

# Study of Obstetric Patients Admitted to Intensive Care Unit at Tertiary Care Centre in Western Uttar Pradesh: One Year Review

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## ABSTRACT

**Introduction:** Pregnancy though physiological and usually uneventful may encounter complications and often needs admission to critical care unit, obstetrics patients are usually young and healthy, by giving short Intensive Care Unit (ICU) care life can be saved. This study aims at evaluating the occurrence, indication of admission and outcome of obstetrics patients admitted to ICU in a tertiary care centre.

**Material and Methods:** A hospital based descriptive observational study was conducted at eight bedded ICU in tertiary care center in western U.P. from August 2014 to July 2015. All obstetric admission to the ICU up to 6 week post partum was included. Data obtained included - demography, indication for ICU admission, intervention at ICU, length of stay and patient out come.

**Results:** A total 109 obstetrics patient required ICU admission during the study period. This accounted for 10.8% of all ICU admissions. The most common mode of delivery was emergency caesarean section. More than half (51.3%) of the patients were admitted due to hypertensive disorder of pregnancy. The cases of obstetric hemorrhage were 38.5%. Severe anemia with Congestive Heart Failure (CHF) was 8.25%.

**Conclusion:** In the light of our experience, a few measures may reduce maternal mortality in developing countries. There is need to recognize that low socioeconomic status, illiteracy, lack of infrastructure and multiparty can vastly influence maternal death. In addition, dedicated ICU in tertiary hospital can ensure early intervention, management, and intensive care to the patient.

**Keywords:** Obstetric Patients, hypertensive disorder of pregnancy

## INTRODUCTION

The need for critical care support in obstetric patient is frequent.<sup>1,2</sup> There are only few studies<sup>2</sup> reporting on critical illness during pregnancy. Complication may arise during pregnancy or in the postpartum period, which can be life threatening.<sup>3</sup> Early intervention and treatment in the ICU can decrease the progression of dysfunction and improve prognosis. Late presentation of patient and paucity of ICU are big problem in Uttar Pradesh (U.P.). Hypertensive disorder is the most common reason for ICU admission. The purpose of this study was to determine the cause and outcome of admission of obstetric patient to the ICU in tertiary care center.

## MATERIAL AND METHOD

A hospital based descriptive observational study was conducted at eight bedded ICU in tertiary care center in western U.P. from August 2014 to July 2015. All obstetric admission

to the ICU up to 6 week post partum were included, data obtained included - demography, indication for ICU admission, intervention at ICU, length of stay and patient out come.

The unit has facility for ventilator care, invasive cardiovascular monitoring, and dialysis unit, managed by well trained anesthesiologists for 24 hours. The admission criteria in ICU were the need of respiratory support or intensive therapy. All obstetrics cases admitted to ICU either from the emergency unit, the obstetric room, or, from the ward and operation theatre were enrolled in the study. Data retrieved include age, parity, mode of delivery vital sign, Glasgow coma scale on admission in the ICU. Other information retrieved were length of stay, mechanical ventilation, oxygen therapy, blood transfusion, ion tropic support and outcome of the patient.

## STATISTICAL ANALYSIS

Simple statistical calculations (as mentioned below) were done in this study.

Percentage Value of a Specified Category – Number of cases of the specified category / Total number of cases x 100.

Statistical analysis was done using statistical tool SPSS 11.0. Unpaired *t*-test were used to infer results.

## RESULT

A total 109 obstetrics patient required ICU admission during the study period. This accounted for 10.8% of all ICU admissions. The most common mode of delivery was emergency caesarean section. More than half (51.3%) of the patients were admitted due to hypertensive disorder of pregnancy. The cases of obstetric hemorrhage were 38.5%. Severe anemia with Congestive Heart Failure (CHF) was 8.25%. Risk factors for admission included lesser gestational age, anemia, poor nutrition, no Ante Natal Care (ANC) visit, and low socioeconomic status.

Mean age was 23 ± 4.6 year, average length of stay in ICU was 3.40 ± 2.05 days. There were 19 case of maternal mor-

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tality, which account for 17.42% of total mortality. No case was referred to other center.

