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A RETROSPECTIVE OBSERVATIONAL STUDY OF INDICATIONS AND OUTCOMES OF OBSTETRICS ICU ADMISSION IN A TERTIARY CARE INSTITUTE OF CENTRAL INDIA

Obstetrics & Gynaecology

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ABSTRACT

Background: Maternal mortality can be expressed as a mirror that reflects the basic health care system of a country. As per the health records current maternal mortality in India is 178 per 1 lakh live births despite various safe motherhood programs running at various level of health strata. Pregnancy and delivery anytime lead to complications that require ICU admission for critical care managment. **Material And Methods:** Present study is a retrospective observational study conducted in the Department of Obstetrics and Gynecology, for the period of 2 years from January 2020 to December 2021.The data collected relevantly as per the proforma and was analysed in regards to demographic profile, obstetric history, obstetric and medical indication that necessitated admission to the HDU and ICU. These were identified as preeclampsia, eclampsia, haemorrhage, sepsis, and respiratory failure. Different data like ICU stay duration and the specific interventions like the intubation requirement, ventilatiory support, and intensive care monitoring were recorded. **Results:** During the study period Hypertensive disorders of the pregnancy was the major indication requiring icu admissions which was followed by postpartum haemorrhage. Majority of admissions were in postpartum period as compared to antenatal period.There were 3835 ICU admission over a period of 2 years and percentage of icu admission out of all obstetric admission was16.13% and during this period there were 338 maternal deaths and majority of the deaths were due to Eclampsia. **Conclusion:** There is a rising trend for need of ICU management for obstetric conditions. Patients requiring ICU admission needs well trained obstetric and multidisciplinary team for better management of these critical condition in turn to reduce maternal mobidity and martality across the globe .

KEYWORDS

obstetric ICU, antenatal women, Quality care, maternal mortality

INTRODUCTION

Obstetric is a branch that anytime can turn into an emergency and the life threatening complication that required emergency care. Complication can be occur at antepartum intrapartum and postpartum period and broadly can be divided into two types –

1. Obstetric complication like postpartum haemorrhage, hypertensive disorder in pregnancy, antepartum haemorrhage and so on which require urgent obstetric care by trained personnel.
2. Complication with multiorgan involvement/failure which require close monitoring by multidisciplinary team

The women with these complications require quality care within her reach. These women required round the clock personalized care by healthcare providers and essentially led by obstetrician.

Despite of safe motherhood programmes running in the country, very less number of women attended by intensivist with properly equipped setting who have developed these multi-organ failure as a consequences of pregnancy and childbirth. As compared to the developed countries we as a developing country still having a wide gap in the admission and mortality rate of obstetric patients admitted to the ICU and HDU.

MMR of India has improved to 103 in 2017-19 from 113 in 2016-18 according to special bulletin on MMR released by the registrar general of India march 14, 2022.[1] A major proportion on of these maternal deaths are registered at Medical College Hospital and Most of the maternal deaths at these institution are referred cases from periphery. Institutional delivery has markedly increased with nearly 80% of mothers now delivering at health facilities leading to sudden influx of mothers to health institution beyond their capacities.

As per a large systematic review conducted by Gilbert TT et al, ICU maternal mortality is 8-40% in developing countries as compared to 1-3.4% in developed countries.[2]

In the present study we aim to analyse the incidence, demographic , clinical profile and indications of ICU admissionv of a tertiary care teaching institute of central India.

METHODS

The present study was conducted in a 12-bedded obstetric intensive care unit (ICU) at a dedicated tertiary care centre, Mahatma Gandhi Memorial college and associated hospital Indore ,of central India. Obstetric service of the hospital provides antenatal and in-patients care round the clock during the study duration of 2 years from January 2020 to December 2021.critically ill antenatal and postnatal patients were identified and admitted in obstetric ICU for further managment. The data were collected like Basic demographic characteristics clinical presentations cause of ICU admission ,in patient or referred in details and maternal mortality with cause were entered in predesigned proforma from all ICU cases.

Thereafter these data entered in MS excel 2007 worksheet and logical validation and editing was done and then data was analysed. Statistical analysis was performed using stata12.1

RESULTS

The total obstetric admission during the study period of 2 years from January 2020 to December 2021 was 23763 .Total deliveries conducted were 18625. Percentage of obstetric ICU admission out of all obstetric admission was 16.13 % while percentage of obs Icu admission out of delivery conducted was 20.59%. The demographic profile of studied group showed most of the women 47.4% were between 26-30 years of age while age group of 18-25 years had 35.7% of cases. Majority 62.7% of women were Hindu by religion whreas 68.8% were from rural area by location. 31.8% women were primigravida and 68.2% were multigravida.[2] (Table 1).

Almost 45.9% women presented during near term of gestational age of >34 weeks of pregnancy while 14.3% referred after delivery needs ICU admission. Out of 3835 ICU admission almost 60.5% cases were referred in from nearby PHC CHC and DISTRICT HOSPITAL showing high referral load as well as ICU load for management of critically ill cases. majority of obstetric cause of ICU admission were PE/severe PE 18.6% followed by antepartum eclampsia was 13.2 % while postpartum eclampsia were account to 2.5%.antepartum haemorrhage cases were 4.6% while postpartum cases managed in ICU were 2.6%. first trimester complications were like wise abortion

3% ,ruptured ectopic were 1.4% and molar pregnancies needs ICU care were .78%.(table2) medical condition requiring ICU admission majority were severe anaemia cases 12.2 % followed by liver disorder 2.1% ,heart disease 1.1%.(table 3)

Maternal mortality were 338 during the study period of 2 years which was 8.8% of total ICU admission. Direct cause of death were eclampsia 21% ,PPH 10.6%, pre eclampsia Were 9.4%. mechanical ventilation was required in 22.6% of cases . Other ICU interventions like inotrope support in 32.9% , blood & blood product transfusion in 65.8%, & dialysis in 7.4% cases. As a surgical procedure peripartum hysterectomy 32 cases laparotomy in 102 cases,,while repair of rupture uterus in 46 cases.

