

ANALYTICAL STUDY OF PATIENTS ADMITTED IN OBSTETRIC ICU AT TERTIARY CARE CENTRE

Gynaecology

Dr. Bindeeya Dhrangiya

3rd year Resident. Department of Obstetrics & Gynaecology, B.J Medical College, Ahmedabad.

Dr.Hafsa Vohra*

Assistant Professor. Department of Obstetrics & Gynaecology, B.J.Medical College, Ahmedabad. *Corresponding Author

ABSTRACT

AIMS AND OBJECTIVES: To review all obstetric patients admitted to ICU in a tertiary care center over a duration of one year to determine common indications, incidence of Obstetric ICU admission.

To study the duration of ICU stay and maternal outcome.

MATERIAL AND METHOD: This retrospective analytical study of 80 patient admitted to ICU over a period of Jan 2017 to Dec 2017 was conducted in department of obstetrics and gynecology, B. J. Medical college, Ahmedabad which is tertiary care hospital. The various obstetric and medical causes of ICU admission, complication and outcome of patient were studied.

RESULTS: Among 7348 delivery during one year 80 patient admitted in ICU. Incidence of ICU admission was 1.08%. Eclampsia and pre eclampsia were leading cause of ICU admission. The leading cause of mortality in ICU admission was eclampsia followed by hepatic encephalopathy cardiac disease.

CONCLUSION: The present study concludes that early detection and prompt referral of high risk pregnancy cases to tertiary centre with intensive care facilities to provide optimum care of circulation, blood pressure and ventilation could minimize the prevalence of multiple organ failure and mortality in critically ill obstetric patients. Multidisciplinary approach will help to reduce maternal morbidity and mortality.

KEYWORDS

ICU, eclampsia, critical care

INTRODUCTION:

High risk pregnancy and their delivery may lead to development of certain life threatening complication which requires their admission to critical care unit. In spite of great advances in the medical field and improved quality of healthcare available, due to lack of awareness and absence of regular antenatal care, the critically ill patients are referred late and sometimes in moribund conditions with multiple organ damage.

Admission of pregnant women to an ICU is considered as an objective marker of severe maternal morbidity. Management of critically ill patient is very complex and becomes multidisciplinary, involving anaesthesiologist, obstetrician, nurses and physician. Managing critically ill obstetric patient is a challenge to clinicians because of pathological processes with physiological changes of pregnancy. Studies on obstetrical care are important to identify the critical care issues which need to be promptly addressed while managing severe maternal morbidity cases.

Reasons for ICU admission of obstetric patient can be categorized into one of the following groups:

1. Condition related to pregnancy-eclampsia, s.pre eclampsia, hemorrhage, amniotic fluid embolus, acute fatty liver, peripartum cardiomyopathy, infections etc
2. Medical disorder that may be aggravated during pregnancy-congenital heart disease, cardiac disease, pulmonary hypertension, anemia, renal failure etc.
3. Conditions that are not related to pregnancy-diabetes, asthma, autoimmune disease etc.

This study was undertaken to identify the causes and possible risk factors of obstetric patient admission to ICU of tertiary care center.

MATERIAL AND METHOD:

This retrospective observational study was conducted from Jan 2017 to Dec 2017 Department of Obstetrics & gynecological, B.J. medical college, Ahmedabad, tertiary care center. Total of 80 cases who required ICU admission were considered.

All patient admitted in ICU either from emergency room, operating room or from the ward where patient was complicated. Study patient include all females admitted to ICU during pregnancy or within 42 days of delivery.

Patients were studied in terms of causes of admission and diagnosis at ICU admission, duration of stay interval, and outcome. Other aspects

like age of patient, obstetric history, mode of delivery, past history, need of blood products and components, radiological examination, antihypertensive treatment, ionotropic support etc were also recorded.

RESULT:

Total number of delivery during this period was 7348. out of this 80 patient were admitted. Study over a duration of one year shows following result:

TABLE -1: OBSTETRIC INDICATION OF OBSTETRIC ICU ADMISSION

As shown below in our study most common indication for ICU admission was eclampsia in 37 patient subjects out of 80 patient of which was common. Among hypertensive disorder preeclampsia patient were complicated with HELLP. Second most common cause were Hemorrhage in 10 patient, followed by placenta accrete and anemia.

INDICATION OF ICU ADMISSION	NO.OF PATIENTS
HYPERTENSIVE DISORDER-ECLAMPSIA	37
PREECLAMPSIA	02
GESTATIONAL HYPERTENSION	-
HEMORRAGE	06
Antepartum	03
Postpartum	
PLACENTA ACCRETA	03
DIC	07
Severe ANEMIA	09
HELLP	12

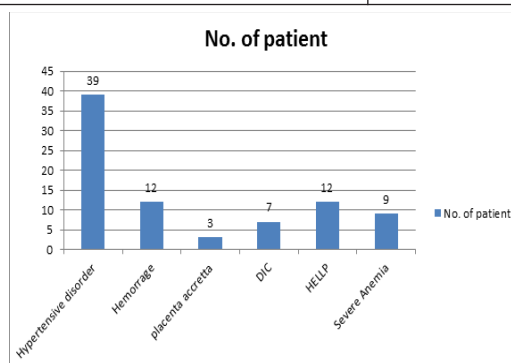


TABLE -3 MEDICAL INDICATION OF OBSTETRIC ICU ADMISSION:

In our study medical condition which leading to ICU admission to pre existing disease like Heart disease was most common, followed by Hepatitis which in certain patient complicated into encephalopathy, followed by Respiratory condition.