### DISCUSSION

During the study period obstetric admission to the ICU represented 22% of all admitted obstetrics patient. This result is much higher than some other studies. Out of the total bed occupancy at ICU, obstetric admission accounted for 10.8%. The relatively high admission and complication rate in our study might be due to lack of antenatal visit, illiteracy and low social economic status and dense population of the patient in the district and lack of tertiary care center. Majority of the admission to the ICU were in the post partum period. Majority of the parturient (51.3%) in our study were admitted with hypertensive disorder followed by Obstetric hemorrhage (20.1%). All studies revealed similar result. The higher maternal mortality and morbidity due to Eclampsia in developing countries has been ascribed to late referral, delay in hospitalization, late transportation, unbooked status of pa-

tients and multiple seizures prior to admission.<sup>4</sup> Sepsis and severe anemia with CHF (17.43%) was the third most Common indication for obstetric admission. There was one case of H<sub>1</sub>N<sub>1</sub> with Acute Respiratory Distress Syndrome (ARDS). Other causes of ICU mortality included Acute Renal Failure (ARF), brain hemorrhage, and pulmonary edema (5.50%), which may be due to the fact that we have lot of referral patient from other hospitals which were mismanaged there.

Majority of the patient were admitted postpartum (72%), after cesarean section. This again suggests that operative deliveries are associated with high chances of complication which necessitating ICU admission.<sup>5</sup> A total 83 ( 76.1% ) of our patients received mechanical ventilation which are very much high as compared to a study done in china.<sup>6</sup> The most common indications were acute respiratory failure (52.2%) and hemodynamic failure (23.8%).

The mean duration of stay at ICU was 3.40 ±2.05 days, which is similar to most studies.<sup>1-3</sup> It indicates that most of the patient did not have major complication during their ICU admission. The minimum stay duration was of four hour and maximum was for 20 days. The total ICU mortality was 32% in one year and maternal mortality rate was 17.42%. Most of the patients who died were referred to us from other hospital and had to travel distance of more than 50 kilometer and losing their golden hour. The main complications encountered during stay at ICU were ARDS, ARF, Disseminated Intravascular Coagulopathy (DIC), and Hepatic encephalopathy. These results are similar to a previous study done by Poornima B et al.<sup>7</sup> The percentage of ICU admission related to obstetrics care in our study is comparable to the literature reviewed.<sup>8-16</sup> Our results conclude similar findings to some of the previous studies which have shown that antenatal, natal and post natal period can be complicated by maternal morbidity necessitating intensive care unit admission.<sup>17-19</sup>

### CONCLUSION

In the light of our experience, a few measures may reduce maternal mortality in developing countries. There is need to recognize that low socioeconomic status, illiteracy, lack of infrastructure and multiparty can vastly influence maternal death. As discussed by Cruz it is found that there is an inverse association between donor blood availability and both maternal mortality ratio and risk of death due to post partum hemorrhage.<sup>6</sup>

In addition, dedicated ICU in tertiary hospital can ensure

<b>Total Number of Cases</b>	<b>109</b>
Mean duration of admission (Days)	3.40±2.05
Age (Year)	23 ±4.6
Parity	
a) Multigravida	83
b) Primigravida	26
Ante Natal Care attendance	37
Ante partum admission	30
Postpartum admission	79
<b>Table-1: Characteristic of Obstetric Patient Admitted at ICU</b>	

Serial Number	Diagnosis	Number Admitted	%
1	Eclampsia	42	38.5%
2	Obstetric hemorrhage	22	20.1%
3	Severe PET	14	12.8%
4	Ruptured uterus	5	4.58%
5	Sepsis	10	9.12%
6	Post CPR	1	0.91%
7	Severe anemia	9	8.25%
8	Other	6	5.50%
10	Total	109	
CPR – Cardiopulmonary Resuscitation, PET – Pre Eclamptic Toxaemia.			
<b>Table-2: Indication for Admission in the ICU</b>			

Serial Number	Admission Diagnosis	Number Admitted	Number Survived	Number Died	Percentage Mortality%
1	Eclampsia	42	38	4	9.5%
2	Obstetric Hemorrhage	22	17	2	9.09%
3	Severe PET	14	12	2	14.2%
4	Rupture Uterus	5	4	1	20.0%
5	Sepsis	10	7	3	30.0%
6	Post CPR	1	0	1	100%
7	Severe Anemia	9	6	3	33.0%
8	Other	6	5	1	16.0%
<b>Table-3: Outcome of Admission of the Obstetric Patients</b>					

ICU Intervention	Number of Cases
Mechanical ventilation	83
Blood and blood product transfusion	36
Antihypertensive	64
Anticonvulsant	64
Observation	
DIC	3
ARF	2
ARDS and Pulmonary edema	5
Hepatic Encephalopathy	1
DIC - Disseminated Intravascular Coagulopathy; ARDS - Acute Respiratory Distress Syndrome. ARF - Acute Renal Failure.	
<b>Table-4:</b> Interventions and Complications during stay	

early intervention, management, and intensive care to the patient.

