

PROFILE OF OBSTETRIC PATIENTS IN INTENSIVE CARE UNIT: A RETROSPECTIVE STUDY FROM A TERTIARY CARE HOSPITAL IN PESHAWAR

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ABSTRACT **OBJECTIVES**

To examine demographic characteristics, diagnosis on admission, and clinical outcomes in terms of morbidity and mortality of all those obstetric patients who were shifted to the Intensive care unit.

METHODOLOGY

This retrospective study was conducted in Gynae Unit A, Medical and Surgical intensive care units of Khyber Teaching Hospital Peshawar from 1st January 2021 to 31st December 2022. All the obstetric patients admitted to medical or surgical intensive care units were included, i.e., pregnant women or women admitted within six weeks after delivery to medical or surgical ICUs. Data about the patient's demographics, obstetric/medical history, diagnosis on admission, reason for shifting to Intensive care units, course and treatment, ICU course, length of stay, outcome, and maternal mortality were obtained.

RESULTS

The ICU admission rate of obstetric patients in the study period was 0.7%. The age group of 26-30 years was most commonly seen in our study, where 35(40%) of our cases fell, followed by the 21-25 age group (19.5%). 27(31%) of our patients were primigravidas and 60(69%) were multigravidas. 21(24%) were antenatal, 65(75%) were postnatal and 1(1%) was ectopic. Postpartum hemorrhage was the most common indication (24%) for which patients were referred to the intensive care unit, followed by Eclampsia in 15(17%) and placenta accreta in 13(15%). Causes of mortality for the ICU admissions were shock and ARDS in 1(7%) each, DIC in 5(33%), and Cardiac arrest in 8(53%) cases. Fifteen patients expired in the intensive care unit during the study period, making the mortality rate 17%.

CONCLUSION

Strengthening critical care is important for saving the high-risk obstetric population. A structured ICU with an interdisciplinary approach is necessary to reduce high-risk obstetric mortality.

KEYWORDS: Postpartum hemorrhage, Eclampsia, Intensive care units, Maternal mortality, Multigravidas, Primigravidas

INTRODUCTION

Obstetric patients constitute a small proportion of the intensive care unit but present a challenge to the attending intensive care unit specialists owing to the concerns of fetal viability, altered maternal physiology, and diseases specific to pregnancy.¹ Admission of these patients prevails in 0.1-0.9% of deliveries, with overall mortality ranging from 3.4-21%.² In these patients, maternal mortality rates are higher in developing countries (2-43.6%) as compared to those in developed countries (0-4.9%).³ The reasons for ICU care in critically ill obstetric patients can be categorized into three groups. The first group comprises patients who present with illnesses specific to pregnant patients, like pre-eclampsia/eclampsia, thromboembolic disorders, antepartum/postpartum hemorrhage, and puerperal sepsis. The second group comprises patients who

present with preexisting medical conditions, which may not be as critical in a nonpregnant state but which directly correlate with high mortality rates in pregnant women like hepatitis E.^{4,5} Varieties of observational studies have established an association between anemia and worsened outcomes, including mortality, failure to wean from mechanical ventilation, and myocardial infarction.⁶ Ten percent of women have high blood pressure during pregnancy, and pre-eclampsia complicates 2-8% of pregnancies.⁷ Severe consequences such as abruption placentae, thrombocytopenia, disseminated intravascular coagulation, pulmonary edema, and aspiration pneumonia were shown to be 3-25 folds higher in women with pre-eclampsia and Eclampsia.⁸ The Sequential Organ Failure Assessment (SOFA) score determines the degree of organ dysfunction and the prognosis of disease severity. Moreover, the SOFA

scoring system can be applied in a low infrastructure setting like ours because it consists of few variables that are routinely measured.⁹ The present study was designed to examine demographic characteristics, diagnosis on admission, and clinical outcomes in terms of morbidity and mortality of all those obstetric patients who were shifted to the Intensive care unit.

METHODOLOGY

A retrospective study was conducted in Gynae Unit A, Medical and Surgical intensive care units of Khyber Teaching Hospital Peshawar from 1st January 2021 to 31st December 2022. All the obstetric patients admitted to medical or surgical intensive care units were included, i.e., pregnant women or women admitted within six weeks after delivery to medical or surgical ICUs. The institutional ethical committee approved the study. Data about the patient's demographics, obstetric/medical history, diagnosis on admission, the reason for shifting to Intensive care units, course and treatment, ICU course, length of stay, outcome, and maternal mortality were obtained from the patient's case notes and records from the ICU and were entered into a predesigned proforma. Data was analyzed using SPSS 22 version software.

