SSR Institute of International Journal of Life Sciences
ISSN (O): 2581-8740 | ISSN (P): 2581-8732
Purohit *et al*., 2025
doi: 10.21276/SSR-IIJLS.2025.11.3.15

Original Article

open access

Evaluation of Maternal Near-Miss Cases at a Tertiary Care Centre

Ritambhara Purohit[1*], Priyadarshini Tiwari[2], Dolly Maravi[3]

[1]Resident, Dept of Obstetrics and Gynaecology, NSCB MCH, Jabalpur, India
[2]Professor, Dept of Obstetrics and Gynaecology, NSCB MCH, Jabalpur, India
[3]Assisstant Professor, Dept of Obstetrics and Gynaecology, NSCB MCH, Jabalpur, India

***Address for Correspondence:** Dr. Ritambhara Purohit, Resident, Dept of Obstetrics and Gynaecology, NSCB MCH, Jabalpur, India
E-mail: ritambhara.purohit95@gmail.com

Received: 14 Jan 2025/ Revised: 09 Feb 2025/ Accepted: 21 Apr 2025

ABSTRACT

Background: Maternal near-miss cases provide valuable information regarding deficits and strengths in the maternal health care system. The objectives of the current study were to describe the demographic and clinical profile of near-miss cases, assess the effectiveness of referrals, identify frequent causes, and review interventions and outcomes in a tertiary care center.

Methods: All near-miss cases detected during the study period were considered and assessed based on the WHO clinical criteria. Clinical presentations, interventions, times of referral, demographic information, and outcomes were recorded. Laboratory criteria were recorded but not used extensively due to the lack of resources. Multidisciplinary team management was performed.

Results: Most near-miss cases were rural, young women of low socioeconomic status, who were predominantly literate up to the primary level. The majority were primigravida, presenting between 28–36 weeks of gestation. The referral was better; the delay was reported in less than one-fourth of cases. Identification was primarily clinical, and laboratory identification was low. Invasive ventilatory support and inotropic support were the most frequent interventions. Hypertensive disorders, especially antepartum eclampsia, were the most common causes, followed by hemorrhagic complications. Other dangerous conditions were pulmonary edema, Guillain-Barré syndrome, meningitis, and hepatitis E. Preterm deliveries were common, but most cases had improved fetal outcomes.

Conclusion: Proper management of near-miss cases in the ICU emphasizes the need for early detection, immediate referral, and well-coordinated multidisciplinary care. Supporting healthcare infrastructure and clinical education can also be used to further minimize maternal morbidity and mortality, as well as overall maternal health.

Key-words: Maternal near miss, Referral system, Hypertensive disorders, Multidisciplinary care, Antenatal management, ICU intervention

INTRODUCTION

Maternal mortality includes any female who dies during pregnancy, childbirth or within 42 days of her postpartum life. Near-miss maternal cases address females who survive any life-threatening obstetric complication during pregnancy, childbirth or within 42 days of their postpartum period.

How to cite this article
Purohit R, Tiwari P, Maravi D. Evaluation of Maternal Near-Miss Cases at a Tertiary Care Centre. SSR Inst Int J Life Sci., 2025; 11(3): 7408-7417.

Access this article online
https://iijls.com/

Most maternal complications are avoidable and preventable with early triaging and timely management by a skilled health professional working in a supportive environment, hence identifying all the eligible women according to a well-defined and specified assessment proforma has been the key in the approach given by WHO, in the near miss maternal criteria [1-3].

This study has been an effort to focus on what the causes are that endanger a woman during pregnancy, during the delivery process and in the postpartum period. These causes involve the organ system, physiology, and anatomy of a woman's body. In our study, we have emphasized classifying the near-miss cases based on WHO near-miss criteria and studying their feto-maternal outcome and various other parameters [4,5].

doi: 10.21276/SSR-IIJLS.2025.11.3.15

The burden of maternal complications remains a major concern, especially in low- and middle-income countries with limited resources and delayed access to timely interventions. Examining near-miss events allows healthcare providers to identify critical gaps in emergency obstetric care and understand real-world challenges. These cases reflect the existing system, revealing not only clinical but also logistical and systemic barriers that must be addressed to improve outcomes.

