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ORIGINAL STUDY

Why Obstetric Patients are admitted to Intensive Care Unit? A Retrospective Study

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ABSTRACT

Pregnant women are often young and in their reproductive years. In majority of them, pregnancy and labor usually progresses uneventfully. Sudden complications occurring during this period may lead to maternal mortality. Though obstetric admission forms a small proportion of ICU admission, mortality among them is high. Proper antenatal care is still the mainstay of preventing complications in pregnant woman. This study was conducted to evaluate the obstetric admission to intensive care unit and causes and outcome of them. Two years retrospective review of all the obstetric admissions (Antenatal and postnatal up to 6 weeks post delivery) were done. Total number of patients admitted to ICU in this period, total number of deliveries in study period and total obstetric patients admitted to ICU were noted. The data included demographic details, obstetric history, indications for ICU admission, pre-existing medical illness and pregnancy complications necessitating ICU admissions. Total obstetric patients admitted to ICU were 1.04% of all deliveries. 48.53% women had pre-existing medical illness. 87.24% were antenatal and 12.67% were postnatal patients. 70.21% women had obstetric/medical illnesses during pregnancy which ICU admissions. Maternal mortality was observed in 31.91%. There was.changing trend in causes of maternal mortality, i.e. tropical diseases like dengue and malaria are found to be the cause of mortality in developing countries like India. Thus, there is need of obstetric high dependency unit (OHDU) at every center.

Keywords: ICU, Obstetric patients, HDU, Obstetric admission.

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INTRODUCTION

Pregnant women are often young and in their reproductive years. In majority of them, pregnancy and labor usually progresses uneventfully. Sudden complications occurring during this period may lead to maternal mortality and morbidity. Management of complications needs a multidisciplinary approach involving obstetrician, anesthesiologist and intensivist. Though obstetric admission forms a small proportion of intensive care unit (ICU) admission, mortality among them is high. Proper antenatal care is still the mainstay of preventing complications in pregnant woman. This study was conducted to evaluate the obstetric admission to ICU and causes and their outcome.

AIMS AND OBJECTIVES

1. To evaluate the obstetric admission to the intensive care unit (ICU).
2. To determine the spectrum of diseases in obstetric patients admitted to ICU.
3. To identify risk factors influencing maternal outcome.

MATERIALS AND METHODS

The study was initiated after institutional ethical committee's permission. It was a retrospective hospital-based study conducted at NKPSIMS LMH Nagpur for over a period of 24 months from 1/11/2009 to 31/10/2011. Two years retrospective review of all the obstetric admissions (antenatal and postnatal up to 6 weeks postdelivery) were done. Total number of patients admitted to ICU in this period, total number of deliveries in study period and total obstetric patients admitted to ICU were noted. The data included demographic details, obstetric history, indications for ICU admission, preexisting medical illness and pregnancy complications necessitating ICU admissions were noted. Parity and gestational age of admission was also noted and data was analyzed.

OBSERVATIONS AND RESULT

1. Total number of obstetric admission—6,000
2. Total number of ICU admission—2,131
3. Total number of deliveries—4,500
4. Total number of obstetric patients admitted to ICU—47

Total obstetric population admitted to ICU was 1.04% of all deliveries and 0.77% of all obstetric admissions and 2.21% of all patients admitted to ICU during the study period.

DISCUSSION

Pregnancy, delivery and puerperium can be complicated by severe maternal morbidity necessitating ICU admission. Management of critically ill obstetric patients is very complex and requires cooperation obstetrician, interventionist and anesthesiologist.

A retrospective study conducted at Al Ain Hospital, UAE from 1/1/97 to 31/12/2002 by HM Mirghania et al mention obstetric patients admission rate as 2.6/1,000 deliveries and obstetric patients represents 2.4% of all ICU admission.

Studies from American Academy of Family Physicians also mention 0.4% of deliveries.

A study conducted by Faponic AF et al mention 0.21% obstetric patients admitted to ICU and it accounts for total admission to ICU.[4]

In our study we found that total obstetric patients who needed ICU admissions were 1.04% of all deliveries and 0.77% of total obstetric admissions.

Mean age of the women admitted were 26.05 ± (range, 18-32 yrs) and mean parity were 1.2 (range, 1-3). Out of 47, 22 patients were booked. Maximum patients were in gestational

age group of 36 to 42 weeks 20/47, i.e. 42 to 55%, 12/47, i.e. 25 to 53% were between 28 and 36 weeks (Table 1). There were six postnatal patients. In studies conducted 22.8% were antepartum and 74.1% were postpartum and mean gestational age was 36 weeks 3 days.[1,8] In other studies, all patients admitted to ICU were postpartum.[4,6]

In our study, preexisting medical condition which necessitated ICU admission were severe anemia and heart disease as leading cause, 19.25% (9/47), followed by sickle cell disease, 4.25%, and hepatits, renal disease and essential HTN, 2.1% (Table 2). In other studies conducted, they concluded cardiac/liver/renal/pancreatic and thromboembolic disease, as more frequently diagnosed diseases at the tertiary care center.[1,7]

Obstetric conditions which necessitated admission to ICU in present study were hypertensive disorders of pregnancy (preeclampsia and eclampsia) as leading cause 15/47 (31.9%) followed by dengue malarial fever 11/47 (23.40%), poisoning 4/47 (8.51%) and APH, meningitis, malignancy, acute gastroenteritis and seizure disorder 1 each (Table 3). In studies conducted hemorrhage and sepsis was the leading cause of ICU admission,[1,6] while in other study it was hemorrhage (28.4%), preeclampsia and eclampsia (25%).[2] In other study hemorrhage was the single and most important cause of ICU admission, 82%.[3] In other study eclampsia was commonest indication for admission,[4,5,8] as eclampsia is still common in developing countries,[9] specially in women with poor antenatal care. Hemorrhage was another indication for admission and was direct cause of mortality in many cases.[10]

