Original Research Paper

Volume - 13 | Issue - 02 | February - 2023 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Obstetrics & Gynaecology

MATERNAL NEAR MISS: AN INDIAN TERTIARY CARE CENTRE AUDIT

Dr. P. Himabindhu	MD. (H.O.D.) Dept of OBG, SMC Vijayawada, AP.
Dr. R. Sowjanya	MD.DGO (Associate Professor), Dept of OBG, SMC Vijayawada, AP
Dr. M. Ananda Kumari*	MS (Associate Professor). *Corresponding Author
Dr V Aruna	MD.(Professor), Dept of OBG, SMC Vijayawada, AP
Dr. L. N. Sai Pratyusha	MS , Dept of OBG, SMC Vijayawada, AP
Dr. B. Amrutha	PG, Dept of OBG, SMC Vijayawada, AP

ABSTRACT **BACKGROUND:** Despite advances in medical sciences and increased awareness of measures for safe child birth, unacceptably high maternal morbidity and mortality continues in developing countries like India. Ours being a tertiary care centre, draws a lot number of high risk pregnancies and referrals. By auditing the near miss cases2 i.e., a critically ill pregnant or recently delivered woman who was on the verge of death but survived a problem during pregnancy, childbirth, or within 42 days of the pregnancy's termination, we aim to identify the causes, factors leading to near miss2 and the management given to near miss2 and maternal deaths. **AIMS AND OBJECTIVES:** The present study aims to determine the magnitude, as well as to identify the pattern of Maternal Near Miss2 (MNM), at Siddhartha Medical College, Vijayawada, during the study period of two years. **OBJECTIVES:** To analyse 1)Adverse events leading to a maternal near-miss2, 2) Disorders underlying these cases, 3)Sociodemographic factors and 4)Contributing factors **METHODOLOGY:** A hospital based retrospective observational study to assess the frequency and nature of maternal near miss2 events among the obstetric cases managed at Siddhartha Medical College, Vijayawada over a period of two years. **RESULTS:** The following are the major causes identified leading to maternal near miss2 during our study Severe Eclampsia 17%, Post-partum Haemorrhage 17%, Pulmonary Edema due to severe pre eclampsia3 9%, Antepartum Eclampsia 9%, HELLP 9%, Ruptured ectopic pregnancy 7%, Cardiac failure 7%, Postpartum Eclampsia 7%, Imminent Eclampsia 4%, Abruption 4%, Rupture uterus 2%. In our study Maternal near miss2 ratio incidence: 0.0254, Severe maternal outcomes ratio : 3, Maternal near miss2 to mortality ratio: 0.433 **CONCLUSION:** We observed in majority of the cases level 1 and level 2 delays in reporting to our institution.

KEYWORDS : Audit[1], Maternal near miss[2], Pre eclampsia[3], Severe acute maternal morbidity[4]

INTRODUCTION:

As advances in medical sciences and increased awareness of measures for safe child birth, unacceptably high maternal morbidity and mortality continues in developing countries like India. Ours being a tertiary care centre, draws a lot number of high risk pregnancies and referrals. By auditing the near miss2 cases i.e., survivors of severe acute maternal morbidity4 who survived a complication that occurred during pregnancy, child birth or within 42 days of termination of pregnancy, we aim to identify the causes, factors leading to near miss2 and the management given to near misses and maternal deaths. Severe acute maternal morbidity4 is a life-threatening condition that can result in a near-miss with or without morbidity or fatalities One of the most important variables used to assess maternal health is maternal mortality. Despite a 47 per cent reduction in maternal fatalities worldwide since 1990, the number of maternal deaths in underdeveloped nations remain high. The global maternal death rate is 210 per 100,000 births, whereas the rate in poor countries is over 240, compared to 14 per 100,000 in developed countries. India has also seen a drop-down, from 398 in 1997-1998 to 113 in 2016-2018, per 100,000 births. One of the Sustainable Development Goals (SDGs), set to be fulfilled by 2030, is to reduce maternal mortality by 2030 to less than 70 per 100,000 live births. Identifying predictors of maternal near-misses might help to achieve the global goal of reducing maternal mortality in one way or another.

MATERIALS AND METHODS:

A hospital based retrospective observational study to assess the frequency and nature of maternal near miss events among the obstetric cases managed at Siddhartha Medical College, Vijayawada over a period of two years.