MATERIALS AND METHODS

Study Design and Setting- This was a longitudinal cross-sectional study conducted at a tertiary care center.

Inclusion Criteria- A total of 209 maternal near-miss cases were included in the study, as defined by the World Health Organization (WHO) criteria. All women who survived life-threatening complications and were admitted to the intensive care unit (ICU), regardless of gestational age, were analyzed. Inclusion criteria comprised those with severe maternal complications fulfilling one or more WHO near-miss criteria—clinical, laboratory, or management-based. Patients requiring life-saving interventions or ICU admission were also included, particularly where resource limitations prevented full laboratory confirmation.

Exclusion criteria- Women who experienced obstetric complications but did not fulfil any of the WHO near-miss criteria—clinical, laboratory, or management-based—were excluded from the study. Additionally, patients, who expired during management (i.e. maternal deaths) were not included in the near-miss analysis.

WHO Near-Miss Criteria Used- The WHO criteria for maternal near miss are categorized by organ system dysfunction and include:

Cardiovascular System
Clinical- Shock, cardiac arrest.
Laboratory- Severe hypoperfusion (lactate >5 mmol/L or >45 mg/dL), severe acidosis (pH <7.1).
Management- Use of continuous vasoactive drugs and cardiopulmonary resuscitation.

Respiratory System
Clinical- Acute cyanosis, gasping, severe tachypnea (>40 breaths/min), severe bradypnea (<6 breaths/min).
Laboratory- Severe hypoxemia (oxygen saturation <90% for ≥60 minutes or PaO_2/FiO_2<200).
Management- Intubation and mechanical ventilation are not related to anesthesia.

Renal System
Clinical- Oliguria unresponsive to fluids or diuretics.
Laboratory- Severe azotemia (creatinine ≥300 µmol/L or ≥3.5 mg/dL).
Management- Dialysis for acute renal failure.

Coagulation/Hematologic System
Clinical- Inability to form clots.
Laboratory- Severe thrombocytopenia (<50,000 platelets /mm^3).
Management- Massive transfusion of ≥5 units of blood or red cells.

Hepatic System
Clinical- Jaundice in the presence of preeclampsia.
Laboratory- Severe hyperbilirubinemia (bilirubin >100 µmol/L or >6.0 mg/dL).

Neurologic System
Clinical- Prolonged unconsciousness (>12 hours), stroke, status epilepticus, global paralysis.

Other Proxy Indicators- Hysterectomy following infection or hemorrhage was also considered a proxy for severe morbidity when definitive laboratory or clinical indicators were incomplete.

Limitations in WHO Criteria Application- Limitations in WHO Criteria Application- Due to the limited availability of certain laboratory investigations at the study centre, strict adherence to all WHO laboratory-based criteria was not always feasible. Therefore, by WHO recommendations, women who presented with severe maternal complications at baseline or who required critical interventions such as ICU care were also included as near-miss cases, even in the absence of full laboratory confirmation.

Statistical analysis- All collected data were entered and compiled using Microsoft Excel. Descriptive statistics were applied to summarize the findings. Results were expressed in terms of frequencies and percentages for categorical variables.

doi: 10.21276/SSR-IIJLS.2025.11.3.15

RESULTS

A high proportion of the near-miss cases were identified among socioeconomically and geographically disadvantaged subjects. 83.73% of the females belonged to rural families, whereas only 16.74% were from urban families, thus emphasizing the disproportionate prevalence of maternal complications among rural subjects.

Prompt access to specialist medical care is essential in the proper management of obstetric emergencies. Throughout the present study, 62 of the 209 women experienced delays in reaching the planned referral center. The most common reason for delays among this group was attributed to the patients themselves (64.5%), followed by transportation logistics delays (19.35%) and referral center delays (16.12%) (Table 1). The results indicate the necessity for enhanced community education and the effective creation of emergency transport infrastructures.

