (31%)		
5 Respiratory rate reflex monitoring	76(81%)	2(2.1%)	15(16%)
6 Investigations	12(12.9%)	16(17%)	65(69%)
Repeat investigations (within 12 h)	84(90%)	9(9.6%)	
7 Fluid balance, input output charting	65(69%)	6(6%)	22(23%)
Output charting		93(100%)	
8 Delivery within 12 h	62(66%)	2(2%)	29(31%)
	62(98%)		
	Out of 63 pts		

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