

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

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ABSTRACT : This work is a cross sectional study at a tertiary care centre done over a duration of one year with the aim to determine major indications and incidence of obstetric ICU admissions, to find out duration of ICU stay and determine maternal outcome. The three most common indications of Obstetric ICU admission were haemorrhage followed by hypertensive disorders and iron deficiency anemia. The mean duration of ICU stay was 6.1 days. Maternal mortality was 6.54 % of the total obstetric patients admitted to our ICU. To conclude , establishment of dedicated obstetric ICU at tertiary care centre with knowledge , familiarity, experience and expertise of an obstetrician and special team would be the best place to monitor and treat a critically ill obstetric patient which will reduce the maternal morbidity and mortality.

KEY WORDS: Obstetric ICU, morbidity, mortality, Obstetrics

INTRODUCTION: Over the centuries anemia, eclampsia and haemorrhagic shock have killed millions of our pregnant women and still continue to do so. In spite of great advances in the medical field and improved quality of healthcare available in our country, the maternal mortality in India is very high.(420 deaths /1,00,000 live birth).

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. In order to provide them specialised care and reduce maternal mortality specialised obstetric intensive care units have been established. The concept is yet to gain stronghold in our country. Management of the critically ill obstetric patients is very complex and requires cooperation of both obstetrician and intensivist/anesthetist .

The primary objective of the present study was to review the characteristics and outcome of the obstetric patients admitted to our ICU over a one year period .

Aims and objectives

1. To determine the incidence of Obstetric ICU admission.
2. To find out common indications of Obstetric ICU admission.
3. To study the interventions required.
4. To find out the duration of ICU stay.
5. To study the maternal outcome.

Material and Method

Obstetric ICU, morbidity, mortality, Obstetrics

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Crosssectional study.

Study setting: Obstetric ICU of Department of Obstetrics and Gynecology , Gandhi medical College, Bhopal.

Case selection:

Study period:1st April 2011 to 31st March 2012.

Data collection:Patient record, Demographic details, Obstetric history, Obstetric condition, Pre existing medical problem.

Data related to ICU interventions: Oxygen inhalation,Oxymetry, Blood transfusion, Inotropic drugs used, Mechanical ventilation was recorded.

Outcome wasgauged in terms of : Shifted to general ward, Transferred to other departments,or if Mortality occurred.

Observations

Total obstetric admissions over the study period=12632

Total obstetric ICU admission over the same period =275

Percentage of obstetric admission=2.17

TABLE - 1 AGE DISTRIBUTION OF PATIENTS ADMITTED TO OBSTETRIC ICU.

Age group (years)	No. of Cases (n=275)	Percentage
18-20	47	17.09
21-25	119	43.27
26-30	72	26.18
31-35	32	11.63
36-40	4	1.45
>40	1	0.63

TABLE -2 INTERVENTION REQUIRED IN 275 PATIENTS ADMITTED TO THEOBSTETRIC ICU

Intervention	No. of Cases (n=275)	Percentage
Oxygen supplementation	275	100
Pulse Oxymetry	204	74.18
Blood Transfusion	179	65.09
Inotropic Drugs	51	18.54
Mechanical	11	4

TABLE -3 DURATION OF OBSTETRIC ICU STAY IN DAYS

Duration (Days)	No. of Cases (n=275)	Percentage
< 1	11	4
1-3	132	48
4-6	126	45.81
7-12	6	2.18
> 12	0	0

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TABLE -4 OBSTETRIC INDICATION OF OBSTETRIC ICU ADMISSION

Indication	Admission	Percentage
Hypertensive disorders of pregnancy	81	29.45
- Eclampsia	35	12.72
- Preeclampsia	31	11.27
- Gest. HTN	15	5.45
Atonic PPH	6	2.18
Traumatic PPH	8	2.90
Placenta Previa	21	7.63
Retained Placenta	5	1.81
Placenta accreta	4	1.45
Ectopic Pregnancy	36	13.09
Ruptured uterus	23	8.36
Chorioamnionitis	1	0.36
Vesicular mole	2	0.72
DIC	3	1.09
Abortion	5	2.12