## REFERENCE

- Orsini J, Batula A, Diaz L, Muzyllo E, Muiuardi C. Clinical profile of obstetric patients admitted to the Medical Surgical Intensive care unit (MSICU) of the Inter-city hospital in New York. *J Clin Med Res.* 2012;4:314-7.
- Aldawodd A. Clinical Characteristics and outcomes of critically ill obstetrics patients: a ten-year review. *Ann Saudi Med.* 2011;31:518-22.
- Lwatt JJ, Dupuis JRO, Richters A, Ory F, Roomalen JV. Obstetric intensive care unit admission; A 2 year nationwide population-based cohort study. *Intensive Care Med.* 2010;36:256-63.
- Agida ET, Adeka BL, Jibril KA. Pregnancy outcome in Eclampsia at the university of Abuja teaching hospital. Gwagwalada Abuja: a 3-year review. *Niger J Clin Pract.* 2010;13:394-8.
- Leung NY, Lau AC, Chan KK, Yan WW. Clinical characteristics and outcomes of obstetrics patients admitted to the intensive care unit; A 10 years retrospective review. *Hong Kong Med J.* 2010;16:18-25.
- Faponle AF, Adenekan AT. Obstetric admission into the Intensive care unit in Suburban University Teaching Hospital. *Nep J Obstet Gynaecol.* 2011;6:33-6.
- Poornima B, Ramachandra Bhat, Mahesh H, Navada. Evaluation of obstetric admission to ICU of a tertiary referral center in costal India. *Indian J Critical care Med.* 2013;17:34-7.
- Vasquez DN, Estenssoro E, Canales HS, Reina R, Saenz MG, Das Neves AV, et al. Clinical characteristics and outcomes of obstetric patients requiring ICU admission. *Chest.* 2007; 131:718-24.
- Crozier TM, Wallace EM. Obstetric admission to an integrated general intensive care unit in a quaternary maternity facility. *Aust N Z J Obstet Gynaecol.* 2011;51:233-8.
- Lataifeh I, Amarin Z, Zayed F, Mehaisen L, Alchala-bi H, Khader Y. Indications and outcome for obstetrics patient's admission to intensive care units: A 7-year review. *Informa health care.* 2010;30:378-82.
- Harrison DA, Penny JA, Yentis SM, Fayek S, Brady AR. Case mix, outcome and activity for obstetric admissions to adult, general critical care units: a secondary analysis of the ICNARC care mix programme Database. *Critical care.* 2005;9:S25-37.
- Madan I, Puri I, Jain NJ, Grotegut C, Nelson D, Dandolu V. Characteristics of obstetric intensive care unit admissions in New Jersey. *J Matern Fetal Neonatal Med.* 2009;22:785-90.
- Upadhyaya I, Chaudhary P. Severe Acute Maternal Morbidity and Intensive Care in Paropakar Maternity and Women's Hospital. *Nep J Obstet Gynaecol.* 2013;8:38-41.
- Selo-Ojeme DO, Omosaiye EM, Battacharjee P, Kadir ER. Risk factors for obstetric admission to the intensive care unit in a tertiary hospital: a case control study. *Arch Gynecol Obstet.* 2005;272:207-10.
- Okafor UV, Efezie ER, Amucheazi A. Risk Factors for Maternal Deaths in Unplanned Admissions to the Intensive Care Unit- lessons for Sub-Saharan Africa. *Afr J Reprod Health.* 2011;15:51-4.
- Bouvier Colle MH, Varmoux N, Salanave B, Ancel PY, Breast G. Case-control study of risk factors for obstetric patient's admission to intensive care units. *Eur J Obstet Gynecol Reprod Biol.* 1997;74:173-7.
- Baloch R, Jakhrani NK, Zeb E, Hafeez S, Abassi M, Abassi FN. Pattern and outcome of obstetric admissions to the surgical intensive care unit- a ten year study. *J Surg Pak (International).* 2010;15:171-6.
- Richa F, Karim N, Yazbeck B. Obstetric admissions to the intensive care unit: an eight year review. *Lebanese Med J.* 2008;56:215-9.
- Pathak V, Agrawal J, Chandra M, Kanash S. Analytical study of patients admitted in obstetric ICU at tertiary care centre. *J Evol Med Dental Sci.* 2013;2:2246-56.

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