Table 1: Delays in reaching the referral centre

	Number (n=62)	**%**
Delay on the part of patient	40	64.5
Delay on the part of referral centre	10	16.12
Delay on the part of transport facility	12	19.35

The status of pregnancy at admission to the Intensive Care Unit revealed that 85.6% of the subjects were in the antenatal period. Among them, the most common category was primigravida, followed by second gravida and multigravida. The proportionate cases were less for postnatal (6.6%), post-abortal (2.3%), and post-cesarean (5.2%) cases (Table 2). Further, 52.6% of admissions were between 29 and 36 weeks of gestation, and 56% ended in live births. Late gestation (over 36 weeks) cases held 27.7%, second trimester (13–28 weeks) cases held 17.22%, while 2.3% of the cases were first trimester (less than 13 weeks) and posed a requirement for late antenatal care and early intervention.

Table 2: Pregnancy status at the time of admission

	Number (N=209)	**%**
Antenatal	179	85.6
Primigravida	103	
Second gravida	48	
Multigravida (>3)	28	
Post natal	14	6.6
Post abortal	5	2.3
Post caesarean	11	5.2

The classification of the case based on the World Health Organization's near-miss criteria identified that 169 out of 209 women had the clinical criteria of a near-miss event (Fig. 1). Nevertheless, 94 women were classified based on laboratory criteria (Fig. 2), and this emphasizes the challenge of extensive laboratory assessment in low-resource environments. Additionally, management-based criteria were also central to the classification process, especially for cases requiring advanced critical care management (Fig. 3).

doi: 10.21276/SSR-IIJLS.2025.11.3.15

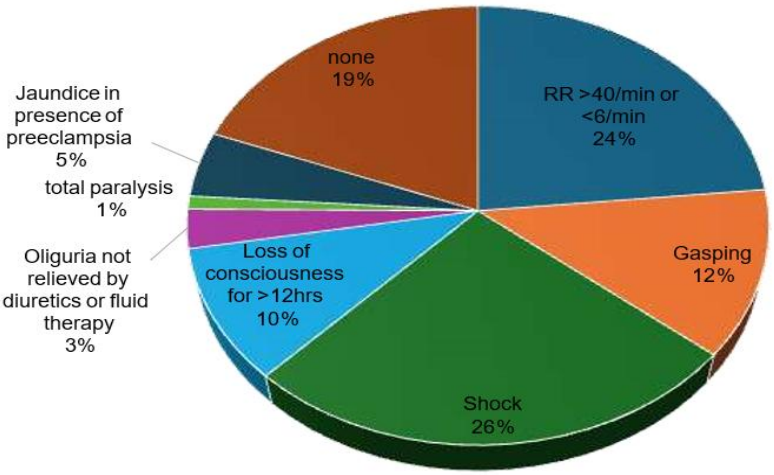

Fig. 1: Pie chart showing breakup of all the near misses according to clinical criteria

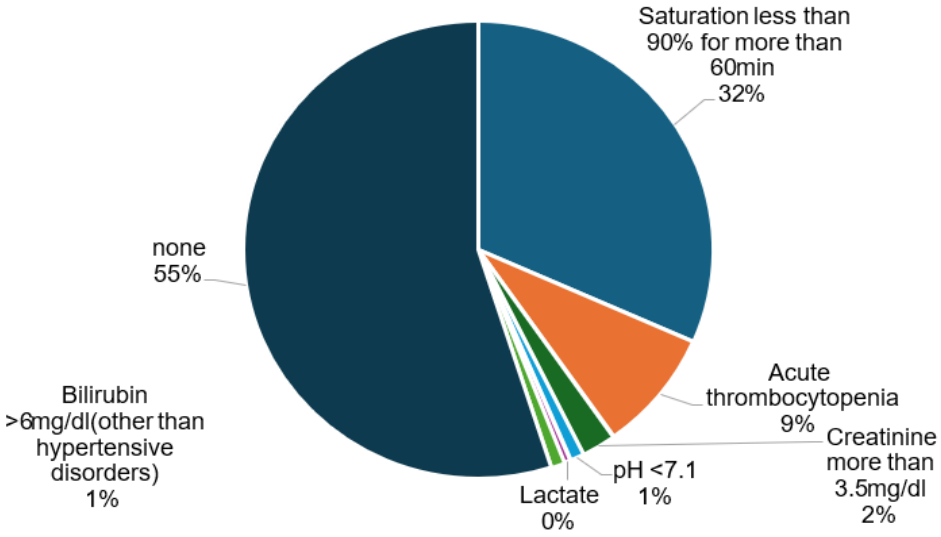

Fig. 2: Pie chart showing breakup of all the near miss cases as per laboratory based criteria

