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Original Research Article

Evaluation of maternal admission to intensive care unit in a tertiary care hospital of Kashmir valley

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ABSTRACT

Background: Management of critically ill obstetric women at an ICU is a challenge to both physicians and obstetricians due to physiological adaptations and progress of diseases during pregnancy and puerperium. There has been a striking association between the number of maternal deaths and the accessibility to ICU care. Obstetric patients get admitted to the ICU approximately at 0.1-0.9% times of all deliveries. Objective was to evaluate the occurrence, indication and outcome of patients admitted in the ICU of an obstetric tertiary care hospital.
Methods: This retrospective study was carried out from August 2020 to January 2021 at Lalla Ded Hospital, a tertiary care Obstetrics and Gynaecology Hospital of Kashmir valley. Data for this study was collected retrospectively from hospital records. The demographic details, indication for ICU admission, co-morbidities, ante natal care records were noted on admission to the ICU.
Results: The total ICU admission during this time period was 212 (1.44%) with obstetric patients being 194 (91.5%) and gynaecologic patients 18 (8.5%). Obstetric haemorrhage (38.2) followed by hypertensive disorders of pregnancy (24.1%) were the most common indications for ICU admission. 26.9% patients needed mechanical ventilation during ICU admission.
Conclusions: Analysing intensive care unit utilization during pregnancy can be an accepted approach to identify severe and near miss maternal morbidity. Development and upliftment of primary health care facilities with involvement of multi-disciplinary teams and referral of high risk pregnancies to higher health centres is the key to decrease maternal mortality and morbidity.

Keywords: High risk pregnancy, Obstetric emergency, Obstetric ICU

INTRODUCTION

Management of critically ill obstetric women at an ICU is a challenge to both physicians and obstetricians due to physiological adaptations and progress of diseases during pregnancy and puerperium. There has been a striking association between the number of maternal deaths and the accessibility to ICU care. Obstetric patients get admitted to the ICU approximately at 0.1-0.9% times of all deliveries.[1-4] Overall maternal death rate in the ICU varies from 3.4-21%.[5-8] While most pregnant women requiring intensive care survive, many sustain considerable morbidity and represent Near miss Mortality.[9,10] Knowledge of characteristics and outcome of disease involving this group of patients is the first step towards achieving prevention and reduction of maternal morbidity and mortality.[11] Understanding the epidemiology of severe obstetric morbidity may help in targeting interventions aimed at improving the maternal outcomes.

Compared to women in their 20s, women aged 35-39 and ≥40 are 2.5 and 5.3 times more likely to suffer from pregnancy-related mortality respectively.[12] WHO regularly systematically reviews maternal mortality worldwide, and in developed countries, 16 per cent of maternal deaths were reported to be due to hypertensive

disorders of pregnancy.[13] This proportion is greater than the three other leading causes that include haemorrhage (13%), abortion (8%), and sepsis (2%). In the USA it is estimated that half of all the maternal deaths are preventable.[14] Very few studies have been conducted in India evaluating the reason for ICU admissions of critically ill obstetric patients in tertiary hospitals across India.[15-17]

METHODS

This retrospective observational study was carried out from August 2020 to January 2021 at Lalla Ded Hospital, a tertiary care Obstetrics and Gynaecology Hospital of Kashmir valley. Data for this study was collected retrospectively from hospital ICU records. The demographic details, indication for ICU admission, co-morbidities, ante natal care records were noted on admission to the ICU. Lalla Ded hospital is a referral centre for cases from various peripheral hospitals in Kashmir. All critically ill patients who needed hemodynamic monitoring and vasopressor support, invasive or non-invasive ventilator care and patients with organ dysfunction are admitted to the ICU.

Statistical analysis

The data obtained were analysed using descriptive statistics, with V 20 software.

RESULTS

During this six months period from August 2020 to January 2021, total number of hospital admission was 14720 (obstetric patients- 14000 and gynaecological patients- 720). Total number of deliveries during this time period was 8508, with 5400 LSCS and 3108 NVDS. The total ICU admission during this time period was 212 (1.44%) with obstetric patients being 194 (91.5%) and gynaecologic patients 18 (8.5%).

On admission to ICU, the etiological factors leading to ICU admission were analysed. The demographic details, obstetric history and any co morbid medical or surgical conditions were also noted.

Table 1: Demography of ICU patients.

Characteristics		No. of patients (total=212)	Percentage
Residence	Rural	120	56.6
	Urban	92	43.4
Booking status	Booked	87	41.0
	Un-booked	125	59.0
Number of ICU patients	Obstetrical	194	91.5
	Gynaecological	18	8.5

The maximum patients belonged to the age group of 32-37 years with mean age of patients being 30.55±5.99 years. Out of 212 patients, 120 (56.6%) were rural and 92 (43.4%) were urban. The number of unbooked and booked patients was 125 (59%) and 87 (41%).

