Journal of Neonatal Surgery
ISSN(Online): 2226-0439
Vol. 14, Issue 27s (2025)
https://www.jneonatalsurg.com

OPEN ACCESS

Outcome Of Maternal Near Miss Cases In A Tertiary Care Hospital – A Retrospective Study

Dr. Gummallapu Akshaya[1], Dr. Sheela S R[2], Dr. Aashrita[3]

[1]3rd year PG, Department of OBG, Sri Devaraj URS Medical College, Kolar, India
Email ID: akshayachenchu@gmail.com
[2]Professor, Department of OBG, Sri Devaraj URS Medical College, Kolar, India
Email ID: drsrsheela@gmail.com
[3]Associate Professor, Department of OBG, Sri Devaraj URS Medical College, Kolar, India
Email ID: aash.tho@gmail.com

Cite this paper as: Dr. Gummallapu Akshaya, Dr. Sheela S R, Dr. Aashrita, (2025) Outcome Of Maternal Near Miss Cases In A Tertiary Care Hospital – A Retrospective Study. *Journal of Neonatal Surgery*, 14 (27s), 99-104.

1. INTRODUCTION

Maternal Mortality Ratio (MMR) of India for the period 2018-20, as per the latest report of the national Sample Registration system (SRS) data is 97/100,000 live births, declining by 33 points, from 130/ 100,000 live births in 2014-16. According to the definition of a maternal near-miss (MNM) case, "a woman who almost died but survived a complication(s) that occurred within 42 days of the pregnancy's termination or during childbirth or pregnancy"[2]. Maternal mortality is a major health concern worldwide and is also an important indicator of maternal health. Approximately 800 maternal death occur every day worldwide and 50 million or more experience morbidities every year[1]. Maternal near-miss has emerged as an adjunct to the investigation of maternal deaths as the two represent similar pathological and circumstantial factors leading to severe maternal outcomes. As near-miss cases are alive to directly inform on problems and obstacles that had to be overcome during the process of healthcare, they provide useful information on the quality of healthcare at all levels.[3]. The World Health Organization recently published criteria based on markers of management and organ dysfunction, which would enable systematic data collection on near miss and development of summary estimates.[4] Maternal mortality is a key indicator demonstrating the quality of maternal health services offered in the country[5].

Maternal Near Miss cases are critical indicators of the quality of maternal healthcare, there are several lacunae in our understanding of these cases that need to be addressed. Firstly, one significant gap lies in the standardization of MNM definitions and criteria. Currently, there is no universally accepted definition or criteria for identifying MNM cases. This lack of standardization hampers efforts to accurately measure and compare MNM rates across different settings, hindering the development of effective interventions to prevent maternal morbidity and mortality. Additionally, there is limited research focusing specifically on MNM cases compared to maternal mortality. As a result, there is insufficient understanding of the underlying factors contributing to MNM cases and how they differ from those leading to maternal deaths. While the immediate survival of the woman is crucial, understanding the potential long-term health consequences, such as chronic health conditions or disabilities, is equally important for providing comprehensive maternal healthcare and support. Another lacuna is the lack of comprehensive and standardized reporting systems for MNM cases. Many healthcare facilities do not have robust systems in place to systematically identify, document, and analyze MNM cases, leading to underreporting and incomplete data. This hampers efforts to accurately assess the burden of MNM and develop targeted interventions to address the underlying causes. Factors such as socioeconomic status, education level, access to healthcare, and cultural beliefs can significantly impact a woman's risk of experiencing MNM. Understanding and addressing these social determinants are essential for developing effective strategies to reduce maternal morbidity and mortality. In conclusion, addressing the lacunae in our understanding of maternal near miss cases is crucial for improving maternal healthcare outcomes worldwide. Standardizing definitions and criteria, prioritizing research on MNM cases, collecting comprehensive data on long-term outcomes, strengthening reporting systems, addressing social determinants, and amplifying the voices of women who have survived MNM are essential steps towards achieving this goal. By filling these knowledge gaps, we can develop more effective strategies to prevent and manage MNM cases, ultimately reducing maternal morbidity and mortality rates globally.

2. MATERIAL AND METHODS

A retrospective study was conducted in Department of Obstetrics and Gynaecology at RLJH, Kolar from june 2022 –May 2024. All obstetric cases were thoroughly searched for near miss. About 54 cases were qualified as near miss cases during the study period. Clearance from institutional ethics committee was obtained before the study was started. Permission from Medical Superintendent was obtained before the study was started in order to study the medical records. Near miss cases as per WHO near miss criteria admitted to HDU/ICU constituted the study sample.

