

Need of High Dependency Unit in Obstetric Patients in Tertiary Care Centre

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Abstract

Aim: To analyze the requirement of HDU in Obstetric patients having Medical disorders & Intraoperative/Intrapartum complications & Postoperative/Postpartum complications.

Study Design: It is a retrospective study conducted at DY Patil hospital, Kolhapur from June 2020 to June 2021, in the department of Obstetrics & gynecology.

Methods: All the patients having associated Medical disorders, Intraoperative complications, Postoperative complications were admitted in HDU. Interventions required in HDU, duration of stay and outcome of the patient were collected & results were analyzed.

Results: Out of 1967 deliveries, 144 patients required admission in HDU. Among Obstetric causes requiring HDU, Hypertensive disorders in pregnancy is the leading cause for HDU admissions. Among Non-Obstetric causes requiring HDU, Anemia in Pregnancy is the leading cause for HDU admissions.

Conclusion: Regular ANC checkups, detection of high-risk pregnancies, proper antenatal care, early referral of high-risk pregnancies, correction of modifiable causes of high-risk pregnancies (Anemia) can reduce maternal morbidity and mortality. Introduction of High dependency unit & multidisciplinary approach in managing patients has brought down the maternal mortality in the Tertiary care referral centre.

Keywords: High dependency unit; Medical disease; Intraoperative/Intrapartum complications; Postoperative/Postpartum complications; Maternal mortality.

Introduction

Though pregnancy & labor are considered a physiological process, the potential for catastrophic complications is constant and may develop in matter of minutes.¹ Despite significant improvements in obstetric care over the last few decades maternal mortality continues to be the major challenge in the developing world.² The early recognition of complications & appropriate management in HDU would improve maternal health outcomes. Department of health defined HDU care as a level of care which lies in between the general ward and Intensive Care Unit (ICU).³

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Patients requiring HDU admission would include Eclampsia, Postpartum Hemorrhage, Sepsis, Acute organ dysfunction, Thromboembolism & Anesthesia related complications like Aspiration, Anaphylaxis.⁴ These women with Obstetric complications require quality Maternal Health Services. Most of the maternal mortality can be preventable with proper monitoring and quality care of the patient. In western India, the incidence of mother requiring intensive care unit is around 5.48 per 1000 deliveries.⁵ The advantage of High Dependency Unit (HDU) for the patients with obstetric complications includes the concurrent availability of expert Obstetric Care and critical care management. It reduces the need to transfer patients to a medical or surgical ICU.⁶ Our aim is to study the requirement of HDU in obstetric patients having medical disorders and associated complications.

Methodology

This is a Retrospective study conducted at DY Patil Medical College, Hospital & Research Centre from June 2020 to June 2021. Hospital has dedicated obstetric HDU with 6 beds comprised of Residents, Trained nurses, Consultant Obstetricians, Physicians and Anesthetists.

Inclusion Criteria

All the women admitted in HDU with Obstetric complications and pre existing medical disorders were included in the study.

Exclusion Criteria

- COVID 19 patients
- Road traffic accident patients
- Criminal abortion patients
- Hanging patients
- Outside delivered patients

Data was entered in excel sheet and results were analyzed with respective indication of HDU admission associated medical disorders, interventions done. Indications of HDU admission were identified as severe Pre-eclampsia, Eclampsia, severe Anemia, DIC, MODS, Sepsis, GDM, Thrombocytopenia. Interventions done were blood transfusions, antihypertensive, anti-convulsions, inotrope support, central venous catheter and mechanical support and outcome of the patient is analyzed.

Total number of deliveries in the study period-1967.

Number of patients requiring HDU admission – 144

Table 1: Surgical management of patients requiring HDU admission.

Surgical Management	Number of Patients
Lscs	122
D & C	02
Obstetric Hysterectomy	02
Salpingectomy	06
Hysterotomy	02

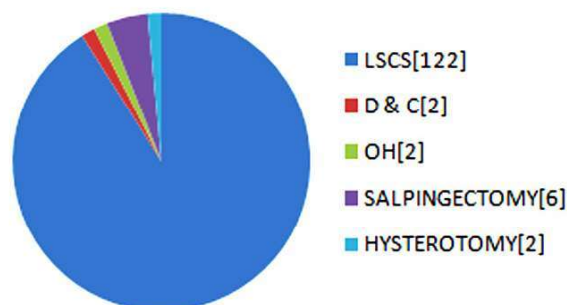


Fig. 1: Surgical Management of patients requiring HDU.

