International Journal of Clinical Obstetrics and Gynaecology

ISSN (P): 2522-6614
ISSN (E): 2522-6622
Indexing: Embase
Impact Factor (RJIF): 6.71

www.gynaecologyjournal.com
2026; 10(1): 285-289
Received: 14-11-2025
Accepted: 18-12-2025

Nadia Khurshid
Assistant Professor, Department of Obstetrics and Gynecology, Sher-i-Kashmir Institute of Medical Sciences (SKIMS), Srinagar, Jammu & Kashmir, India

Azmat Jahan Mantoo
Senior Resident, Department of Obstetrics and Gynecology, Sher-i-Kashmir Institute of Medical Sciences (SKIMS), Srinagar, Jammu & Kashmir, India

Ruqiya Rashid
Senior Resident, Department of Obstetrics and Gynecology, Sher-i-Kashmir Institute of Medical Sciences (SKIMS), Srinagar, Jammu & Kashmir, India

Corresponding Author:
Ruqiya Rashid
Senior Resident, Department of Obstetrics and Gynecology, Sher-i-Kashmir Institute of Medical Sciences (SKIMS), Srinagar, Jammu & Kashmir, India

Assessment of indications and outcome of Obstetric ICU Admission: A Practical Approach

Nadia Khurshid, Azmat Jahan Mantoo and Ruqiya Rashid

DOI: https://www.doi.org/10.33545/gynae.2026.v10.i1d.1886

Abstract
Introduction: Maternal near-miss cases are defined as "a woman who nearly died but survived a complication that occurred during pregnancy, childbirth or within 42 days of termination of pregnancy". Although pregnancy and puerperium are physiological processes, but serious complications can occur which can lead to maternal mortality and morbidity. Women in their puerperium are more at risk of ICU admission than pregnant women. Evaluation of obstetric admissions to intensive care unit (ICU) is one of the ways to approach surveillance of critically ill women in pregnancy in a tertiary care facility.
Materials and Methods: It is a prospective study of obstetric cases admitted to the intensive care unit over a period of 3 years from January 2022 to October 2024. All the pregnant and postpartum (up to 6 weeks post-delivery) patients admitted to the intensive care unit of SKIMS Soura were included in the study.
Statistical Analysis: Data was entered in Microsoft excel sheet and analyzed. Continuous variables were expressed as Mean ± SD and categorical variables were summarized as frequencies and percentages.
Results and Observations: Among all obstetric cases 120 patients required ICU admission and the rate was 0.57%. Most common age group in our study was 26-30 years (35.8%). Most common period of admission to our ICU was during the third trimester (85%) followed by 1st trimester (7.6%). Most common indication of ICU admission in our setting was heart disease present in 23.3% of patients followed by hypertensive disorders in 22.5%, obstetric haemorrhage in 21.6%, ruptured ectopic pregnancy in 7.5%, neurological disorders in 5.8%, kidney disease in 5%, anaesthesia related complications in 4.1%, connective tissue and haematological disorders in 2.5% in each, acute fatty liver of pregnancy and infections in 1.6% in each and molar pregnancy and thromboembolism in 0.8% of patients. Case fatality rate was 5.8% which was lower (6.8%) in other studies.
Conclusion: ICU admission complicates 0.57% of obstetric cases in our setup. This study provides detailed information regarding demographics, indications and outcome of critically ill patients so that maternal mortality and morbidity can be prevented by proper triaging of patients.

Keywords: LSCS, ICU admission, antepartum period, maternal near miss

Introduction
Maternal near-miss cases are defined as "a woman who nearly died but survived a complication that occurred during pregnancy, childbirth or within 42 days of termination of pregnancy" [1]. Analysing intensive care unit (ICU) utilization during pregnancy and puerperium is an accepted approach to identify severe and "near-miss" maternal morbidity [2]. Although pregnancy and puerperium are physiological processes, but serious complications can occur which can lead to maternal mortality and morbidity. Women in their puerperium are more at risk of ICU admission than pregnant women [3, 4]. The incidence of pregnant women admitted to intensive care unit (ICU) in developed countries is 2 to 4 per 1,000 deliveries as compared with 2 to 13.5 per 1,000 deliveries in developing countries [3]. Reviewing critical cases can provide significant information about areas of improvement and is useful in identifying health system failures and assessment of quality of maternal health-care [5]. Evaluation of obstetric admissions to intensive care unit (ICU) is one of the ways to approach surveillance of critically ill women in pregnancy in a tertiary care facility [6], which being an aim of our study.

Aims and Objectives
1. To assess demographic profile, incidence and case fatality of obstetric ICU admission.
2. To assess indications of ICU admission.
3. To determine the outcome.

