

# Original Article

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# STUDY OF MATERNAL NEAR MISS IN A TERTIARY CARE CENTER

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## OPEN ACCESS

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#### **ABSTRACT**

**Background**: Maternal near miss is an event when we are about to lose a pregnant women means the mother is about to die but with all efforts we saved her.In my study I emphasized on the most common situations which put a mother in these dreadful emergencies. This study focuses on to identify and analyse the causes occurred due to obstetric reasons.

**Methods**: It is a prospective cohort study done at LLRM Medical College and study period was from october1,2022 to March30,2023 that is 18 months and sample size was 100.

**Results:** We included 100 patients and most of them are in in age 26-30 years(72%) ,more parimipara(60%), the leading cause of near is hypertensive disorders of pregnancy mainly eclampsia in 27% of patients and more in low educational status and significant no. of babies died in utero and many babies needed NICU care.

Keywords: Maternal Near Miss, Maternal Morbidity, Near Miss Audit.

#### INTRODUCTION

In the realm of healthcare literature, the term "Near Miss" denotes a critical, life-threatening condition that, while not resulting in death, carried the potential for fatal consequences. A Near Miss case involves an individual, typically a woman, who would have succumbed to the ailment if not for the comprehensive care she received. Examining near miss cases not only furnishes valuable insights into the burden of diseases but also sheds light on the quality of care administered to the mother.

The cornerstone for evaluating maternal health services in regions grappling with high maternal mortality rates is the maternal death audit.<sup>2</sup> Regrettably, a significant proportion of maternal deaths occur in unanticipated emergency situations, often presenting late to the hospital. Consequently, relying solely on isolated maternal death audits proves grossly insufficient. Maternal near miss situations closely parallel the root causes of maternal death. Therefore, scrutinizing these cases, referred to as maternal near miss (MNM) or severe acute maternal morbidity (SAMM), has proven instrumental in assessing the effectiveness of maternal health services.<sup>3</sup> Conducting audits on these cases, termed Near Miss Audit (NMA), enhances our understanding of the

determinants of maternal morbidity and facilitates the identification of areas exhibiting substandard care. Our study aims to underscore the determinants of maternal near miss, with the ultimate goal of contributing significantly to the implementation of measures geared toward reducing maternal morbidity and mortality. <sup>4</sup>

# Aim and Objectives Primary outcomes:

1.Leading cause of maternal near miss

## Secondary outcome:

1. What is the sequelae of the condition that led to the near miss.

#### **Neonatal outcome:**

- 1. Condition of baby born to the patient
- 2. Admission rate of their babies

## **METHODOLOGY**

**DESIGN OF THE STUDY: Prospective Cohort study** 

**STUDY POPULATION:** Critically ill pregnant, laboring, post-partum and post abortal women admitted in OBS AND GYNAE ICU during the period of October 1,2022 to March,30,2024

### **Methods Of Study**

- Thorough and detailed history of present and past medical illness.
- Routine investigations including coagulation profile/PIH investigations/Cardiac Evaluation
- General and systemic examination monitors: ECG, Heart rate, BP, Pulse oximetery.

#### **Observations**

Table 1: Age group-wise distribution of number of patients

Age Range	<b>Number of Patients</b>	Percentage
26-30	72	72.0%
20-25	14	14.0%
31-35	13	13.0%
>35	1	1.0%

Table 2: Distribution of Maternal Near Miss by Parity

Parity	Number of MNM Cases	Percentage (%)
P1	60	60.00%
P2	20	20.00%
P3	12	12.00%
>P3	8	8.00%

Table 3: Demographics of Patients(n=100)

<b>Education level</b>	Number of Patients	Percentage of Total Cases
Illiterate	12	12.00%
5th passed	3	3.00%
8th Passed	11	11.00%
10th passed	22	22.00%
12th passed	30	30.00%
Graduated	22	22.00%

**Table 4: Delivery Information** 

Mode of delivery	No. of patients	% of patients
Cesarian	63	63%
Obstetric hysterectomy	7	7%
Exploratomy Laparotomy	6	6%
Post partum	7	7%
Suction & evacuation	1	1%
Total	100	100%

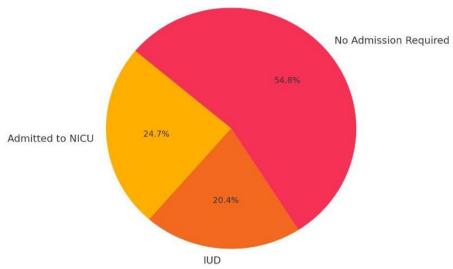
**Table 5: Pregnancy Overview** 

POG Range	Common Diagnoses	Number of Patients	% of the Patients
<20 Weeks	Septic Abortion	1	1.00%
	Ectopic Pregnancy	6	6.00%
>20 Weeks	Eclampsia	27	27.00%
(Max near misses in between31-40 weeks)	Severe Anaemia	12	12.00%
	HELLP Syndrome	17	17.00%
	Hepatic Encephalopathy	1	1.00%
	Rupture uterus	6	6.00%
	Thrombocytopenia	2	2.00%
	Placenta Previa	3	3.00%
	Placenta Accreta	4	4.00%
	Haemorrhage	8	8.00%

