



OUTCOME OF CRITICALLY ILL OBSTETRIC WOMEN AT A TERTIARY CARE CENTER.

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Abstract

INTRODUCTION: Intensive care has been defined as “a service for patients with potentially recoverable conditions who can benefit from more detailed observation and invasive treatment than can safely be provided in general wards or high dependency areas”. **AIM:** To assess the outcome of critically ill obstetric women at a tertiary care centre **METHODOLOGY:** This prospective observational study was conducted in the Department of Obstetrics and Gynaecology at C.R. Gardi Hospital and Research Centre, Surasa, Ujjain, over a period of one and a half years from November 2015 to May 2017. **RESULT:** Among 115 critically ill obstetric women admitted to the ICU, the majority were 21–30 years old, from a low socioeconomic background, and admitted during term pregnancy or the antepartum period. Most women had favorable maternal and neonatal outcomes, with a maternal mortality rate of 7%, while hypertensive disorders and obstetric hemorrhage were the leading causes of ICU admission and maternal deaths. **CONCLUSION:** Early recognition of obstetric complications, timely referral, and prompt intensive care management can significantly improve maternal and fetal outcomes in critically ill obstetric women. Strengthening antenatal care and ensuring access to tertiary care ICUs are essential to reduce preventable maternal morbidity and mortality.

Keywords: Intensive care, Maternal Outcome, antenatal care



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INTRODUCTION

Intensive care has been defined as “a service for patients with potentially recoverable conditions who can benefit from more detailed observation and invasive treatment than can safely be provided in general wards or high dependency areas”. Global Maternal mortality rate (MMR) is 216/100,000 live births¹. The millennium development goals (MDG) targeted it to be less than 70 per 100,000 live births by the end of year 2015. In India it is 174 per 100,000 live births. Various actions are being taken to achieve the goal viz. achieving 100% institutional deliveries, training of (PHC) and (CHC) medical officers through EmOC and cEmOC, establishing more blood banks and release of 3rd generation antibiotics for community. Though India has partially reached the goal, still much more is to be done. Rate of obstetrics ICU admissions, their health indicators is the real evaluation of hospital services². Obstetric critical care in developing countries however continues to be radically different from developed countries³.

An efficient scoring system for assessment of the severity & outcome in critically ill obstetric patients would not only contribute to the assessment of quality of patient care but would also enhance the risk stratification of pregnant patients in the evaluation of new therapies⁴. Various scoring systems like simplified acute physiology score (SAPS), acute physiology and chronic health evaluation (APACHE), mortality probability models (MPM) have been used to predict the outcome of obstetric patients in the developed world^{5,6}. But ICUs from the Indian subcontinent seldom ever participated in these studies as a dedicated ICU for obstetric patients is not yet widely available in developing countries⁷. Depending on method and protocols approximately one percent of obstetric patients need some type of intensive observation and management⁸. Advances in technology and progress in expertise of critical care in obstetrics enabled many critically ill, young pregnant women to tide over the crisis⁹. Obstetrical Intensive Care Unit are full care ICUs but are operated by obstetrical and anesthesia personnel.

As such MP was included in the BIMARU states having MMR more than 300 pertaining to this, the novel endeavor by NRHM of attaining the goal of MMR by promoting institutional deliveries has brought a drastic change. The govt. hospitals

are the destinations for laboring women because this program is backed up by the network of ASHA workers. Paying honorarium to women & ASHA is the main reason behind this referral. But in Ujjain due to lack of space, lack of qualified obstetricians, anaesthesiologist and pharmaceutical support the situation in the district maternity hospital has landed in a messy scenario. Large number of delivery patients, less number of nursing staff & doctors has created a sort of negligent scenario. There is no obstetric ICU in government hospitals. C R Gardi hospital of medical college has a full 60 bedded labour ward, delivery suites, eclampsia room, obstetric ICU, HDU & operation theatres in 1 wing of the hospital. It also has the backup of 12 obstetric resident doctors with an 4 assistant professor on call and 4 obstetric resident doctors with 1 assistant professor on emergency duty everyday.

This is the most ideal service given to critically ill obstetric women. Backup of round the clock laboratory services, blood bank, anaesthesiologist and pharmacy has made our ICU the most ideal. With this background we want to assess the outcome of obstetric ICU services in the form of maternal morbidity & mortality and neonatal outcome. Number of services given in the form of laboratory investigations, radiological investigations, number of emergency obstetric interventions, NICU services will be evaluated in this study. As such no authentic data is available from other hospitals as well as government maternity hospitals. Relevance of the study is to assess the quality & quantity of services given by obstetric ICU of C.R. Gardi Hospital Ujjain.

AIM

To assess the outcome of critically ill obstetric women at a tertiary care centre.