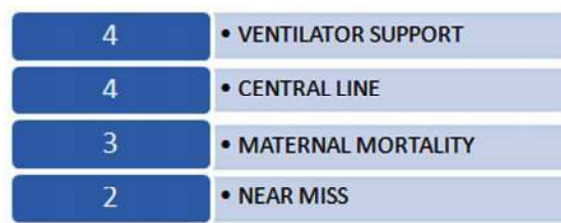


Table 2: Distribution of patients according to the age requiring HDU

Age in Years	Number of Patients
18-21	30
22-25	60
25-30	50
>35	04

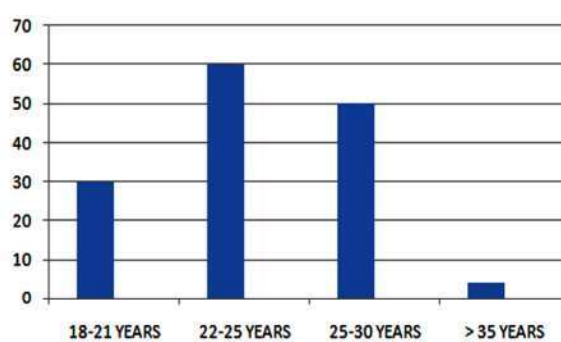
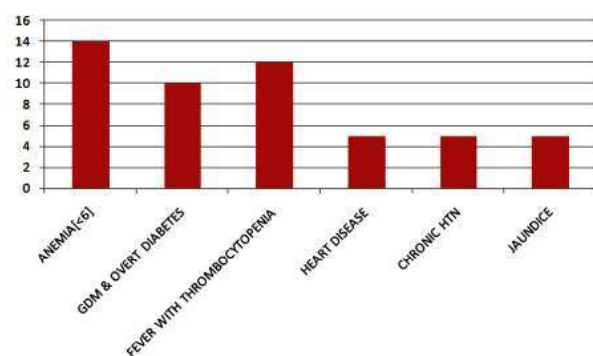


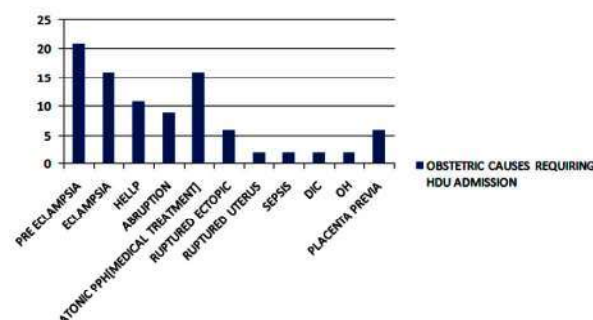
Fig. 2: Distribution of patients according to the age requiring HDU.

Table 3: Distribution of patients requiring admission in HDU for non obstetric causes.

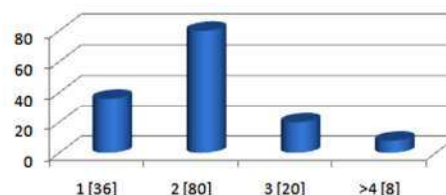
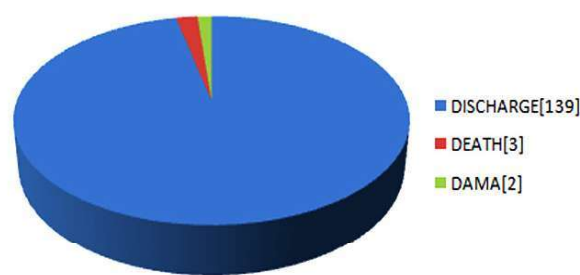
Non Obsteric Causes Requiring Hdu Admission	Number of Patients	Percentage
Anemia (<6)	14	9.7%
Gdm With Overt Diabetes	10	6.9%
Fever With Thrombocytopenia	12	8.3%
Heart Disease	5	3.4%
Chronic Hypertension	5	3.4%
Jaundice	5	3.4%

**Fig. 3:** Distribution of patients requiring admission in HDU for non obstetric causes.**Table 4:** Distribution of patients requiring admission in HDU for obstetric causes.

