

Obstetric admissions to the intensive care unit: A seven year review at Aminu Kano Teaching Hospital Kano, Nigeria

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Abstract:

Background: Worldwide obstetric admission into the intensive care unit is rare.

Objective: To determine the indications and outcomes of Obstetric ICU admission.

Study design, setting and subject: Retrospective descriptive study involving 15 obstetric cases admitted into the ICU of Aminu Kano Teaching Hospital, from 1st January 2002 to December 31st 2008.

Results: The total number of deliveries during the period of study was 20,560 and fifteen (15) of these were admitted into the ICU (0.073%). The age of the patients ranged between 16 and 43 years with a mean age of 27.2 \pm 7.9 years. The parity ranged from 1 to 5 with a mean of 2.4 \pm 1.7. Eighty percent of the admissions were postpartum. The main indications for admission in this study were Eclampsia (53.3%), pulmonary embolism (20%) and severe haemorrhage from ruptured uterus (13.3%). Only two (13.3%) of the patients received ante-natal care. Four patients died, giving a mortality rate of 26.7%.

Conclusion: Eclampsia was the leading indication for obstetric admission into the ICU. This may be reduced by appropriate management of hypertensive diseases in pregnancy and public enlightenment on the importance of ante-natal care and hospital delivery.

Keywords: Obstetrics, ICU admission, Indications, Outcome, Kano.

Introduction

Worldwide obstetric admission into the intensive care unit is rare. In the United Kingdom about 0.11% of pregnant women will develop complications which will necessitate admission into the intensive care unit,¹ while in Kingdom of Bahrain 0.07%-0.8% of pregnant women require ICU admission.² The maternal mortality ratio reported from intensive care units in the developed countries is around 21 per 10,000 deliveries². In developing countries like Nigeria figures as high as 47.6% and 52% have been reported³.⁴ Live threatening obstetric conditions include hypertensive diseases in pregnancy, obstetric haemorrhage and complications of obstructed labour⁵. Eclampsia and pre-eclampsia are the most common indications for intensive care unit admission in studies in Ibadan and Benin, Nigeria and in another study in Bari, Italy⁶.

Improvement of the quality of care among these patients while in the ICU, requires well trained staff with thorough knowledge of the medical conditions encountered and the physiological changes that occur in pregnancy.² In the developed world, there is agreement on the need for intensive care facilities for the obstetric patients.⁷ In the developing world however, this may not be attainable, as lack of access to basic health

facilities is one of the major factors responsible for high maternal mortality rates.⁵ The management of Aminu Kano Teaching Hospital however is planning to establish an intensive care facility for obstetric patients in the near future. Critically ill obstetric patients, who until 2002 were cared for on the labour ward, are now managed in the ICU.

This study is aimed to determine the indications and outcomes of Obstetric ICU admission in our center and to highlight the duration of stay in the ICU.

Material and Methods

The ICU at Aminu Kano Teaching Hospital, Kano, Nigeria is a five bedded general ICU.

The case notes and ICU records of all the obstetric patients admitted to the ICU from January 2002 to December 2008 were reviewed. Data obtained were analyzed using EPI-INFO version 3.5.1(CDC Atlanta, Georgia, USA). Absolute numbers and simple percentages were used to describe categorical variables. Similarly, quantitative variables were described using measures of central tendency (mean and median) and measures of dispersion (standard deviation and range) as appropriate.

Results

The total number of deliveries during the period of study was 20,560 and fifteen (15) of these were admitted into the ICU, representing 0.073% of the total deliveries. The age of the patients ranged between 16 and 43 years with a mean age of 27.2 ± 7.9 years. The parity ranged from 1 to 5 with a mean of 2.4 ± 1.7 . This is shown in Table I. Table II details the indications for ICU admission. The main indications for admission in this study were Eclampsia (53.3%), pulmonary embolism (20%) and severe haemorrhage from ruptured uterus (13.3%). Only two (13.3%) of the patients received ante-natal care.

Table III summarizes the duration of stay in the ICU. The mean hospital stay was 4.2days. Eighty percent of the admissions were postpartum. Four patients died, giving a mortality rate of 26.7%.

Discussion

An intensive care unit (ICU) is necessary for the care of critically ill obstetric patients. Therefore early recognition of high risk obstetric patients is important if adverse maternal and perinatal outcome is to be prevented.

Fifteen patients out of the 20,560 deliveries that took place during the study period require ICU admission, representing 0.073% of all deliveries. This is comparable to 0.17% and 0.2% reported by other authors.^{7, 8} Eighty percent of the admissions were postpartum, as was the case by other authors.¹

The mean age of the patients was 27.2 ± 7.9 years, while the mean parity was 2.4 ± 1.7 , which is similar to 26.68 ± 5.62 obtained in Ibadan.⁴

Pre-eclampsia and eclampsia is a major cause of maternal morbidity and mortality worldwide, but more so in developing countries.⁹ In Kano state, eclampsia is the leading cause of maternal mortality, where it accounts for approximately 46.3% of all maternal deaths. Therefore, it is not surprising

that eclampsia accounted for 53.3% of all obstetric cases admitted into the ICU. Out of the 20,560 deliveries during the study period, there were one hundred and sixty three (163) eclamptic cases; out of these eight require ICU admission, (approximately 5% of all eclamptic) because they require intermittent positive pressure ventilation. Five of the eclamptic were admitted into the ICU because of aspiration pneumonitis, two had acute renal failure and the last one had cerebrovascular accident.

