



INDICATION AND OUTCOME OF EMERGENCY OBSTETRIC ADMISSION IN ICU IN A RURAL TERTIARY CARE HOSPITAL

Dr.S.Ranivasantha kumari

Assistant professor of Anaesthesia Department of Anaesthesiology, Government Theni Medical College, Theni

Dr. G.Vijaya

Associate Professor of Anesthesia Department of Anaesthesiology, Government Theni Medical College, Theni - Corresponding Author

ABSTRACT

Background and Aim: Admission to intensive care unit (ICU) is an important marker of severe maternal mortality and morbidity. The aim of the study is to know the indication of ICU admission of emergency obstetric cases and their outcome of survival and mortality.

Materials and methods: It is a retrospective 3 year study in ICU admission from January 2014- December 2016. Total number of emergency obstetric ICU admission were 90.

Results: Among 90 patients admitted in ICU, 68 patients (75.5%) were age group between 20-30 years. Most common cause of ICU admission was obstetric hemorrhage 34 (36.6%). The maternal mortality of ICU admission were 23 (25.5%), patient referral 4 (4%), and patient survived were 63 (70%).

Conclusion: Obstetric hemorrhage including antepartum and postpartum, and pregnancy induced hypertension are the major cause of maternal mortality in our country. In our study although the mortality was 25.5% among the ICU admission, the patient survived was 70%. The role of anaesthesiologist as ICU Intensivist is vital to decrease the mortality and morbidity of obstetric patients.

KEYWORDS : Intensive care unit (ICU), maternal mortality, obstetric hemorrhage, pregnancy induced hypertension (PIH), puerperal sepsis.

1. INTRODUCTION:

It is a challenge to anesthesiologist for treating critically ill patients in ICU. Total ICU admission in this period of 3 years are 6331 and among them 90 were of emergency obstetric admission. The maternal mortality in India is higher than other developed countries. By increasing the comprehensive antenatal, obstetric, anaesthetic and intensive care services the maternal mortality rate get reduced. The aim of the study was to know the indication and outcome of emergency obstetric admission in ICU.

2. MATERIALS AND METHODS:

This retrospective study was conducted in 18 bedded ICU in Theni Medical College, Theni from January 2014- December 2016. Total number of patients admitted in ICU were 6331. Out of this 90 patients were admitted under obstetric emergency which comprises of 1.4%. The data analysed include age, parity, co morbidity, obstetric history, intervention in ICU, mechanical ventilation, blood transfusion, antihypertensive therapy, ionotropic support, length of ICU stay, and outcome of these patients.

3. RESULTS:

Total number of emergency obstetric patients admitted for the study period of 3 years were 6331. Out of this 90 patients were admitted for emergency obstetric management which comes under 1.4%. The mean duration of ICU stay was 2±1.6 days. Table 1 shows that the commonest age group of obstetric ICU admission lies between 20-30 years. 68 (75.5%) patients belong to this group. Most of the patients were multipara 52 (57.8%) and in postpartum period 74 (82.2%).

TABLE 1. DEMOGRAPHIC CHARACTERISTICS.

Characteristics	Number of cases	Percentage
Age (years)		
<20	9	10
20-30	68	75.5
>30	13	14.5
Parity		
Primi	38	42.2
Multi	52	57.8
Antepartum	16	17.7
Postpartum	74	82.2

The indication for ICU admission was divided into two groups, obstetric indication and non obstetric indication. As per table 2,3 the most common obstetric indication for ICU admission was obstetric hemorrhage 34 and PIH 21. The commonest cause of non obstetric

indication for ICU admission was heart disease complicating pregnancy.

TABLE 2. OBSTETRIC INDICATION OF ICU ADMISSION.

Diagnosis	Number	Percentage
1. Obstetric hemorrhage		
Atonic hemorrhage	22	24.4
Abruption	7	7.7
Rupture Ectopic	5	5.5
2. Hypertension complicating		
PIH	11	12.2
AP Eclampsia	10	11.1
3. CVT	10	11.1
4. Sepsis		
5. Puerperal sepsis	2	2.2
6. Post abortal septicemia	3	3.3

TABLE 3. NON OBSTETRIC INDICATION FOR ICU ADMISSION.