The sample size was estimated by using the proportion of hemodialysis required in maternal near miss subjects was 4.8% from the study by Sunanda N et al.

The data regarding patient characteristics including maternal age, gestational age, parity, mode of delivery, risk factors, lifesaving intervention were studied. Other variables that were included ICU stay and maternal complications. Other influencing factors including educational status, lack of awareness, lack of transport and delay in referring were also considered.

The data thus obtained was compiled and analyzed using statistical package for social services (ver 20). The data was presented as frequencies and percentages.

Ethical Considerations

Informed consent was obtained from all participants, either at the time of admission or retrospectively through follow-up when required. Confidentiality of all patient information was strictly maintained. The study protocol was reviewed and approved by the Institutional Ethics Committee of Sri Devaraj Urs Academy of Higher Education and Research, Kolar.

3. RESULTS

Table 1. Age group of Near miss cases

Age group	Frequency	Percent
18 – 24 years	22	40.7
25 – 35 years	17	31.5
> 35 years	15	27.8
Total	54	100

About 40.7% of the cases belonged to 18 – 40 years of age group.

Table 2. Parity of Near miss cases

Parity	Frequency	Percent
Primi	28	51.9
Multi	26	48.1

About 51.9% of the cases in this study were primigravida.

Table 3. Gestational age of Near miss cases

Gestational age	Frequency	Percent
Less than 24 weeks	5	9.3
24 – 28 weeks	11	20.4
More than 28 weeks	38	70.4
Total	54	100

The gestational age of 70.4% of the cases was more than 28 weeks.

Table 4. Mode of delivery of Near miss cases

Mode of delivery	Frequency	Percent
Abortion	4	7.4
LSCS	26	48.1
NVD	19	35.2
Uterine rupture and exploratory laparotomy	5	9.3
Total	54	100

About 35.2% of the cases had normal vaginal delivery and 48.1% of the cases had undergone LSCS.

Table 5. Education of Near miss cases

Education	Frequency	Percent
Primary	11	20.4
Intermediate	13	24.1
Secondary	26	48.1
Degree	4	7.4
Total	54	100

About 48.1% of the cases in this study had undergone education up to secondary education.

Table 6. Other underlying factors of Near miss cases

Other underlying factors	Frequency	Percent
Delay in referral	19	35.2
Lack of awareness	26	48.1
Lack of transport	9	16.7
Total	54	100

Lack of awareness was the main other underlying cause of near miss cases.

Table 7. Maternal morbidity of Near miss cases

Maternal morbidity	Frequency	Percent
Anaemia	5	9.2
Cardiac disease	10	18.5
Hemorrhage	11	20.3
Hypertension	18	33.3
Renal disease	5	9.2
Respiratory disease	3	5.5

Sepsis	2	3.7
Total	54	100

About 33.3% of the cases in this study had hypertension and 20.3% of the cases had Hemorrhage.

Table 8. Lifesaving intervention of Near miss cases

Lifesaving intervention	Frequency	Percent
Blood transfusion	27	50
Exploratory laparotomy	6	11.1
Hemodialysis	7	13.0
Inotropic support	9	16.6
Peripartum hysterectomy	5	9.3
Total	54	100

About 50 % of the cases had blood transfusion and 16.6% of the cases had inotropic support

Table 10. Number of blood products transfusion

NO OF BLOOD TRANSFUSIONS	Frequency 27	Percent
Packed cell volume	27	100
Platelets	11	40.7
FFP	14	51.8
Total	27	100

Table 10. Number of days of ICU stay of Near miss cases

Stay in ICU	Frequency	Percent
1-2days	26	48.1
3-5 days	18	33.3
5-10 days	10	18.5
Total	54	100

About 48.1 % of the cases had ICU admission for 1-2 days in this study.

Table 12. Fetal outcome

Fetal outcome	Frequency	Percent
Abortion	5	9.2
IUD or Still birth	15	27.7
Mother side	16	29.6
NICU admission	18	14.8
Total	54	100

About 29.6% of the fetus in this study were given mother side and mortality was present in 27.7% of the cases.