Heart Disease	13
-congenital heart disease	04
-rheumatic heart disease	09
Hepatitis	06
Hepatic encephalopathy	03
Neurological disorder	01
-epilepsy	
Diabetes mellitus	-
Acute renal failure or chronic kidney disease	02
Respiratory disease	02
-pulmonary TB	01
-bronchial asthma	04
-bronchial pneumonia	
Hematological:	01
-sickle cell disease or crisis	

TABLE -3 DURATION OF OBSTETRIC ICU STAY IN DAYS:

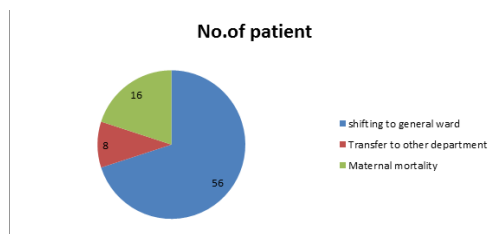
This study shows that out of 80 patient 39 patient was stay in icu for 1 to 3 days; and 30 patient stay for 4 to 7 days. During ICU admission ventilator support, Blood products, ionotropic support given.

Stay in days	No. of patients(n=80)
1to3 days	39
4to7 days	30
7to10days	5
>10 days	6

TABLE -4 OUTCOME OF PATIENTS ADMITTED TO OBSTETRIC ICU

In this study out of 80 patient 56 patient shifted to general ward and 16 patient expired. 8 patient were shifted to other department for multidisciplinary approach which was survived.

OUTCOME OF PATIENT	NO.OF PATIENT
Shifted to general ward	56
Shifted to other department	8
Maternal mortality	16

**Table 5: Causes of maternal mortality in ICU:**

This study shows that main mortality cause was eclampsia followed by hepatic encephalopathy, cardiac disease, DIC and shock.

Diagnosis	No. of case
Eclampsia	4
Hemodynamic shock after PPH	2
Hepatic encephalopathy	2
Cardiac disease	2
Severe anemia	2
DIC	3
HELLP	1

DISCUSSION:

In this study The most common indication for ICU admission was eclampsia in 37, of which was followed by hemorrhage, followed by cardiac disease, placenta accrete and anemia. Study of Umo-Etuk et al¹ Burkina faso from West Africa found hypertensive disorders , overt eclampsia or septic shock as their leading indications. This is comparable with our study.

As regards medical indications , subjects were admitted to ICU with pre existing medical conditions like severe iron deficiency anemia, followed by respiratory diseases .Iron deficiency anemia continues to be rampant in women of reproductive age group in our country, and pregnant women continue to present with the various aftermath of this treatable, yet endemic condition .Malaria and hepatitis,sickle cell

anemia ,respiratory disease like tuberculosis ,bronchial asthma were among the other medical disorders.

Respiratory support is often required for complications of pre-eclampsia such as pulmonary edema, seizures, aspiration pneumonitis etc. Inotropic was required for high risk cases². Which is comparable with Lapinsky SE,Kruczynski,Seaward GR study². We also observed that hemodynamic and respiratory complications needing inotropic or ventilatory support remain the most common reasons for ICU admissions and the need for support may predict poor outcome.

All patients of severe anemia required packed cell transfusion, which indeed dramatically improved their general condition for serious condition like DIC Fresh frozen plasma, packed cell volume ,platelets rich plasma and needed blood component were given.

Out of 80 subjects, 56 were shifted to general ward and were discharged later on, 8 were transferred to other department of our hospital, whereas 16 mortalities occurred in the ICU during the present study. Transferrate of subjects to other department also done for better multidisciplinary approach.

Likewise the mortality in our study was main due to eclampsia which is followed by DIC and HELLP and cardiac disease which is also comparable with studies from Hongkon³ & Leiden⁴ outside the country to Sunanda Gupta Raipur et al⁵ within India.

While clinical guidelines and recommendations based on unusual events such as maternal deaths may be of limited value in medical care of the general obstetric population, information on severe acute maternal morbidity as evidenced by near miss cases and use of obstetric ICUs may help to audit the quality of maternal care in a more meaningful manner.

A close follow up of high risk patients and an optimal stabilization of their conditions before intervention are well known to improve the outcome of these patients. The admission rate to intensive care and the problems faced by critically ill patients may be reduced by providing optimal prenatal care, improving the management of hypertensive diseases during pregnancy and reducing the incidence of hemorrhagic complications. Early admission of patients and availability of invasive monitors will help in reducing the mortality rate.

CONCLUSION:

The present study concludes that early detection and prompt referral to tertiary centre with intensive care facilities to provide optimum care of circulation, blood pressure and ventilation could minimize the occurrence of multiple organ failure and mortality in high risk obstetric patients. When complications arise ,early intervention and treatment on a multidisciplinary basis ,which may involve ICU admission for ventilatory support, invasive monitoring and vasoactive drug infusions, can alleviate progression of organ dysfunction and improve prognosis. The metICUous adaptation of safe motherhood initiative especially in remote areas could help reduce the complications thereby reducing ICU admissions, maternal morbidity and mortality in such cases can be further minimized significantly by early assessment and aggressive intervention by a team work involving obstetricians, intensivists and anesthetists. Provision of high dependency units in the obstetrics departments is also advocated to reduce burden of ICU admission. Establishment of a dedicated obstetric ICU at tertiary care centre with knowledge, familiarity, experience and expertise of an obstetrician and a special team would be the best place to monitor and treat the critically ill obstetric patients which will reduce the maternal morbidity and mortality.

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