Materials and Methods

It is a prospective study of obstetric cases admitted to the intensive care unit over a period of 3 years from January 2022 to October 2024. All the pregnant and postpartum (up to 6 weeks post-delivery) patients admitted to the intensive care unit of SKIMS Soura were included in the study. Morbidity from accidental or incidental causes not related to pregnancy, e.g. morbidity from road traffic accident, suicide and poisoning were excluded. The data included demographic parameters, age, parity, diagnosis on admission, associated medical and surgical condition, reason for ICU admission, any surgical procedure performed, details of treatment given like ventilator support, blood and blood component transfusion, inotropic support, and dialysis. Total duration of hospital stay was noted. Follow-up was kept till discharge from hospital.

Statistical Analysis

Data was entered in Microsoft excel sheet and analyzed. Continuous variables were expressed as Mean ± SD and categorical variables were summarized as frequencies and percentages. Graphically the data was presented by bar and pie diagrams. Statistical analysis was done using descriptive statistics.

Table 1: Demographic and Obstetric Characteristics

Parameters	Category	No. of Patients	Percentage
Age distribution on Admission (n=120)	20-25	16	13.4
	26-30	43	35.8
	31-35	40	33.4
	36-40	17	14.1
	>41	4	3.3
Obstetric Index on Admission (Gravidity)	G1	28	23.3
	G2	49	40.8
	G3	29	24.3
	G4	9	7.5
	>/= G5	5	4.1
Gestational Age in weeks on Admission	<14	9	7.6
	14-28	1	0.8
	29-40	102	85
	Puerperium	8	6.6
Type of cases received in ICU	From operation theatre	108	90
	From Labor Room	4	3.4
	From postoperative ward	8	6.6

1. **Age Distribution:** The majority of patients admitted to the obstetric ICU were in the 26-30 years age group, accounting for 43 patients (35.8%), followed closely by those aged 31-35 years (40 patients; 33.4%). Patients aged 36-40 years constituted 14.1%, while younger women aged 20-25 years formed 13.4% of admissions. Only a small proportion of patients were aged above 41 years (3.3%). This indicates that ICU admissions predominantly involved women in their prime reproductive age group.
2. **Obstetric Index (Gravidity):** Most ICU admissions occurred among multigravida women. Gravida 2 patients formed the largest group (40.8%), followed by Gravida 3 (24.3%) and Gravida 1 (23.3%). Higher-order gravidity (G4 and ≥G5) accounted for 11.6% of cases, suggesting a higher ICU utilization among women with previous pregnancies.
3. **Gestational Age at Admission:** A significant majority of patients (85%) were admitted during the third trimester (29-40 weeks). Puerperal admissions accounted for 6.6%, while 7.6% of admissions occurred before 14 weeks of gestation, reflecting early pregnancy complications. Very few admissions were noted in the second trimester (0.8%).
4. **Source of ICU Admission:** Most patients were transferred to ICU from the operation theatre (90%), highlighting the predominance of peri-operative and post-surgical complications. Admissions from the postoperative ward constituted 6.6%, while only 3.4% were transferred directly from the labor room.

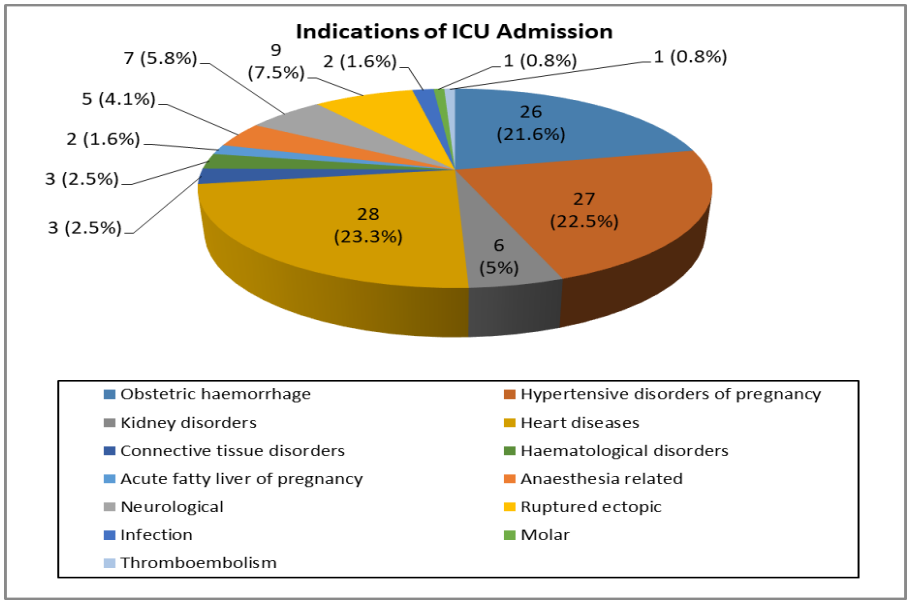

Fig 1: Indications for Intensive Care Unit (ICU) Admission among Obstetric Patients