Other indications for obstetric admission into the ICU are pulmonary embolism (20.1%), obstetric haemorrhage due to ruptured uterus (13.3%), acute puerperal inversion (6.3%) and abruption of the placenta (6.3%).

These indications are similar to that reported by other authors.^{4,5}

The mean period of stay in ICU was 4.2days. This mean period of stay in ICU in this study was longer than 1.6 ± 1.5 days and 2.6 ± 2.1 days reported from United Arab Emirate and Ibadan, Nigeria respectively.^{4,11}. This could be due to late presentation of our cases.

Sixty percent of the cases in this study, had intermittent positive pressure ventilation (IPPV), for respiratory support for complications such as pulmonary oedema, aspiration pneumonitis and recurrent fits especially in those with eclampsia.

Approximately 27 % of the cases had blood transfusion. Although while waiting for the blood, they had application of Non-pneumatic anti shock garment, which is effective in maintaining circulation pending when blood is available.

The mortality rate in our study was 26.7% which is lower than 50% and 60% reported by Osinaike et al and Dao et al ^{4, 12}. However, this our figure is higher than 2.3% and 8.6% from other studies. ^{4, 13} This could be due to the fact that our patients are from low socio-economic class and approximately eighty seven percent (87%) of our cases were unbooked

Fourteen of the eclamptics managed in the Obstetric ward died, giving a case fatality rate of 9% compared to non among those that were managed in the intensive care unit. All the three patients with pulmonary embolism died within 24 hours of admission into the intensive care unit. The case fatality rate for pulmonary embolism was 100%. The remaining one mortality was due to acute renal failure secondary to abruption placentae.

In conclusion, eclampsia with its associated complication was the leading indication for obstetric admission into the ICU. The outcome for this group of patients was poor. This poor outcome may be reduced by appropriate

management of hypertensive diseases in pregnancy and public enlightenment on the importance of antenatal care and hospital delivery.

Table I. Age and parity distribution (n=15)

a. Age		
Age group	frequency	percent (%)
<20	4	26.7
20-24	2	13.3
25-29	4	26.7
30-34	4	26.7
≥35	1	6.6
	15	100
Age range= 16-43, mean age=27.2±7.9		
b. Parity		
1	7	47
2-4	2	13
≥5	6	40
	15	100
Parity range=1-5, Mean parity=2.4±1.7		

Table II. Indication for admission into ICU (n=15)

Indication	frequency	percent
Eclampsia	8	53.3
Pulmonary embolism	3	20.0
Ruptured uterus	2	13.3
Uterine inversion	1	6.7
Abruption Placentae	1	6.7
	15	100

Table III. Duration of stay in ICU (n=15)

Number of days	frequency	percent
2	4	26.7
3	3	20.0
4	4	26.7
5	1	6.7
6	1	6.7
8	1	6.7
11	1	6.7
Mean duration of stay=4.2±2.5days		

References

1. Selo-Ojeme DO, Omosaiye M, Battacharjee P and Kadir RA. Risk factors for obstetric admission to the intensive care unit in a tertiary hospital: a case control study. Arch. Gynaecol. Obstet. 2005;272(3):2007-210
2. Khalil ER and Jonathan HS. Obstetric conditions requiring intensive care admission: a five year survey, the Middle East journal of emergency medicine. 2005: 5 (1);120-128
3. Richa F, Karim N and Yazbeck P. Obstetric admission to the intensive care unit: an eight year review. Med liban. 2008; 56 (4): 215-219
4. Osinaike BB, Amanor-Boadu SD and Sanusi AA. Obstetric intensive care: a developing country experience. The internet journal of anesthesiology. 2006; volume 10,number 2
5. Olayinka RE, Simbo DA, Ariola AS, Oladipo AO, Patience TS, olaitan AS and Adesina O. Intensive care unit admissions during the puerperium in Ibadan. Trop. J. Obstet. Gynaecol . 2005: 22(1); 56-59
6. Umo-Etuk J, Lumley J and Holderoft A. Critically ill parturient women and admission to intensive care: a 5 year review. Int. J. Obstet. Anaesth.1996;5:79-84

7. Loverro G, Pansini V, Greco P, VImercati A, Parisi AM and Selvaggi L. Indications and outcome for intensive care unit admission during puerperium. Arch. Gynaecol. Obstet. 2001; 265 (4): 195-198
8. Crawford JS and Opit LJ. A survey of the anaesthetic services to Obstetrics in the Birmingham Hospital Region. A summary anaesthesia 1976; 31: 56-59
9. Anwari JS, Butt AA and AL-Dar MA. Obstetric admissions to the intensive care unit. Saudi med J.2004; 139-9
10. Society of Gynaecology and obstetrics of Nigeria (SOGON). Status of emergency obstetric service in six states of Nigeria. A needs assessment report. June 2004.
11. Mirgham HM, Hamed M, Ezimokhai M and Weerasinghe DS. Pregnancy –related admissions to the intensive care unit. Int. J obstet Anaesth. 2004. 13(2):82-5
12. Dao B, Rouamba A, Quedrago D. Transfer of obstetric patients in a pregnant and postpartum condition to an intensive care unit: eighty – two cases in Burkina Faso. Gynaecol obstet fertil.2003;31:123-126
13. Mahutte NG, Murphy-Kaulbeck L and Le Q. Obstetric admissions to the intensive care unit. Obstetrics gynaecology.1999;94:263-266

14. Graham SG and Luxton MC. The requirement for intensive care support for the pregnant population. *Anaesthesia*. 1989;44:581-584.