In the present study, the maternal mortality among the women admitted to ICU was 31.91% (15/47), the leading cause of mortality was Dengue and Malarial fever 5/15 (33.33%) followed by severe Anemia, Septicemia 3/15 (20%) (Table 4). In other study, the obstetric patients admitted to ICU had more case fatality rate.[4]

Table 1: Gestational age at the time of hospitalization

Gestational age	*No. of cases*
4-12 weeks	1
12-28 weeks	8
28-36 weeks	12
36-42 weeks	20
PNC period	6

Maximum patients were in the gestational age of 28 to 42 weeks (32/47)

Table 2: Preexisting medical conditions necessitating ICU admissions

Preexisting medical conditions	*No. of cases*	*%*
1. Sickle cell disease	2	4.25
2. Severe anemia	9	19.25
3. Heart disease	9	19.25
a. RHD	5	55.25
b. HOCM	2	22.22
c. Pulmonary HTN	1	11.11
d. LBBB	1	11.11
4. Hepatitis	1	2.1
5. Renal disease	1	2.1
6. Hypertension	1	2.1

Severe anemia (Hb < 6.5 gm%) and heart disease (RHD, HOCM, LBBB) were the leading causes of perexisting medical conditions in obstetric patients who needed ICU admission

Table 3: Obstetric condition and problems which needed admission to ICU

Conditions necessitating ICU admissions	*No. of cases*	*%*
1. Preeclampsia/HELLP syndrome	6	12.76
2. Eclampsia	9	19.14
3. Dengue and Malaria fever	11	23.40
4. Meningitis	1	2.1
5. APH	1	2.1
6. Malignancy	1	2.1
7. Others	4	8.51
a. Poisoning	1	2.1
b. Seizure disorder	1	2.1
c. Ascites	1	2.1
d. Gastroenteritis	1	2.1

Hypertensive disorders of pregnancy (preeclampsia and eclampsia) were the leading causes followed by Dengue and Malaria fever which needed ICU admission

Table 4: Maternal mortality and its causes in obstetric patients admitted to ICU

Maternal mortality (no. of cases)	*Cause of death*
3	Severe anemia
3	Dengue fever
3	PNC septicemia
2	Malaria
1	APH
1	Eclampsia
1	Heart disease
1	Malignancy

Maternal mortality in obstetric patients admitted to ICU were 31.9% (15/47) and leading cause was Dengue and Malaria 33.33% followed by severe anemia 20%

CONCLUSION

1. Total obstetric patients admitted to ICU were 47/4,500 constituting 1.04% of all deliveries and 2.21% of all ICU admissions.
2. A total of 48.53% (23) women had preexisting medical illness like RHD, HOCM, LBBB, Sickle cell disease, Severe anemia, HTN, Renal disease which necessitated them for obstetric admission.
3. A total of 87.24% (41) were antenatal and 12.67% (6) were postnatal patients.
4. A total of 70.21% (33) women had obstetric/medical illnesses during pregnancy which necessitated them for ICU admissions.
5. Mortality in patients admitted to ICU was 8.82% (188/2132).
6. Mortality in obstetric patients admitted in ICU was 0.7% of all ICU deaths.
7. Maternal mortality was observed in 15/47 patients, i.e. 31.91%.

There is change in trend in cause of maternal mortality as compared to other studies as 33.33% deaths were due to dengue

and malaria fever as compared to PPH, APH, heart disease and preeclampsia previously. This could be because of better antenatal care and treatment offered to them at PHC's and all the centers which decreased the mortality from obstetric hemorrhage and preeclampsia and eclampsia, but there is a changing trend, i.e. tropical diseases like dengue and malaria are found to be the cause of mortality in developing countries like India. Thus, there is need of obstetric high dependency unit (OHDU) at every center.

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REFERENCES

1. Zwart JJ, Dupvis JR, Richters A, et al. Obstetric ICU admissions, a 2 years nationwide population based cohort study. Intensive Care Med 2010 Feb;36(2):256-63.
2. Mirghani HM, Hameed M, et al. Pregnancy related admissions to the ICU. Int J Obstet Anaesth 2004 Apr;12(2):82-85.
3. Reason for ICU admission in obstetric patients- ICU Tips from other journals 1992, American Academy of family physician. Available from: http://www.drplace.com/Reasons for ICU admission in obstetric patients.
4. Fapronle AF, Adenekan AT. Obstetric admission into the ICU in a suburban university teaching hospital NJOG 2011 Nov-Dec;6(2):33-36.
5. Battacharje P, Kadir RA. Risk factors for obstetric admissions to ICU in a tertiary care hospital: A case control study. Arch Gynecol Obstet 2005;272:207-10.
6. Munench MV, Baschat AA, Malinow AM, Mighty HE. Analysis of disease in the obstetric ICU at university Referrel center: A 24 months review of prospective data. J Reprod Med 2008 Dec;53(12):914-20.
7. Ryan M, Hamilton V, Bowen M, Mekanna P. The role of high dependency unit in a regional obstetric hospital. Anaesthesia 2000 Dec;55(12);1155-58.
8. Pallock W, Rose L, Dennis CL. Pregnanat and postpartum admissions to the ICU: A systemic review. Intensive Care Med 2010 Sep;36(9):1465-74.
9. Adetoro OO. The pattern of eclampsia at University of Ilorin teaching hospital (UITH), Ilorin, Nigeria. Int J Gynaecol Obst 1990;31:221-26.
10. Anwari JS, Butt AA, et al. Obstetric admissions to ICU, Saudi Med J 2004;25(10):139-49.

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