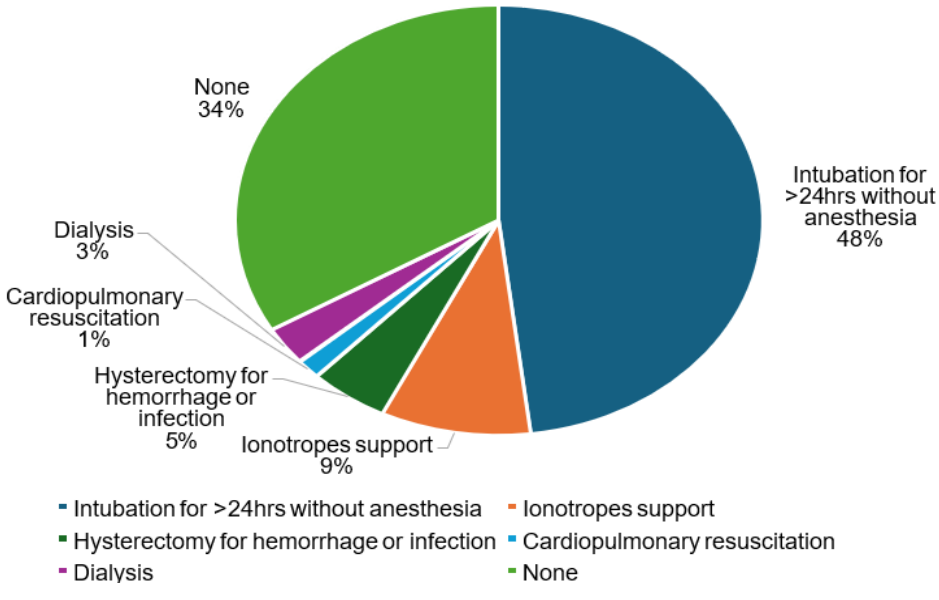

Fig. 3: Pie chart showing breakup of all the near miss cases as per management criteria

doi: 10.21276/SSR-IIJLS.2025.11.3.15

Maternal near-miss etiology uncovered hypertensive disorders as the leading category, with 74.16% of the cases. The leading forms were antepartum eclampsia (44.9%) and severe preeclampsia (11.48%). Hemorrhagic complications accounted for 22.4% of the total cases. Other etiologies included respiratory failure, hepatic failure, renal and cardiac complications, hematological disorders, neurological illness, and septicemia. Overlapping systemic involvement was common in most patients (Table 3).

Table 3: Describing all the near miss cases and percentages out of total near miss cases

Category	Condition	Number (n)	Percentage (%)
Hypertensive Disorders of Pregnancy	Total	154	74.16
	Antepartum eclampsia	94	44.9
	Severe preeclampsia	24	11.48
	Postpartum eclampsia	8	3.8
	HELLP syndrome	8	3.8
	Preeclampsia	6	2.8
	Impending eclampsia	5	2.3
Haemorrhagic Disorders of Pregnancy	Total	47	22.4
	Ectopic pregnancy	11	5.2
	Abruptio placenta	5	2.3
	Placenta previa	8	3.8
	Placenta accreta syndrome	5	2.3
	Postabortal haemorrhage	4	1.9
	Postpartum haemorrhage	7	3.3
	Gestational trophoblastic disease	1	0.47
	Uterine inversion or dehiscence	3	1.4
	Uterine rupture	3	1.4
Respiratory Disorders	Total	16	7.6
	Pleural effusion	2	0.95
	Pulmonary edema	11	5.26
	Lower respiratory tract infection	1	0.4
	Aspiration pneumonitis	2	0.95

doi: 10.21276/SSR-IIJLS.2025.11.3.15

Hepatobiliary Disorders	Coagulation disorder	0	0
	Severe hyperbilirubinemia	2	0.9
Renal Disorder	–	6	2.8
Cardiac Disorder	–	3	1.43
Haematological Disorders	Total	21	10.04
	Acute thrombocytopenia	18	8.6
	Severe anaemia	4	1.91
	Sickle cell disease	5	2.3
Neurological Disorders	Total	6	2.8
	Meningitis	1	0.47
	PRES (Posterior reversible encephalopathy syndrome)	5	2.3
Septicaemia	Total	3	1.43
	Septic abortion	2	0.9
	Puerperal sepsis	1	0.47