Table 2: Cause of ICU admission.

Cause of ICU admission	No. of patients (total=212)	Percentage
Hypertensive disorders of pregnancy	51	24.1
Eclampsia	37	17.5
Severe PIH	14	6.6
Obstetric hemorrhage	81	38.2
Ruptured ectopic	20	9.4
Abruptio placenta	15	7.1
PPH	15	7.1
Placenta accreta	24	11.3
Placenta Praevia	7	3.3
Postpartum complications	30	14.1
Severe anemia	12	5.7
Pulmonary edema	12	5.7
Pelvic hematoma	2	0.9
Postpartum collapse	2	0.9
High spinal anaesthesia	2	0.9
Medical disorders	24	11.3
Cardiac diseases	9	4.2
Diabetes	5	2.4
Seizure disorder	5	2.4
Acute pancreatitis	2	0.9
Acute liver failure	2	0.9
GBS	1	0.5
Endotoxemia	17	8
Sepsis	11	5.2
Chorioamnionitis	2	0.9
Septic abortion	4	1.9
Others	9	4.2
Total	212	100

The most common indication for ICU admission was Obstetric haemorrhage (38.2%), with placenta accrete being most common (11.3%). This was followed by hypertensive disorders of pregnancy (24.1%) with eclampsia (17.5%) being most common cause. Among the gynaecological patients the most common indication was AUB with severe anemia (5.8%).

Table 3: ICU management.

Mechanical ventilation	No. of patients (total=212)	Percentage
Requiring	57	26.9
Not requiring	155	73.1
Total	212	100

During the ICU admission, out of 212 patients 57 (26.9%) patients needed mechanical ventilation.

Overall 202 (95.3%) patients survived and were shifted to Post-operative wards and a total of 10 (4.7%) patients expired.

Table 4: Outcome of patients.

Outcome	No. of patients	Percentage
Expired	10	4.7
Survived	202	95.3
Total	212	100

Among 212 patients, 3 (1.4%) patients were shifted to medical ICU of Government Medical College Hospital Srinagar for further management.

DISCUSSION

This retrospective observational study was carried out from August 2020 to January 2021 at tertiary care obstetric hospital Lalla Ded Hospital Srinagar. Total of 212 patients were admitted to ICU during this period which represents 1.44% of the total admission. 91.5% patients were obstetric and 8.5% patients were gynaecologic. A study conducted by Ghike et al found 1.04% of patients needed ICU admission, which is comparable to our study.[18]

The mean age of ICU admitted patients in our study was 30.55±5.9 years. The mean age of patients in study conducted by Vargas et al in was 32.9±6.3 years.[19] The number of unbooked cases in our study was 125 (59%) and only 87 (41%) were booked. 120 (56.6%) patients belonged to rural areas and 92 (43.4%) patients belonged to urban areas. The number of booked and unbooked patients in the study conducted by Soumini et al in was 26% and 46% respectively.[20] The results were comparable.

In our study, obstetrical haemorrhage followed by hypertensive disorders of pregnancy were the most common causes for ICU admission. Other causes for ICU admission included pulmonary edema (5.7%), septic shock (5.2%) and cardiac diseases (4.2%). Hypertensive disorders of pregnancy and sepsis were the two main obstetrical conditions responsible for maternal morbidity in a study conducted by Bibi et al.[21] The total number of patients who required mechanical ventilation was 57 (26.9%) and the overall mortality rate during this study period was 4.7%. The study conducted by Sriram et al in 2008 found mechanical ventilator support was required for 61% of the patients.[22] The study conducted by Chawla et al in 2013 found maternal mortality rate of 28.5% which was very higher than our study.[23]

CONCLUSION

Management of critically ill peri partum or post-partum patients is the challenging aspect of obstetricians that requires consideration of physiological changes associated with pregnancy and the wellbeing of fetus. Analysing intensive care unit utilization during pregnancy can be an accepted approach to identify severe and near miss maternal morbidity. The majority of patients admitted to ICU in our hospital were from rural areas and were unbooked. Development and upliftment of primary health care facilities with involvement of multi-disciplinary teams and referral of high risk pregnancies to higher health centres is the key to decrease maternal mortality and morbidity. In our study, obstetrical haemorrhage and hypertensive disorders of pregnancy were the commonest cause for ICU admission hence good antenatal care, early detection and timely intervention may help in reduction of ICU admission and maternal morbidity and mortality.

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