The most common indication for ICU admission was heart disease complicating pregnancy, accounting for 28 cases (23.3%), followed by hypertensive disorders of pregnancy in 27 patients (22.5%). Obstetric hemorrhage was responsible for 26 admissions (21.6%), underscoring its continued contribution to maternal morbidity.

Other indications included:
Kidney disorders 6 patients (5%), Ruptured ectopic pregnancy 9 patients (7.5%), Neurological conditions 7 patients (5.8%), anaesthesia-related complications 5 patients (4.1%). Hematological disorders, connective tissue disorders, infection, acute fatty liver of pregnancy, molar pregnancy, and thromboembolism together constituted a smaller proportion of ICU admissions.

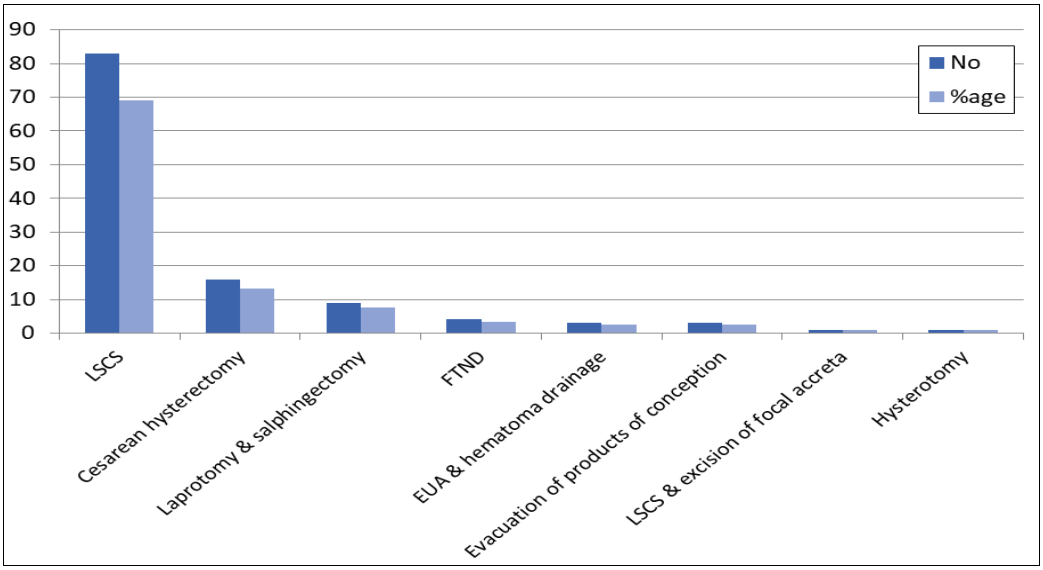

Fig 2: Surgical Procedures Performed

Lower segment cesarean section (LSCS) was the most frequently performed surgical procedure, undertaken in approximately 70% of patients, reflecting the strong association between operative delivery and ICU admission. Other surgical interventions included cesarean hysterectomy around 13%, laparotomy with salpingectomy 8%, evacuation of products of conception, examination under anesthesia with hematoma drainage, LSCS with excision of focal placenta accreta, emergency hysterectomy performed in a very small proportion

Table 2: Clinical Parameters, ICU Therapies, Duration of Stay, and Patient Outcomes

Parameters	Category	No. of Patients	Percentage
Therapies used in ICU	Antibiotics	120	100
	Blood transfusion	41	34.1
	Ventilator support	31	25.8
	Blood components	30	25
	Anticogulants	11	9.1
	$MGSO_4$	11	9.1
	Inotopic support	8	6.6
	Dialysis	6	5
	Re-exploration	4	3.3
	Cocktail regime	4	3.3
	Cardioversion	2	1.6
Duration of ICU Stay in Hours (n=120)	12-24	82	68.3
	25-48	23	19.1
	49-72	10	8.3
	>72	5	4.3
Duration of Hospitalization in Days (n=120)	<5	13	10.8
	5-10	74	61.6
	11-15	26	21.7
	>15	7	5.9
Condition of Discharge (n=120)	Satisfactory	107	89.1
	Shifted to other departments	6	5
	Expired	7	5.9