The mode of delivery among near-miss cases reflected varied clinical scenarios. Vaginal deliveries were the most common (59.33%), followed by caesarean sections (13.3%) and exploratory laparotomy (11.96%), mostly for ruptured ectopic pregnancies or uterine rupture. Suction and evacuation were done in 3.8% of cases, while 11.48% were delivered outside or not yet delivered during the study (Table 4).

Table 4: Mode of termination/maternal outcome

Mode of Delivery/Procedure	Number (n)	Percentage (%)
Vaginal delivery	124	59.33
Caesarean section	28	13.3
Exploratory laparotomy	25	11.96
Suction and evacuation	8	3.8
Not terminated/delivered outside	24	11.48

Foetal outcomes were assessed for 187 of the 209 cases, with preterm births (119) forming the majority. Among preterm births, 56 were live births, 36 were intrauterine deaths, and 31 were stillbirths. Term pregnancies resulted in 53 live births, 7 intrauterine deaths, and 3 stillbirths. Abortions accounted for 16 cases (Table 5). No fetal outcome was applicable in 32 cases due to ectopic or postnatal admission.

doi: 10.21276/SSR-IIJLS.2025.11.3.15

Table 5: Distribution of fetal outcomes among maternal near-miss cases

Foetal Outcome	Number (n)	Percentage (%)
Preterm		56.93
Live births	52	24.88
Intrauterine deaths	36	17.22
Stillbirths	31	14.83
Term		30.1
Live births	53	25.3
Intrauterine deaths	7	3.3
Stillbirths	3	1.4
Abortion	16	7.65

Interventions used to manage near-miss cases highlight the demand for critical care resources. Almost half (49.7%) required assisted ventilation, 39.23% were admitted to the ICU, and 8.13% underwent laparotomy. Dialysis was administered in 2.8% of patients, and one required a massive blood transfusion (Table 6).

Table 6: Interventions performed in maternal near-miss cases

Intervention	Number (n)	Percentage (%)
Assisted ventilation	102	49.7
ICU admission	75	39.23
Dialysis	6	2.8
Exploratory laparotomy	25	8.13
Massive transfusion	1	0.47

DISCUSSION

On evaluating our study majority of the cases were primigravida, 21-30 years of age, belonging to lower socioeconomic strata, living in rural areas and literate up to primary school. This statement not only favours the fact of early recovery in young and primigravids but also emphasises the need to boost the rural health setup to detect and manage any maternal health complication before it turns into a near miss. 110 cases, 52.6% had gestational age 29-36 weeks, which shows that the third trimester is the most frequent period for presentation with antepartum haemorrhage or hypertensive disorders of pregnancy, which comprise most of our study [6-8].

About 169 cases were classified by clinical criteria. 26.3% presented with shock, a presentation also observed in both hypertensive cases and normotensive cases, like placenta previa, etc. Only 23.5% presented with altered respiration because the respiratory rate defined in the WHO criteria is not inclusive of all acute cases presenting with dyspnoea. These cases are included only when saturation drops below 90%. Clinically diagnosed jaundice with preeclampsia has been considered a near-miss as it shows severity even in cases of mild rise in blood pressure, due to increased risk of DIC [9-12].