4. DISCUSSION

This study was undertaken to study the maternal outcome of near missed cases in a tertiary care center in Karnataka. This study had shown that, age group of 18 to 24 years old accounted for about 40.7% of the cases. A study by Sunanda et al reported that, most of the cases were in age group of 25 – 35 years.[1] Maternal near miss cases usually occur in cases with advancing age.[8] Primigravida accounted for about 51.9% of the cases in our study. Seventy-four percent of the cases had gestational ages greater than 28 weeks. In contrary to these results, Sunanda et al reported that, increased parity was risk for maternal near miss cases.[1] Koski – Rahikkala also reported that increased parity results in maternal near miss cases.[9]

A normal vaginal delivery occurred in about 35.2% of the cases, while LSCS was performed in 48.1% of the cases. A study by Sunanda et al noted higher rates of cesarean section than the normal deliveries.[1] This could be due to severe morbidity and urgency for resolution of gestation. Hypertensive disorders of pregnancy are the primary determinants and thus may increase the number of cesarean sections.[10, 11]

About 48.1% of the cases in our study had undergone education up to secondary education. The primary other underlying cause of near-miss incidents was ignorance. Lack of education is often reported as major cause of morbidity. Delay in diagnosis, problems with transport and irrational utilization of the resources can increase the morbidity among the pregnant women.[12]

In this study, about 20.3% of the cases had hemorrhage, while 33.3% of the cases had hypertension. In hypertension about 50% cases are eclampsia, in haemorrhage 63.3% of the cases had postpartum haemorrhage .

Inotropic support was used in 16.6% of instances, while blood transfusions were used in about 50% of cases. FFP was used in 51.8% of instances, packed cell volume was used in all cases, and platelets were used in 40.7% of cases. In this study, approximately 48.1% of the individuals required 1-2 days in the intensive care unit. In this study, about 29.6% of the fetuses were given mother side, and 27.7% of the instances had death.

5. CONCLUSION

- Education to the mothers, ASHA workers,field workers about the ANC vists, iron and calcium intake.
- Early identification of high risk pregnancies and follow up should be done in teritary care center.
- Early diagnosis and proper management of the maternal near miss cases plays important role in safety of both mother and child.

A multidisciplinary approach can ensure the safe pregnancy outcome.

REFERENCES

[1] Sunanda N, Sudha R, Impana M. Analysis of maternal near miss cases in a tertiary care hospital. International Journal of Reproduction, Contraception, Obstetrics and Gynecology.May 2023; 12(5):1248-1252.

[2] Thakur, Anita, et al. "Maternal near miss: a surrogate indicator of obstetrics care." *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, vol. 12, no. 6, June 2023, pp. 1744-45.

[3] Lewis PF, Gundaiah B, Bavdekar NB. Analytical Study of Near-miss Cases at Tertiary Care Center. Journal of South Asian Federation of Obstetrics and Gynaecology. 2023 Sep 16; 15(4):440-4.

[4] Chhabra P. Maternal near miss: an indicator for maternal health and maternal care. Indian Journal of Community Medicine. 2014 Jul 1; 39 (3):132-7.

[5] Kulkarni R, Kshirsagar H, Begum S, Patil A, Chauhan S. Maternal near miss events in India. Indian Journal of Medical Research. 2021 Oct 1; 154 (4):573-82.

[6] Koblinsky M, Chowdhury ME, Moran A, Ronsmans C. Maternal morbidity and disability and their consequences: neglected agenda in maternal health. *J Health Popul Nutr*. 2012;30(2):124-130.

[7] Visi V, Akoijam BS. A Review of Maternal Near Miss Cases in Selected Hospitals in North-East India. *Indian J Community Med*. 2021;46(3):421-424.

[8] Aoyama K, Pinto R, Ray JG, Hill AD, Scales DC, Lapinsky SE, et al. Association of maternal age with severe maternal morbidity and mortality in Canada. JAMA Network Open. 2019;2(8):e199875.

[9] Koski-Rahikkala H, Pouta A, Pietiläinen K, Hartikainen AL. Does parity affect mortality among parous women? J Epidemiol Community Health. 2006;60(11):968-73.

[10] Souza JP, Cecatti JG, Parpinelli MA, Serruya SJ, Amaral E. Appropriate criteria for identification of near-miss maternal morbidity in tertiary care facilities: a cross sectional study. BMC Pregnancy Childbirth. 2007;7(1):1-8.

[11] Vandana, Krishnaswamy P. A prospective study of severe acute maternal morbidity and maternal near miss in a tertiary care hospital. J ObstetGynecol India. 2022;72(1):19-25.

[12] Karlsen S, Say L, Souza JP, Hogue CJ, Calles DL, Gülmezoglu AM, et al. The relationship between maternal education and mortality among women giving birth in health care institutions: analysis of the cross sectional WHO Global Survey on Maternal and Perinatal Health. BMC Public Health. 2011;11:1-10.