- **Therapies Administered in ICU:** All patients admitted to the ICU received antibiotic therapy (100%). Blood transfusion was required in 41 patients (34.1%), while blood component therapy was administered in 25% of cases. Advanced supportive measures included ventilator support in 31 patients (25.8%), administration of magnesium sulphate in 9.1% of patients primarily for the management of eclampsia and severe preeclampsia, use of anticoagulants in 9.1%, inotropic support in 6.6%, and dialysis in 5% of cases. Re-exploration surgery and cocktail drug regimens were each required in 3.3% of patients, while cardioversion was performed in 1.6% of cases, reflecting severe underlying cardiac indications.
- **Duration of ICU Stay:** Most patients (68.3%) required ICU care for 12-24 hours, indicating effective stabilization within the first day. 19.1% required ICU care for 25-48 hours, while prolonged ICU stay beyond 72 hours was necessary in only 4.3% of cases.
- **Duration of Hospitalization:** The majority of patients (61.6%) had a hospital stay of 5-10 days, while 21.7% required hospitalization for 11-15 days. Short hospital stay of less than 5 days was observed in 10.8%, reflecting favorable outcomes in most patients after critical care intervention.

Discussion

During our study total number of obstetric admissions from January 2022 to October 2024 was 20922. Among all obstetric cases 120 patients required ICU admission and the rate was 0.57% which is lower (4.45%) than the study done by Dhanashree *et al* [7]. The reason of low rate of ICU admission in our study being the proper preconception counselling, optimal antenatal check-ups, stabilisation of underlying comorbidity, multidisciplinary team approach and timely intervention. Most common age group in our study was 26-30 years (35.8%). Advanced maternal age did not carry an increased risk of ICU admission in the present study population unlike that observed by Bhadade *et al*. [8] Most common period of admission to our ICU was during the third trimester (85%) followed by first trimester (7.6%). This finding is consistent with other studies of ICU and HDU admissions [9]. Majority of patients were 2nd gravida (40.8%) which is in contrast to study done by Chawla *et al*, (primis-68.5%) [10]. 90% of patients admitted in our ICU were directly shifted from OT. Most common indication of ICU admission in our setting was heart disease present in 23.3% of patients followed by hypertensive disorders in 22.5%, obstetric haemorrhage in 21.6%, ruptured ectopic pregnancy in 7.5%, neurological disorders in 5.8%, kidney disease in 5%, anaesthesia related complications in 4.1%, connective tissue and haematological disorders in 2.5% in each, acute fatty liver of pregnancy and infections in 1.6% in each and molar pregnancy and thromboembolism in 0.8% of patients. *Small MJ* has also reported cardiac dysfunction in 36 % cases and as the commonest condition [11]. Other studies done in the Indian setting have reported haemorrhage as the important cause of ICU admission while others have noted pregnancy related hypertensive complications to be the most important cause [12, 13]. Most common procedure performed was LSCS in 69.1% of patients followed by caesarean hysterectomy in 13.3%, laparotomy followed by salpingectomy in 7.5%, vaginal delivery in 3.3%, EUA with drainage of hematoma and suction of products of conception in 2.5% in each, hysterotomy and excision of focal accrete in 0.8% of patients. In addition to underlying comorbidities LSCS itself increases risk of ICU admission as depicted by the study done by Zwart [14]. Present study showed 69.1% LSCS, Ashraf *et al* (63.3%), Saha R *et al* (70%) [15, 16]. All patients received antibiotics in ICU followed by 34.1% received blood transfusion and 25.8% received ventilator support. Rathod *et al.* in their study observed that 40.5% of their patients required invasive ventilator support [17]. 25% received blood transfusion, 9.1% received anticoagulants and MGSO4. 68.3% of patients required ICU admission for 1 day. The minimum duration of ICU stay was 12 hours and maximum was 24 days. Majority of patients i.e. 61.6% stayed in hospital for 5-10 days. 89.1% of patients were discharged from hospital in satisfactory condition, 5% were shifted to other departments like medicine, nephrology, cardiology, rheumatology and surgery. Case fatality rate was 5.8% which was lower (6.8%) in other studies [18, 19]

Conclusion

Intensive Care Unit (ICU) admission complicates 0.57% of obstetric cases in our setup. This study provides detailed information regarding demographics, indications and outcome of critically ill patients so that maternal mortality and morbidity can be prevented by proper triaging of patients. This study also highlights the importance of pre-conception counselling, optimisation of underlying comorbidities, multidisciplinary team approach and timely shifting to ICU as key factors in improving outcome in critically ill patients. There is a need of obstetric high dependency unit at every centre, including peripheries.