Among the 94 cases classified by laboratory criteria, 70% had saturation less than 90%, indicating that respiratory distress, particularly in hypertensive or sickle cell crisis patients, was a major mode of presentation. Although near-miss criteria include serum creatinine >3.5 mg/dl, there were cases with creatinine below this threshold but equally detrimental outcomes. 2.12% of cases had isolated hyperbilirubinemia, contributing to hepatobiliary dysfunction. There were two cases of hepatitis E with severe hyperbilirubinemia, one of which was managed conservatively without immediate termination of pregnancy, while the other was delivered preterm and discharged successfully. Results were much higher in other studies, such as Patankar *et al*. showing 13.34% of cases. This discrepancy is due to cases of jaundice not reaching the defined limit of 6 in our study, but still qualifying under jaundice with preeclampsia. Due to a lack of resources, only 0.4% of all near-miss cases were investigated with serum lactate levels. Lactate indicates the severity of multi-organ dysfunction. Only 0.95% of total cases could be labeled as severe

acidosis with arterial sample pH<7.1. This criterion for acidosis is not inclusive of all compromised cases, as both acidosis and alkalosis can lead to a presentation at tertiary centers [13,20-22].

On comparing the interventions applied, we found that 48% of cases required ventilatory support and intubation not related to anesthesia at ICU admission, whereas Ingole *et al.* [23] reported only 9.8% of cases needing assisted ventilation. Though 2.8% of patients were managed with non-invasive ventilation like BiPAP, this was not included under the management-based WHO criteria. 9% of patients needed inotropic support to maintain circulatory hemodynamics. Similar findings were reported by Ingole *et al.* [23] (8.8%) and Patel *et al.* [15] (9.8%). Inotropes played a key role in managing shock in post-abortal, postpartum hemorrhage, and eclamptic patients. Only 0.45% of cases had massive transfusions; this low percentage is due to the inclusion criterion of ≥5 transfusions, which led to limited data capture. Hysterectomy was the last resort for placenta accreta syndrome cases presenting in emergency hours with unstable vitals at a low-resource tertiary center.

The majority of cases in our study had hypertensive disorders of pregnancy i.e. 154 cases out of 209, i.e. 74.16%. On comparison to a study by C Purandare *et al.* [21] hypertensive disorders were only 26.5%, Mahajan *et al.* [18] reported 39% and Patel *et al.* [15] reported 41.0% cases.

The research identified 44.9% of hypertensive cases to be complicated by eclampsia, showing a higher tendency for such complications in Jabalpur and surrounding regions. Eight cases of postpartum eclampsia were reported, though comparative data are sparse. Even mild preeclampsia was categorized under near-miss when associated with jaundice. Severe preeclampsia accounted for 11.48% of all cases, lower than the 29.59% described by Podder et al. These cases often had acute complications such as acute kidney injury (three cases on dialysis), pleural effusion (four cases needing ventilatory support), and postpartum hemorrhage (two cases), possibly due to volume depletion. One postoperative referral case developed a rectus wall hematoma, which was promptly managed [14-17].

HELLP syndrome occurred in 3.82% of cases and was diagnosed after appropriate investigation. This was higher than the 0.7% reported by Almerie *et al.* [5] but lower than the 5.1% and 6.3% reported by Jjuuko *et al.* [19] and Anuradha *et al.* [22], respectively. Most HELLP syndrome cases were associated with antepartum eclampsia. One case was associated with severe preeclampsia and another with mild preeclampsia. Grading showed five grade 3, two grade 2, and one grade 1 case [19,22].

Obstetric hemorrhage was the second most common complication and occurred in 47 cases (22%). This aligns with findings by Ingole *et al.* [23] (30%) and Patel *et al.* [15] (21.4%). Among hemorrhagic cases, 5.2% were due to ectopic pregnancy, classically presenting with shock and hemoperitoneum. This may result from unawareness of the menstrual cycle or delayed perception of symptoms. Oladapo *et al.* [8] and Chonla *et al.* [24] documented 9.9% and 14.7% incidence of ectopic pregnancy, respectively. Additionally, 2.3% of cases were abruptio placentae and 3.8% were placenta previa, which classically presented with shock or acute thrombocytopenia. Patankar et al documented 12% for these combined, while Almerie *et al.* [5] documented 8.5% for placenta previa and 8.1% for abruption. In our study, abruptio placenta was most often associated with hypertensive disorders.