DISCUSSION

The present study was conducted with an aim to evaluate cause of ICU admission at a tertiary care institute of central India , which being a highly loaded referral centre and drained by various nearby primary, community and district hospitals. the rate of ICU admissions was 16.13% out of all obstetric admission, which is similar to the rates documented by study conducted by pornima et al.[3] the Higher numbers were observed in our study can be justified with the fact that medical college hospital has 24 hours ICU facility with trained round the clock service provider and we get constant influx of critical care referral from various draining health care facilities which lacking ICU care.

In the study conducted by Alsammani et al , showed Multiparity and Higher birth order is an independent risk factor for pregnancy and puerperium related complications but in our study threr is no such correlation was found.[4]

In our study medical conditions which required ICU admission were severe anaemia, liver diseases and heart disease which cumulate for 14.4% cases.

Majority of admissions were due to obstetric causes and data was similar to the study reported by Vasquez et al .[5]The study conducted by pattnaik t et al showed obstetric haemorrhage was the most important cause of ICU admission 29.6%[6] while Hypertensive disorder in pregnancy was the next important cause of ICU admission which was 25.9% and there results showed similarity with other studies conducted by Munench et al and Zwart et al which also showed haemorrhage & sepsis were the major cause of ICU admission.[7,8,9] In contrarst to these results our study showed hypertension in pregnancy was the leading cause of ICU admission ,PE/severe PE 18.6% followed by antepartum eclampsia was 13.2 % while postpartum eclampsia were account to 2.5% similar results were noted from study conducted by Aldawood et al where pregnancy-induced hypertension (PIH) was the leading indication for obstetric ICU admission followed by obstetric PPH .[10]

A study done in 2015 also revealed similar results as there was 1.24 % of deliveries required need for HDU in tertiary care hospitals hemorrhage and hypertensive disorders of pregnancy were the major indications for ICU admission. complications mainly presented in women with gestational age of 37–42 weeks like in our study 45.9% women presented during gestational age of >34 weeks of pregnancy [11]

Ourstudy revealed that obstetric collapse and acute respiratory distress mainly required ventilatory support which was 22.9% and ionotropic support given to 32.9% of critically ill patients, these were the routine interventions done in ICU, and findings were similar with the study conducted by Kilpatrick SJ et al[.6,12,13].

CONCLUSION

16.13% of deliveries required intensive care out of all obstretric admission. Preeclampsia, eclampsia and obstetric haemorrhage are the major indications for ICU admission. Out of all ICU admission 8.8% cases were leads to maternal mortality.

This is the time where to train an obstetrician is must in obstetric medicine and critical care to do provide quality care to these morbid patients.

There is a very small amount of data is present from different Indian states on clear indications and treatment protocols of ICU admissions. More such prospective studies needs to be conducted at different centres to identify the need of strengthening obstetric ICU in turn to reduce maternal mortality

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Table 1: Demographic Profile Of The Study Group

Variable	N	Percentage(%)
Age (Years)		
18-25	1308	35.7
26-30	1726	47.4
>30	620	16.9
Locality		
Rural	2640	68.8
Urban	1195	31.2
Religion		
Hindu	2412	62.7
Muslim	1423	37.3
Gravida		
primi	1217	31.8
multi	2618	68.2
Gestational age		
<14 wk	181	4.7
15-28	98	2.5
29-34	1243	32.4
>34	1762	45.9
peurperium	551	14.3

Table 2: Major Obstetric Causes Of ICU Admission

Variable	N	Percentage(%)
APH	176	4.6
PPH	102	2.6
PRE Eclampsia	602	15.6
Severe preeclampsia	50	1.3
Antepartum eclampsia	509	13.2
Post partum eclampsia	98	2.5
GHTN	63	1.6
ABORTION	117	3.0
H MOLE	30	0.7
RUPTURED ECTOPIC	54	1.4
OBSTRUCTED LABOUR	40	1.0
RUPTURED UTERUS	46	1.1
RETAINED PLACENTA	34	0.8

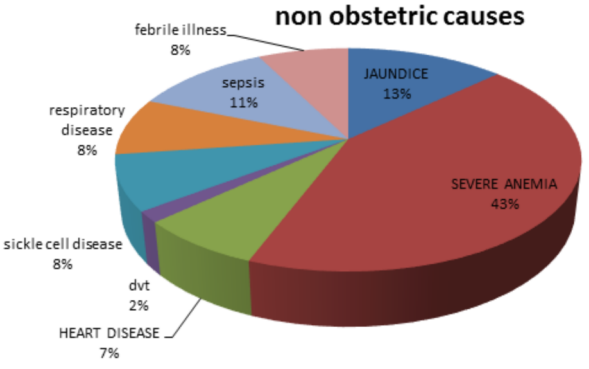

Figure 1: Non Obstetric Cause Of ICU Admission

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