Conflict of Interest

Not available

Financial Support

Not available

Refrences

1. World Health Organization. Evaluating the quality of care for severe pregnancy complications: The WHO near-miss approach for maternal health. Geneva (Switzerland): World Health Organization; 2011. p. 1-172.
2. Tuncalp O, Hindin MJ, Souza JP, Chou D, Say L. The prevalence of maternal near miss: a systematic review. BJOG. 2012;119(6):653-661.
3. Pollock W, Rose L, Dennis CL. Pregnant and postpartum admissions to the intensive care unit: a systematic review. Intensive Care Med. 2010;36(9):1465-1474.
4. Motiang M. Obstetric patients admitted to the intensive care unit of Dr George Mukhari Academic Hospital, Ga-Rankuwa, South Africa. South African Journal of Critical Care. 2017;33(1):12-14.
5. Dattaray C, Mandal D, Shankar U, Bhattacharya P, Mandal S. Obstetric patients requiring high-dependency unit admission in a tertiary referral centre. International Journal of Critical Illness and Injury Science. 2013;3(1):31-35.
6. Richa F, Karim N, Yazbeck P. Obstetric admissions to the intensive care unit: an eight-year review. Journal of the Medical Library (Lebanon). 2008;56(4):215-219.
7. Barde D, Dank G, Mande S, Shiradkar S. Study of obstetric admissions to the intensive care unit of a tertiary care hospital. International Journal of Current Medical and Applied Sciences. 2018;17(3):87-90.
8. Bhadade R, De'Souza R, More A, Harde M. Maternal outcomes in critically ill obstetric patients: a unique challenge. Indian Journal of Critical Care Medicine. 2012;16(1):8-16.
9. Gupta S, Naithani U, Doshi V, Bhargava V, Vijay BS. Obstetric critical care: a prospective analysis of clinical characteristics, predictability, and fetomaternal outcome in a dedicated obstetric intensive care unit. Indian Journal of Anaesthesia. 2011;55(2):146-153.
10. Chawla S, Nakra M, Mohan S, Nambiar BC, Agarwal R, Marwaha A. Why do obstetric patients go to the ICU? A three-year study. Medical Journal of Armed Forces India. 2013;69(2):134-137.
11. Small MJ, James AH, Kershaw T, Thames B, Gunatilake R, Brown H. Near-miss maternal mortality: cardiac dysfunction as the principal cause of obstetric intensive care unit admissions. Obstetrics and Gynecology. 2012;119(2 Pt 1):250-255.
12. Jain S, Guleria K, Vaid NB, Suneja A, Ahuja S. Predictors and outcome of obstetric admissions to intensive care unit: a comparative study. Indian Journal of Public Health. 2016;60(2):159-163.
13. Chhabra P, Guleria K, Saini NK, Anjur KT, Vaid NB. Pattern of severe maternal morbidity in a tertiary hospital of Delhi, India: a pilot study. Tropical Doctor. 2008;38(4):201-204.
14. Zwart JJ, Dupuis JR, Richters A, Ory F, van Roosmalen J. Obstetric intensive care unit admission: a two-year nationwide population-based cohort study. Intensive Care Medicine. 2010;36(2):256-263.
15. Ashraf N, Mishra SK, Kundra P, Veena P, Soundaraghavan S, Habeebullah S. Obstetric patients requiring intensive care: a one-year retrospective study in a tertiary care institute in India. Anesthesiology Research and Practice. 2014;2014:789450. p. 1-7.
16. Saha R, Shakya A. Study of obstetric patients admitted to the intensive care unit at Kathmandu Medical College Teaching Hospital. Journal of Kathmandu Medical College. 2013;2(4):196-200.
17. Rathod AT, Malini KV. Study of obstetric admissions to the intensive care unit of a tertiary care hospital. Journal of Obstetrics and Gynaecology of India. 2016;66(Suppl 1):12-17.
18. Zeeman GG. Obstetric critical care: a blueprint for improved outcomes. Critical Care Medicine. 2006;34(9 Suppl):S208-S214.
19. Sirio CA, Shepardson LB, Rotondi AJ, Cooper GS, Angus DC, Harper DL, Rosenthal GE. Community-wide assessment of intensive care outcomes using a physiologically based prognostic measure: implications for critical care delivery. Chest. 1999;115(3):793-801.

How to Cite This Article

Khurshid N, Mantoo AJ, Rashid R. Assessment of indications and outcome of Obstetric ICU Admission: A Practical Approach. International Journal of Clinical Obstetrics and Gynaecology 2024; 9(6): 285-289.