There was a rise in both unindicated and indicated cesarean sections due to increased placenta accreta cases, though the latter was rarely seen in other series. One case of gestational trophoblastic disease was treated emergently with suction evacuation. The uterine rupture occurred in 6.3% of cases, mostly due to inadequate antenatal care and delayed presentation of women with previous cesarean scars in advanced labor. Similarly, 6.3% of cases had acute uterine inversion with shock; two were referrals from peripheral centers with complete inversion and neurogenic shock, managed with repositioning and transfusions. One case required dialysis due to acute blood loss, but recovered well. A post-cesarean patient with severe preeclampsia developed an abdominal wall hematoma, which was managed promptly. Three cases were cardiac-related: two postpartum cardiomyopathy and one severe mitral regurgitation, diagnosed by echocardiography. Five antepartum eclampsia patients developed posterior reversible encephalopathy syndrome (PRES), a delayed but reversible neurological condition. Another patient with paralysis was later diagnosed with meningitis.

Septicemia was seen in 1.43% of cases—0.9% due to septic abortion and 0.47% due to puerperal sepsis. Patel *et al.* [15] described an incidence of 1.7%, while Ingole *et*

doi: 10.21276/SSR-IIJLS.2025.11.3.15

al. [23] and Mahajan *et al.* [18] reported higher rates of 9.5% and 6.9%, respectively. Four cases of sickle cell disease were identified by hematological studies. These were classified as near-miss due to associations with preeclampsia, hemolysis, or respiratory crisis. Sickle cell disease is more prevalent in the Jabalpur region, explaining its higher presence in our cohort.

Regarding maternal outcomes, 59.33% delivered vaginally and 13.3% by cesarean section. Exploratory laparotomy was performed in 11.96% and suction evacuation in 3.8% of cases. Laparotomy needed in 8.13% of cases was crucial in managing ruptured ectopic pregnancies, uterine rupture, and placenta accreta. This is much higher than the 0.9% reported by Ingole et al. Cesarean section was critical in emergencies like placenta previa with shock, where early intervention saved both mother and fetus. Preterm delivery was the most common fetal outcome. In most cases, early termination was necessary to prevent worsening maternal conditions, especially in cases of placenta previa, antepartum eclampsia, or severe preeclampsia.

CONCLUSIONS

The study highlights that near-miss maternal cases are primarily made up of young, rural, socioeconomically deprived primigravidas, the most common etiology being hypertensive disorders, i.e., antepartum eclampsia, and then hemorrhagic complications. Early multidisciplinary management, despite resource constraints in resource-poor settings, was dramatic in outcome. Patient-related referral delays suggest the imperative need for improved community education, effective emergency transport services, and improved antenatal care for early diagnosis and management. Clinical training, infrastructural development, and planned referral systems can prevent avoidable maternal morbidity and mortality and provide equitable access to life-saving obstetric care in underserved areas.

CONTRIBUTION OF AUTHORS

Research concept- Ritambhara Purohit, Dolly Maravi
Research design- Ritambhara Purohit
Supervision- Priyadarshini Tiwari
Materials- Ritambhara Purohit, Dolly Maravi
Data collection- Ritambhara Purohit
Data analysis and Interpretation- Priyadarshini Tiwari
Literature search- Ritambhara Purohit, Dolly Maravi
Writing article- Ritambhara Purohit
Critical review- Priyadarshini Tiwari
Article editing- Ritambhara Purohit
Final approval- Priyadarshini Tiwari