Obstetric Causes Requiring Hdu Admission	Number of Patients	Percentage
Severe Pre Eclampsia	21	14.5%
Eclampsia	16	11.1%
Hellp	11	7.6%
Abruption	09	6.25%
Atonic Pph (Medical Treatment)	16	11.1%
Ruptured Ectopic	06	4.1%
Ruptured Uterus	02	1.38%
Sepsis	02	1.38%
Dic	02	1.38%
Obstetric Hysterectomy	02	1.38%
Placenta Previa	06	4.1%

**Fig. 4:** Distribution of patients requiring HDU admission for Obstetric Causes**Table 5:** Distribution of patients requiring HDU admission based on parity.

According to Parity	Number of Patients
1	36
2	80
3	20
>4	8

**Fig. 5:** Distribution of patients requiring HDU admission based on parity.**Fig. 6:** Outcome of the patients admitted in obstetric HDU.**Table 6:** Causes of maternal mortality in the patients admitted in HDU.

Causes of Maternal Mortality	Number of Patients
Dengue Shock Syndrome	1
Severe Anemia	1
Leptospirosis with Mods	1

Discussion

Obstetric admission in HDU is 7.3% in our present study. The incidence varies in different parts of India and in the world. In Hongkong, the incidence is 1.3 in 10 years⁷, 2.4 over 2 years in Netherlands⁸, 10.2 in 4 years in Dublin, Ireland⁹, 26.7 in 23 years in UK.¹⁰ The present study includes analysis of women admitted to obstetric critical care unit (HDU) and their outcome. Utilization rate of HDU in our present study is 7.3%. To reduce the maternal mortality rates due to obstetric complications, it is necessary to have HDU in all the tertiary care centres. Obstetric HDU is designed specifically for pregnant and postpartum women. The Ministry of Health and Family welfare has released guidelines for setting up and operating HDU in the country¹¹

Currently data regarding HDU admissions is limited in our country. Intensive care is appropriate for patients who require advanced respiratory support or requiring support for more than one organ system. High dependency unit on other hand is appropriate for patients requiring support for a single organ system or can be benefited from more close observation and monitoring who no longer need intensive care but cannot be returned to general ward. It is a level of care which lies in between general ward and intensive care unit (ICU).¹² The availability of ICU beds is a challenge in a developing country like India. Majority of the admissions in HDU were post partum. The most common conditions for all obstetric HDU admissions are related to hypertensive disorders in pregnancy, followed by hemorrhage. This is consistent with the study done by Vanitha et al. who also reported severe pre-eclampsia as the leading cause with 21% of HDU admission.¹³ However certain other studies have reported hemorrhage as the most common cause for HDU admission.¹⁴ Anemia and APH were the next leading causes of HDU admission. This is consistent with Tayade et al.in. Their study also reported anemia accounts for 17%.¹⁵

Regarding hypertensive patients requiring HDU care, the probable reasons appear to be lack of proper antenatal checkups and timely diagnosis and inappropriate management leading to complications like HELLP and eclampsia.

Pregnancy worsens the underlying comorbidities. Among the non obstetric causes leading to HDU admissions, fever with Thrombocytopenia leads followed by cardiac diseases. Fever with Thrombocytopenia leads to 8.3% of HDU admissions, followed by 3.4% due to heart diseases. Similar observations were reported by other researchers.^{6,7,16}

We had one dengue patient with thrombocytopenia 6 hours after labor patient went into dengue shock syndrome and finally mortality happened. All the cardiac disease patients were initially managed in the ICU for 48 hours with help of Internal Medicine department and Cardiologist. Later they were shifted to obstetric HDU for close observation. We had two near miss cases one patient with intracerebral hemorrhage who underwent Craniotomy. One more patient with undiagnosed case of Placenta Accrete who came to obstetric emergency with excessive PV bleed and underwent Obstetric Hysterectomy. Caesarean section as the most common intervention in the present study. The higher rate of cesarean sections

seen in present study is because of higher number of referrals due to complications. Out of 1967 deliveries we had 3 maternal mortalities. Maternal mortality rate is 1.53% in the present study. All the deaths happened in ICU, there was no death in HDU. Since our study is in tertiary hospital, most of the cases were referred after significant amount of delay and who needed utmost care and monitoring. So HDU is required in all the tertiary care centres. Maternal morbidity is due to lack of antenatal care, delay in diagnosis and referral, poor socioeconomic status leading to poor maternal outcomes.

Conclusion

Regular ANC checkups, detection of high-risk pregnancies, proper antenatal care, early referral of high-risk pregnancies, correction of modifiable causes of High-risk pregnancies (Anemia) can reduce maternal morbidity and mortality. Introduction of high dependency unit and multidisciplinary approach in managing patients has brought down the maternal mortality in the tertiary care referral centres.

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