RESULTS

The ICU admission rate of obstetric patients in the study period was 0.7%. Eighty-seven obstetric cases were referred for intensive care out of 12,396 obstetric population. Different interventions which were carried out in intensive care were blood transfusions in 37(42.5%), fresh frozen plasma in 12(14%) and platelets transfusions in 11(13%), magnesium sulphate therapy in 17(19.5%), mechanical ventilation in 11(13%), tracheostomy in 2(2%). Surgical interventions were Caesarean hysterectomy in 17(19.5%), Caesarean section in 19(22%), Uterine artery ligation in 2(2%), Repair of ruptured uterus in 5(6%), and B-lynch suture in 4(4.5%). Both medical and surgical interventions could be employed in the same patient.

Table 1: Demographic Details (n=87)

Parameters		Frequency	%age
Age	16-20 years	09	10%
	21-25 years	17	19.5%
	26-30 years	35	40%
	31-35 years	15	17%
	36-40 years	04	4.5%
Parity Status	Primigravidas	27	31%
	Multigravidas	60	69%
Time of Admission	Antenatal	21	24%
	Postnatal	65	75%
	Ectopic	01	01%
Mortality	Alive	72	83%
	Dead	15	17%

Table 2: Frequency Distribution of Diagnosis (n=87)

Diagnosis	Frequency	%age
Postpartum Haemorrhage	21	24%
Eclampsia	15	17%
Placenta accrete/percreta	13	15%
DIC	09	10%
Placental Abruption	07	08%
Shock	07	08%
Severe pre-eclampsia	06	07%
Anemia	04	05%
Cardiac disease	03	04%
Epilepsy	02	02%

Table 3: Causes of Mortality (n=15)

Cause	Frequency	%age
Cardiac Arrest	08	53%
DIC	05	33%
ARDS	01	07%
Shock	01	07%

DISCUSSION

Our study's mean age of obstetric patients was 27 years \pm 2.52 years. This age was commonly seen in studies done by other authors.^{10,11} Multigravidas constituted the majority of admissions in our research, as was seen in other studies.^{12,13} However Dasgupta et al. found a higher percentage of primigravidas in their intensive care units.¹⁴ In our study, 75% constituted the postpartum population, similar to other studies.^{15,16} The causes for more postpartum patients than antepartum may be abrupt changes in hemodynamics during the postpartum period, like sudden increases in cardiac output and acute blood loss during delivery. On the contrary, Bhadade et al. had a larger antenatal population in their study.¹⁷ The commonest diagnosis for admission of an obstetric patient to an intensive care unit was obstetric hemorrhage. This is the commonest indication for critical care admission in a few other studies.^{15,18} Early diagnosis, prompt treatment, a dedicated blood bank facility, and a state-of-the-art ICU in our tertiary care hospital have contributed to reducing mortality in obstetric patients. Only 11 out of 87 patients needed mechanical ventilation. Hypertensive disorders of pregnancy are the next common indication for shifting the patient to ICU, i.e., Eclampsia and severe pre-eclampsia. Those with Eclampsia who were referred to the ICU were the patients who had multiple episodes, and the seizures were refractory to treatment. These patients most commonly need mechanical ventilation. Although it's the second most common indication for referral of obstetric patients to the ICU according to our study, Togonal et al. reported pregnancy-induced hypertension as the topmost indication for ICU shifting in their study.¹⁶ Our study observed that most obstetric patients shifted to the ICU and received blood and blood

products transfusions. Retrospective studies conducted by many authors concluded that the most common intervention in ICU was blood transfusions.^{15,16,17} Blood transfusion was followed by mechanical ventilation in these studies. The most common surgical procedure conducted in the ICU was a cesarean section. This finding was reported by a few other authors, too.^{11,18} Our study analyzed different predictors of severe obstetric illness, and none of the variables showed association as an independent risk factor for maternal mortality. There is a lack of synchronization of health care services worldwide, and delays in referral to a tertiary care facility make it detrimental.

LIMITATIONS

Our study had a few limitations. Our hospital is a tertiary health care facility with a very high referral rate, so few patients at admission were already in a critical state. Secondly, it was a single-center study; therefore, its results could not be generalized to the entire population. It would have been better if we collected data from all tertiary care hospitals of Peshawar regarding their intensive care unit services.

CONCLUSIONS

Reduction in maternal mortality is an important healthcare parameter and requires the involvement of the whole healthcare system from primary to tertiary levels. Strengthening critical care is important for saving high-risk obstetric populations. A structured ICU with an interdisciplinary approach is necessary to reduce high-risk obstetric mortality.

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CONTRIBUTORS

1. **Maimoona Qadir** - Concept & Design; Data Acquisition; Data Analysis/Interpretation; Critical Revision; Supervision; Final Approval



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