REFERENCES

[1] World Health Organization. Evaluating the quality of care for severe pregnancy complications: the WHO near-miss approach for maternal health. Geneva: WHO; 2011.
[2] Roopa PS, Shailja V, Lavanya R, Pratap K, Murlidhar VP, et al. Near miss obstetric events and maternal deaths in a tertiary care hospital: an audit. J Preg., 2013; 2013: 5.
[3] Mantel GD, Buchmann E, Rees H, Pattinson RC. Severe acute maternal morbidity: a pilot study of a definition for a near miss. Br J Obstet Gynaecol., 1998; 105(9): 985–90.
[4] Say L, Souza JP, Pattinson RC. Maternal near miss—towards a standard tool for monitoring quality of maternal health care. Best Pract Res Clin Obstet Gynaecol., 2009; 23(3): 287–96.
[5] Almerie Y. Maternal near miss: a concept and its applications in safe motherhood. Damascus: University of Damascus; 2010.
[6] Pattinson RC, Hall M. Near misses: a useful adjunct to maternal death enquiries. Br Med Bull., 2003; 67: 231–43.
[7] Souza JP, Cecatti JG, Faundes A, Morais SS, Villar J, et al. Maternal near miss and maternal death in the WHO 2005 global survey on maternal and perinatal health. Bull World Health Organ., 2010; 88(2): 113–9.
[8] Oladapo OT, Sule-Odu AO, Olatunji AO, Daniel OJ. Near-miss obstetric events and maternal deaths in Sagamu, Nigeria: a retrospective study. Reprod Health, 2005; 2: 9.
[9] Verschueren KJ, Kodan LR, Paidin RR, Samijadi SM, Rijken MJ, et al. Applicability of the WHO maternal near-miss tool: a nationwide surveillance study in Suriname. J Glob Health, 2020; 10(2): 020429.
[10] Nelissen E. Maternal near miss in low-resource settings. Amsterdam: University of Amsterdam; 2013.
[11] van den Akker T, Beltman J, Leyten J, Mwagomba B, Meguid T, et al. The WHO maternal near miss approach: consequences at Malawian district level. PLoS One, 2013; 8(1): e54805.

doi: 10.21276/SSR-IIJLS.2025.11.3.15

[12]Sharma C, Yadav A, Mehrotra M, Saha MK, Tambe RR. Maternal near miss: unraveling our experience in the tertiary care hospital of Andaman and Nicobar Islands. Indian J Community Med., 2021; 46: 35–39.

[13]Magar JS, Rustagi PS, Malde AD. Retrospective analysis of patients with severe maternal morbidity receiving anaesthesia services using 'WHO near miss approach' and the applicability of maternal severity score as a predictor of maternal outcome. Indian J Anaesth., 2020; 64(7): 585–93.

[14]Podder D, Paul B, Biswas SC, Dasgupta A, et al. Predictors and pathway of maternal near miss: a case-control study in a tertiary care facility in Kolkata. Indian J Community Med., 2022; 47: 555–61.

[15]Patel P, Nagar JK, et al. Study of maternal near miss as an indicator of quality of obstetrics care in tertiary care centre: a prospective study. Int J Reprod Contracept Obstet Gynecol., 2023; 12: 2139–44.

[16]African Population and Health Research Center. Maternal health in Nigeria: a situation update. Nairobi: APHRC; 2016. Available from: https://aphrc.org/publication/maternal-health-in-nigeria-a-situationupdate/.

[17]Pandit R, Jain V, Bagga R, Sikka P. Using near miss model to evaluate the quality of maternal care at a tertiary health-care center: a prospective observational study. J Obstet Gynaecol India, 2019; 69(5): 405–11.

[18]Mahajan M, Soni A, Sharma CD, Moudgil S. A prospective observational study on maternal near miss cases in a rural teaching hospital. Int J Reprod Contracept Obstet Gynecol., 2021; 10: 4448–53.

[19]Jjuuko M, Lugobe HM, Migisha R, Nabunya B, Ninsiima G, et al. Maternal near miss as a predictor of adverse perinatal outcomes: findings from a prospective cohort study in southwestern Uganda. BMC Pregnancy Childbirth, 2024; 24: 42.

[20]Patankar A, Uikey P, Rawlani N. Severe acute maternal morbidity (near miss) in a tertiary care center in Maharashtra: a prospective study. Int J Sci Stud., 2016; 4(1): 134–40.

[21]Purandare C, Bhardwaj A, Malhotra M, Bhushan H, Chhabra S, et al. Maternal near-miss reviews: lessons from a pilot programme in India. BJOG, 2014; 121 Suppl 4: 105–11.

[22]Anuradha J. A prospective study on maternal near miss cases at a tertiary care hospital in Visakhapatnam. IOSR J Dent Med Sci., 2017; 16(11): 31–35.

[23]Ingole S, Chaudhary SN. Maternal near miss events in tertiary care hospital: a retrospective observational study. J Clin Diagn Res., 2021; 15: 4.

[24]Chonla A, Gupta S. Maternal near miss in a tertiary care hospital: a retrospective and prospective observational study. Indian J Obstet Gynecol Res., 2023; 10(3): 289–93.