Diagnosis	Number	Percentage
Heart disease	9	10
Diabetes	5	5.5
Seizure disorder	3	3.3
Pulmonary oedema	1	1.1
Meningitis	1	1.1
ITP	1	1.1

Among 90 patients, 63 patients survived and shifted to ward because of intensive care and interventions like mechanical ventilation, transfusion of blood and blood products, use of ionotrops, use of antihypertensive, anticonvulsants and central venous line. Table 4 shows various interventions done in ICU.

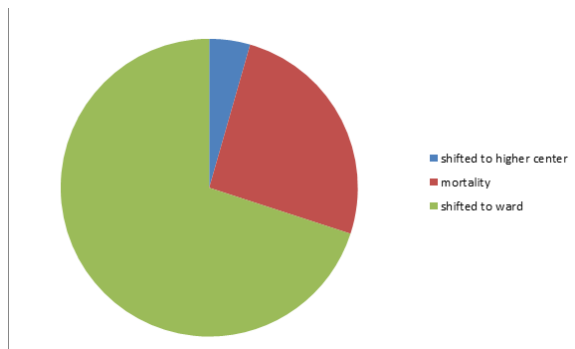
TABLE 4. INTERVENTION REQUIRED AFTER ICU ADMISSION

Interventions	Number	Percentage
Oxygen supplementation	90	100
Blood transfusion	40	44
Ionotropic support	48	55
Mechanical ventilation	70	77
Antiepileptic	5	5.5
Magnesium sulphate	18	20
Central venous line monitoring	70	77

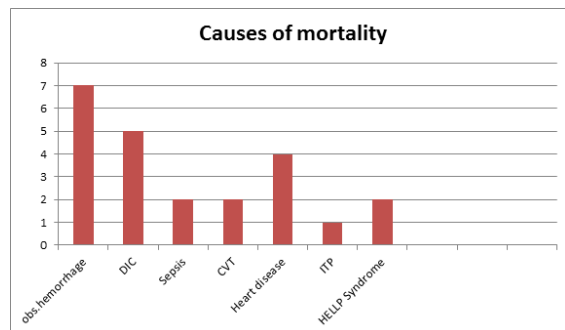
TABLE 5. OUTCOME OF OBSTETRIC ICU PATIENTS.

Outcome	Number	Percentage
Mortality	23	25.5
Shifted to ward	63	70
Shifted to higher center	4	4.4

Table 5 shows the outcome of obstetric patient admitted in ICU. Among 90 patients admitted in obstetric ICU 63 patient (70%) survived and shifted to postop ward with good general condition, the mortality was 23 (25.5%) and 4 patients were referred to higher center.

FIGURE:1 CAUSE OF ICU MORTALITY**TABLE 6: CAUSES OF MATERNAL MORTALITY IN ICU.**

Causes	Number	Percentage
Obstetric hemorrhage	7	30.4
DIC	5	21.7
Sepsis	2	8.7
CVT	2	8.7
Heart disease	4	17.4
ITP	1	4.3
HELLP Syndrome	2	8.7

FIGURE 2 : CAUSE OF MORTALITY

4. DISCUSSION:

Even though many physiological changes occur in pregnancy, many women complete the pregnancy without any complication, but few of them develop complications that may need ICU admission. During the three-year study period, the obstetric admission to ICU represented 0.5% of all deliveries and 1.4% of all those admitted to the ICU. This is comparable with other studies (0.1-10%) [1,2,3,4,5]. Majority of the maternal death occurs in developing countries [6]. Marbie and Sibai reported that 1% of women delivered at the university of Tennessee were admitted to obstetric ICU. Only 0.4% of obstetric patients need admission and treatment in ICU in a study by Haris and Foly at the university of California, San Francisco. [7] These variations may be due to differences in defining major morbidity criteria for ICU admission and availability of high dependency unit (HDC), and an intermediate care unit. We had 74 patients (82.2%) admitted to ICU in the postpartum period. This high rate of postpartum admission may be due to the haemodynamic changes in the postpartum period. In our study, the preexisting medical conditions which need ICU admission are heart disease, diabetes, epilepsy, which accounts for 23%. Majority of the admission was due to obstetric indication. This is similar to the study reported by Vasquez et al in 2007. [8]

The major obstetric hemorrhage which includes postpartum

hemorrhage, antepartum hemorrhage, and rupture ectopic were the most important cause of ICU admission 34 (37.7%). Hypertensive disorder in pregnancy was the second most cause of ICU admission 21 (23.3%). This is comparable with studies conducted by Munench et al and Zwart et al which shows hemorrhage and sepsis was the leading cause of ICU admission [9,10]. In another study by Aldawood showed that PIH was the most common obstetric indication for ICU admission followed by obstetric hemorrhage [11].