Table 6: Complications during ICU Stay and Sequelae

S.No	Complication	No. of Patients	%
1	Blood and Blood Product Transfusion		
	PRBC	49	49%
	FFP	43	43%
	Platelets	21	21%
2	AKI		
	Dialysis Not Needed	0	0%
	Dialysis Needed	9	9%
3	O2 Needed	31	31%
4	Intubation Needed	45	45%
5	Vasopressor Support	4	4%
6	MgSO4 Given	31	31%





# 7. Admission status of babies

# **RESULTS**

The study shows that out of 100 cases of near miss, the 72% patienst belongs to age group of 26-30 years and we found that maximum (Table1).number of near miss events occurred in primipara patients contributing 60% of patients while rest 40% contributed by multipara patients (Table2).

Education wise distribution shows that maximum patients were of lower educational status and out of which 30% were 12<sup>th</sup> passed and 12% were illiterate(Table3).

Mode of delivery was cesarian section in maximum cases done in 63% of patients while obstetric hyterectomy done in 7% of patients and exploratory laparotomy done in 6% of patients (Table 4).

In majority of cases the cause of near miss was Eclampsia 27% followed by HELLP Syndrome 17% followed by severe anemia which was 12%(Table5). A majority of patients required transfusuion of blood and blood products in which PRBC was transfused in 49% of patients and FFP in 43% of patients and platlets in 21% of patients.

9% patients went into Acute Kidney Injury and required dialysis and 45% patients needed intubation and 31% patients was put on simple oxygen mask. Vasopressor support needed by 4% of patients and Magnesium Sulfate was given to 31% of patients (Table6). Out of 83 babies 23% were admitted to NICU and 18% were IUD(Pie chart).

#### DISCUSSION

The present study was conducted with the aim of thoroughly assessing maternal near misses within our institution. The primary objectives were to determine the maternal near miss rate and identify the leading causes of these near misses, assess the duration mothers remained in critical condition, and identify the best practices for managing these incidents in a resource-limited setting. For secondary outcomes, the study focused on understanding the sequelae of conditions leading to near misses. Additionally, neonatal outcomes were closely monitored. This comprehensive approach aims to provide insights into both maternal and neonatal well-being following near miss events, which is crucial for improving healthcare protocols and outcomes in similar contexts.

In our study ,We have seen the age distribution which was showing that most of the patients were in younger age group and maximum(72%) were 20-25 years and 13% in between 21-35 years and only 1% patient was below 35 years. Similar results was shown in a study done by **Thakur A et al**<sup>5</sup> in 2022

In our study, the demographic profile of the patients based on education level showed a significant variance, with 30% having completed 12th grade, and 22% each having completed 10<sup>th</sup> grade,12% who were illiterate. Such diversity in education levels may influence healthcare accessibility, understanding, and engagement with prenatal care, which are critical factors in managing pregnancy complications.

Eclampsia was the most common condition among the later stages of affecting 27% of patients, followed by HELLP syndrome and severe anaemia, impacting 17% and 12% of the cohort, respectively. These conditions underline the severe health risks pregnant women face, particularly in the later stages of pregnancy. Similar results were shown by a retrospective observational study done by **Thakur A et al**<sup>6</sup> in 2023.

Regarding delivery methods, our study shows an overwhelming preference for Caesarean sections, which is 82%, This high rate of surgical intervention could be reflective of the complications noted, necessitating Caesarean sections to mitigate risks to both mother and child. The preference for Caesarean delivery over vaginal birth, which comprised only 18% of cases, might also suggest a clinical inclination towards more controlled delivery environments in the face of high-risk pregnancies documented. A case control study done by **Chhabra P et al**<sup>7</sup>in year 2020 also showed similar results

Parity showed that primiparous women had higher rates of near- miss. In contrast, multiparous women had a higher mortality index.

In our study we found that ,there were 92 Near miss deliveries out of which 73 were live birth and 19 were IUD and 8 babies were expired when they were admitted in NICU. A retrospective study was done by **Preeti F etal.**8In 2022, showed similar results.

## **CONCLUSION**

- Common pregnancy complications are more frequent in the later gestational stages, with conditions like eclampsia and HELLP syndrome being particularly prominent.
- Caesarean sections are highly prevalent, reflecting a strong preference or necessity for this delivery method within the cohort.
- Neonatal outcomes vary, some were IUD, with some newborns requiring intensive care, while others are healthy at birth.

### **Declaration:**

Conflicts of interests: The authors declare no conflicts of interest. Author contribution: All authors have contributed in the manuscript.

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