TABLE -5 MEDICAL INDICATION OF OBSTETRIC ICU ADMISSION

Medication Indication	Admission	Percentage
Heart Disease	8	2.90
Neurological disease	2	0.72
- Epilepsy	1	0.36
- Bell's palsy	1	0.36
Respiratory Disease	13	4.72
- Asthma	2	0.72
- Pulmonary TB	2	0.72
- Pulmonary Edema	2	0.72
- LRTI	5	1.81
- ARDS	2	0.72
Diabetes Mellitus	1	0.36
Acute Renal Failure	4	1.45
Hepatitis	1	0.36
Heamatological		
- Sickle cell trait	3	9.09
- Severe anemia	3	11.27
Malaria	2	0.72
Intestinal obstruction	1	0.36

TABLE -6 OUTCOME OF PATIENTS ADMITTED TO OBSTETRIC ICU

Outcome	No. of Cases (n=275)	Percentage
Shifted to general ward	236	85.81
Transferred to other department	17	6.18
Mortality	18	6.54

DISCUSSION: Majority of subjects in our study were in the age group of 21-25 years(119 i.e.43.27%) ,out of these 47 (17.09%) were teenage, while 37(13.44%)were above 30 years of age.Few authors have reported a linkage between age with prognosis.Urbay Ruiz et al¹ have reported a worse prognosis of subjects age less than 20 years(11.4%) while Waterstone et al² found that age more than 34 years was an independent predictor for mortality in Obstetric ICU. The most common indication for ICU admission was obstetric haemorrhage in 103(37.45%) subjects, of which ectopic pregnancy 36(13.9%) topped the list followed by ruptured uterus 23(8.36%),placenta previa21(7.63%),traumatic PPH8(2.90%),atonic PPH6(2.18%),retained placenta5(1.81%),placenta accreta (1.45%) and abortion5(1.21%) to complete the list.Studies from Canada³, Nigeria⁴ and Turkey⁵ have reported obstetric haemorrhage as their most common obstetric indication to ICU admission , however Umo-Etuk et al ⁶and Burkina faso⁷ from West Africa found hypertensive disorders , overt eclampsia or septic shock as their leading indications.

As regards medical indications ,almost 66(24%) subjects were admitted to our ICU with pre existing medical conditions like severe iron deficiency anemia31(11.27%),followed by respiratory diseases in 13(4.72%).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 were among the other medical disorders.

After admission 100% subjects in our study required oxygen supplementation to maintain their oxygen saturation.204(74.18%) patients needed pulse oxymetry to monitor oxygen saturation.. Assisted ventilation was needed by 11(4%) subjects.Respiratory support is often required for complications of pre-eclampsia such as pulmonary oedema, seizures, aspiration pneumonitis etc. Unfortunately in a developing economy like ours, quite often patients that require respiratory support do not get it either because of unavailability of ventilators or inability to afford the cost of ICU care.

Inotropic was required for 51(18.54%) cases. Authors ⁸ from other parts of the world 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.

In our study 179(65.09%) subjects required blood transfusion. All patients of severe anemia required packed cell transfusion,which indeed dramatically improved their general condition.

The mean length of stay in the ICU was 6.1 days with a range of 1-12 days. 132(48%) subjects stayed for 1-3 days and 126(45.81%) subjects stayed for 4-6 days, 4% stayed for less than 1 day and 2.18% stayed for 7-12 days.Patients who stayed for less than 1 day (4%) were either transferred to other departments of our hospital or certified dead.The mean duration of ventilation and ICU stay was apparently less in our study than others, probably because of higher mortality rate in our study.

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Out of 275 subjects, 236(85.81%) were shifted to general ward and were discharged later on, 17(6.18%) were transferred to other department of our hospital, whereas 18(6.54%) mortalities occurred in the ICU during the present study. Transferrate of subjects to other departments of our hospital was comparable with other studies⁹, likewise the mortality rate of our study is also comparable with studies from Honkong¹⁰ and Leiden ¹¹ outside the country to Raipur¹² 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 stabilisation 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 haemorrhagic 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 prevalence of multiple organ failure and mortality in critically ill 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 meticulous 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.

Of course, the need for maternal intensive care should not be the only criteria considered in the quality of maternal care but it must be one of the most important ones.

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