The maternal mortality was high in obstetric hemorrhage 7 (30.4%). Early identification and necessary intervention might avoid or decrease the effects of such complications. Among the obstetric hemorrhage patients, most of them had postpartum hemorrhage as compared to antepartum hemorrhage. In our study, seventy critically ill obstetric patients (77.7%) required mechanical ventilation during their stay in ICU, whereas only 27% of ICU obstetric admissions required mechanical ventilation in Osinaike et al study [12]. Daniela et al showed as high as 41% of patients requiring mechanical ventilation [13]. The need for mechanical ventilation in our patients was high when compared with these studies. The mean average duration of mechanical ventilation in our study was 2±1.4 days. The most common indication for mechanical ventilation was haemodynamic instability. In our study, the maternal mortality in ICU admission was 25.5%. In a study by Niyaz et al, the proportional death rate among obstetric patients in ICU was 33.8% [13]. Ghike S, Asegon Kar P reported 31.9% as ICU maternal mortality rate in obstetric ICU patients [14]. When compared to these studies, our maternal mortality in ICU obstetric patients was less.

5. CONCLUSION:

The physiological changes of pregnancy make obstetric patients more prone for complication and admission in ICU. The role of an anaesthetist outside the operation theatre as an intensivist is a challenge to decrease the morbidity and mortality of these patients. From our study, the obstetric hemorrhage and pregnancy-induced hypertension with its complications are the two main obstetric indications for ICU admission. Intensive monitoring and various interventions in these patients in ICU by an anaesthetist has improved the outcome of these patients.

6. REFERENCES:

- Poornima B, Ramachandra Bhat, Mahesha H. Navada, Sujaya V. Rao, and G. Nagarathna. Evaluation of obstetric admissions to intensive care unit of a tertiary referral center in coastal India. *Indian J Crit Care Med.* 2013 Jan-Feb; 17(1):34-37.
- Kilpatrick SJ, Matthey M. Obstetric patients requiring critical care. A five-year review. *Chest.* 1992; 101:1407-12.
- Mabie WC, Sibai BM. Treatment in an obstetric intensive care unit. *Am J Obstet Gynecol.* 1990; 162:1-4.
- Mirghani HM, Hamed M, Ezimokhai M, Weerasinghe DS. *Int Obstet Anesth* 2004 Apr; 13(2):82-5
- Pollock W, Rose L, Dennis CL. Pregnant and postpartum admissions to the intensive care unit: a systematic review. *Intensive Care Med.* 2010 Sep; 36(9):1465-74
- Potts M. Can family planning reduce maternal mortality? *J Obstet Gynaecol East Cent Africa.* 1986; 5(1-2):29-35, 3
- Harris CM, Foley M. Critical care obstetrics: 13 years of experience in a community practice setting. *Obstet Gynaecol.* 2002; 99:795
- 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
- Munench MV, Baschat AA, Malinow AM, Mighty HE. Analysis of disease in the obstetric ICU at university Referral Centre: A 24 months review of prospective data. *J Reprod Med.* 2008; 53(12):91420. population based cohort study. *Intensive Care Med.* 2010; 36(2):25663.
- Aldawood A. Clinical characteristics and outcomes of critically ill obstetric patients: a ten-year review. *Ann Saudi Med.* 2011; 31(5):518-22.
- Lapinsky SE, Kruczynski K, Seaward GR, Farine D, Grossman RF. Critical care management of the obstetric patient. *Can J Anaesth* 1997; 325-9.
- Selo-Ojeme DO, Omosavye M, Battacharjee P, Kadir RA. Risk factors for obstetric admissions to the intensive care unit in a tertiary hospital: a case-control study. *Arch Gynecol Obstet.* 2005 Sep; 272(3):207-10
- Al-Suleiman SA, Qutub HO, Rahman J, Rahman MS. Obstetric admissions to the intensive care unit: a 12-year review. *Arch Gynecol Obstet* 2006; 274:4-8.