MATERIALS AND METHODS

This prospective observational study was conducted in the Department of Obstetrics and Gynaecology at C.R. Gardi Hospital and Research Centre, Surasa, Ujjain, over a period of one and a half years from November 2015 to May 2017. The study population comprised all critically ill obstetric women admitted to the Intensive Care Unit (ICU) during pregnancy (antepartum), labour (partum), postpartum period up to 42 days after delivery, and post-abortion period.

During the study period, all eligible women admitted to the ICU were enrolled consecutively after obtaining voluntary written informed consent. Women admitted to the ICU for obstetric, medical, or surgical conditions complicating pregnancy, labour, postpartum, or post-abortion period were included in the study.

Obstetric patients admitted to the obstetrics and gynaecology ward who did not require ICU admission and women unwilling to provide written informed consent were excluded. Demographic details, obstetric characteristics, clinical diagnosis, laboratory and radiological investigations, therapeutic interventions, duration of ICU stay, and maternal and fetal outcomes were recorded using a predesigned proforma and analysed to evaluate the profile and outcomes of critically ill obstetric women.

RESULTS

Table No. 1 :Distribution of Women According to Age

Age	Number	Percentage
< 20 years	13	11.3
21-30 years	97	84.3
31-40 years	5	4.3
Total	115	100.0

This table shows that 13 (11.3%) women were <20 yrs of age. 97 (84.3%) of women were between 21-30 yrs of age. 5 (4.3%) were between 31-40 yrs of age. Mean age of women getting admitted to ICU was 24.75± 3.46 years. Thus most of the women being admitted to ICU were in the age group of 21- 30 years which is the reproductive age group.

Table No. 2:Distribution of Women According to Socio economic status

Socio economic status	Number	Percentage
Low	94	81.7
Middle	21	18.3
High	0	0.0
Total	115	100.0

This table shows 94 (81.7%) low, 21 (18.3%) middle class women. Thus maximum women admitted to ICU were from lower class.

Table 3:Distribution of Women According to Gestational Age On Admission

Gestational Age	Number	Percentage
<12 WKS	16	13.9
13-26	8	7.0
27-40	83	72.2
>40	2	1.7
NONE	6	5.2
Total	115	100.0

This table shows gestational age of women on admission were 16(13.9%) at less than 12 weeks,8 (7%) admitted at 13-26 weeks, 83(72.2%) admitted at 27-40 weeks,2 (1.7%) at >40 weeks .6(5.2%)None (post natal).Maximum admission were of women between 27-40 weeks of gestation.

Table No. 4 Distribution of Women According to Hospital admission

Hospital admission	Number	Percentage
Direct	47	40.86
Refferal	68	59.13
Total	115	100.0

This table shows direct admission were 47(40.86%) ,Referral cases were 68 (59.13%) amongst 115 patients admitted in ICU.

Table 5:Distribution Of Women According To Status On Admission To ICU

Status On Admission To ICU	Number	Percentage
Antepartum	56	48.7
Postpartum	44	38.3
Ectopic	6	5.2
Abortion	6	5.2
Molar	3	2.6
Total	115	100.0

This table shows that 56 (48.7%) of women were antepartum and 44 (38.3%) of women were postpartum, 6 (5.2%) were ectopic, 6 (5.2%)were abortions, 3 (2.6%) were molar pregnancy showing that women who generally come to ICU are antepartum.

Table 6:Distribution of Women According to Maternal Mortality

Maternal Mortality	Number	Percentage
No mortality	107	93.0
Mortality	8	7.0
Total	115	100.0

This table shows that maternal mortality in our study was 8 (7%). 107 (93%) women survived.

Table 7:Distribution of Women According to Fetal /Neonatal outcome

Fetal /Neonatal outcome	Number	Percentage
Live	73	63.5
None	16	13.9
Still Birth	3	2.6
Died	3	2.6
NICU	13	11.3
IUD	7	6.1
Total	115	100.0

This table shows that 73 (63.5%) were live, none (abortions, molar) 16 (13.9%), still birth 3 (2.6%),died 3(2.6%) NICU 13(11.3%),IUD 7(6.1%).

Table 8:Maternal Outcome According To Different Obstetrics Conditions

Obstetrics Conditions	Survived	Died
Pre-Eclampsia & Complications	30	1.0
PPH	15	1.0
Complications of Abortion	5	1.0
Liver Failure	0	1.0
Acute MI	0	1.0
Seizure Disorders	2	1.0
Intestinal Obstruction	0	1.0
Perforation Peritonitis	0	1.0

This table shows the women admitted in ICU with preeclampsia, eclampsia & complications were 31, of which 30 survived & 1 died, 16 women were with PPH of which 15 survived & 1 died, 6 women admitted were with complications of abortion of which 5 survived & 1 died, 1 woman admitted with liver failure died, 1 woman with acute MI died, 3 women admitted with seizure disorder of which 1 died of status epilepticus & 2 survived, 1 woman with intestinal obstruction died, 1 woman admitted with perforation peritonitis died.

Table 9:Distribution of women according to maternal outcome and duration of stay in ICU

Duration of stay and maternal outcome cross tabulation					
			Maternal outcome		Total
			Cuted	Died	
Duration of Stay	<=72 Hours	Count	48	5	53
		%within Duration OF Stay	90.6%	9.4%	100.0%
	> 72 Hours	Count	59	3	62
		% within Duration of Stay	95.2%	4.8%	100.0%
Total		Count	107	8	115
		%within Duration of Stay	93.0%	7.0%	100.0%

This table shows women admitted in ICU for less than 72 hours were 53 out of which 48 got cured & 5 patients died, women who got admitted in ICU for more than 72 hours were 62 out of which 59 got cured & 3 died.

DISCUSSION

In our study 13 (11.3%) of women were <20 yrs of age. 97 (84.3%) of women were between 21-30 yrs of age. 5 (4.3%) were between 31-40 yrs of age. So the mean age of women getting admitted to ICU was 24.75-3.46 years. Ashakiran T. Rathod, K.V. Malini (2015) found that 56.20% of the cases were in the age group of 20-25 years, 22.61% of patients in the age group of 26-30 years. In our study 94 (81.7%) patients were from low socioeconomic status, 21 (18.3%) belonged to middle class, similar results of low socioeconomic status, lack of education and poor antenatal care have found a considerable effect on obstetric complications and outcome obtained from study conducted by Gupta et al (2010) 11.

In our study, the gestational age of women on admission were between 27-40 weeks at 83 (72.2%), 16 (13.9%) at less than 12 weeks, 8 (7%) at 13-26 weeks. The commonest gestational age was term gestation indicating that complications are common at term and around time of delivery explaining the high risk cases requiring early termination. Similar results obtained in a study done by surg cdr sushil chawala, col M. Nakra et al. (2012) 12. In our study 56 (48.7%) women were antepartum and 44 (38.3%) women were postpartum, ectopic 6 (5.2%), abortion 6 (5.2%), molar 3 (2.6%). Muhammad Z et al (2010) 13 found that there were 80% postpartum admissions.

In our study Alive neonates were 73 (63.5%), NICU admissions were 13 (11.3%) Intrauterine death were 7 (6.1%), Still birth were 3 (2.6%). The Hazelgrove et al (2001) 14 found in their study that the fetal mortality was 20%. Maternal mortality in our study was 8 (7%). Duttary et al 15 (2013) found in their study that the maternal mortality rate was 12.28%. Al Suleiman SA et al 16 (2006) found in their study that the maternal mortality was 9.4%

In our study, 1 patient died out of 31 patients admitted in ICU for preeclampsia, Eclampsia and its complications, 1 patient died out of 16 patients with PPH admitted in ICU, 1 out of 6 patients admitted for abortions and its complications died, 1 patient admitted in ICU for liver failure and died because of the same. 1 obese patient with acute myocardial infarction died, 1 patient out of 2 died of status epilepticus, 1 patient with acute intestinal obstruction died and 1 patient of perforation

peritonitis died. In our study the causes of maternal mortality were Preeclampsia and its complications, PPH, complications of abortion, liver failure, Acute myocardial infarction, Seizure disorder, Intestinal obstruction, perforation peritonitis.

The studies carried out by Dr Reeti Mehra et al (2013)¹⁷ found in her study that the principle cause of ICU admission was hemorrhage in 17 women (34.69%) followed by sepsis in 15 women (30.61%) and hypertensive disorders of pregnancy in seven women severe anemia, amniotic fluid embolism followed by other medical conditions. In Study conducted by Surg Cdr Sushil chawala et al (2012)¹² found that hepatic failure during pregnancy due to any cause had 100% mortality similar to our study and they also found that patients admitted with post abortal sepsis died ,1 patient admitted with intractable vomiting diagnosed ad cerebral aneurysm with intra cranial hemorrhage died their study also had patients of which 1died and 1 survived of ruptured uterus, 1 died of fever, 1 amongst 15 died of preeclampsia and its complications.

Our study showed women admitted in ICU for less than 72 hours were 53 out of which 48 got cured & 5 patients died, women who got admitted in ICU for more than 72 hours were 62 out of which 59 got cured & 3 died. Gupta et al (2010)¹¹ found in their study that mean duration of stay in ICU was approx 39.42 hour with significantly longer duration of stay in survivors approx 50.86 hour as compared to non survivors approx 23.40 hour.

CONCLUSION

Critically ill obstetric women admitted to the ICU were young (21–30 years), belonged to a low socioeconomic background, and were admitted during term pregnancy or the antepartum period. Hypertensive disorders of pregnancy, obstetric hemorrhage, and other obstetric as well as medical complications were the major indications for ICU admission.

Most women had favorable maternal and neonatal outcomes with timely intensive care management, although maternal mortality remained significant (7%). Early identification of high-risk pregnancies, regular antenatal care, timely referral to tertiary care centers, and prompt multidisciplinary ICU management are essential to improve maternal and fetal outcomes and reduce preventable maternal deaths.

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