There are several criteria to define near miss, but in 2009, WHO came up with a comprehensive criterion (which included clinical, laboratory and management-based criteria) for identification of near miss. In this study, all the maternal near miss cases which met the comprehensive criteria of WHO from November 2019 to October 2021 were included.

WHO INCLUSION CRITERIA

For identification of a MNM cases the following criteria (minimum three from each category) must be met with 1)clinical findings (either symptoms or signs), 2)investigations, 3) interventions Or Any single criteria which signify cardio respiratory collapse

CLINICAL CRITERIA:

Acute cyanosis, Gasping, respiratory rate >40 or <6/min, Shock, Oliguria non responsive to fluids or diuretics, Clotting failure, Loss of consciousness>12 hrs, Loss of consciousness and absence of pulse or heartbeat, Stroke, Uncontrollable fits or total paralysis, Jaundice in presence of preeclampsia.

LABORATORY BASED CRITERIA:

Oxygen saturation <90% for more than 60mins, PH<7.1, paO2/fiO2<200mmhg, S.Creatinine>300mmol/l or >3.5mg/l, Acute thrombocytopenia (platelets<50000), S.Bilirubin >100mmol/l or>6mg/dl, Loss of consciousness and presence of glucose and ketoacids in urine

MANAGEMENT BASED CRITERIA:

Use of continuous vasoactive drugs, Intubation and ventilation more than 60min not related to anaesthesia, Hysterectomy following infection or haemorrhage, Dialysis for acute renal failure, Cardiopulmonary resuscitation.

RESULTS:

During the study period, 10185 patients were treated [only obstetrics], with 6465 OP patients and 3720 IP patients.

TABLE NO: 1 Total number of near miss and maternal deaths

category	No of patients
Live births	4720
Near miss	120
Maternal deaths	42

The p-value for age distribution is 0.005586 i.e., significant. Of the 120 near miss cases 61% fall in the age group of 20-40 years who are young and so it signifies the importance of identifying the events leading to maternal deaths which can be prevented by early intervention

FIGURE NO: 1Age wise distribution

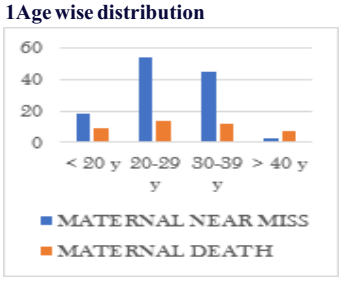
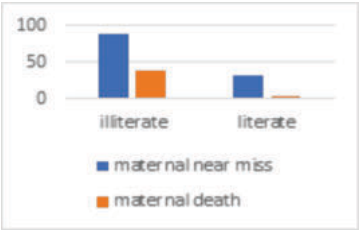


Table No 3:

s.no	Socio-economic status	NM	MD
1	Lower middle	28(22.2%)	2(7.78%)
2	Upper middle	7(6.62%)	2(2.2%)
3	Lower	85(91.2%)	38(31.89%)

Figure No: 2 Educational Status



The p-value is .027075 i.e., significant. Out of 120 near miss cases 73% are illiterate which highlights the significance of education from primary level care to identify the symptoms early and seek prompt medical care.

TABLE No 3: Admitted with no disorder and became near miss

Admitted With No Disorder And Became Near Miss	Number (%)
Yes	24 (20%)
No	96 (80%)

This highlights the fact that most of the cases are admitted at the severe stage of the disorder and hence early recognition of the signs and symptoms needs to be done to prevent near miss cases.

The most common indications for ICU care were: Circulatory collapse= 43% , Neurological dysfunction = 25 %, Need for intravenous antihypertensives = 7%, Inotropic supports =5 %,

Massive blood and blood product transfusions to correct circulatory collapse = 40% Ventilatory support = 15 %

All patients recovered which showed the skill of trained ICU staffs and doctors' skills.

Figure No 3: REFERRAL DETAILS

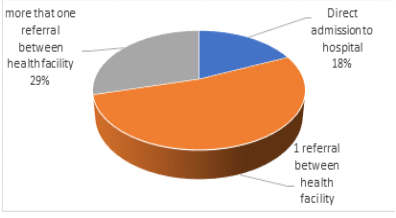


FIGURE NO 4: Gestational age

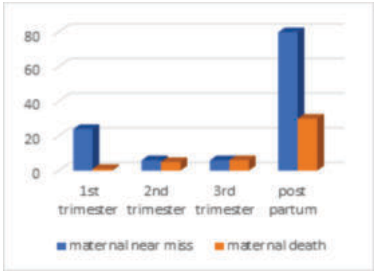
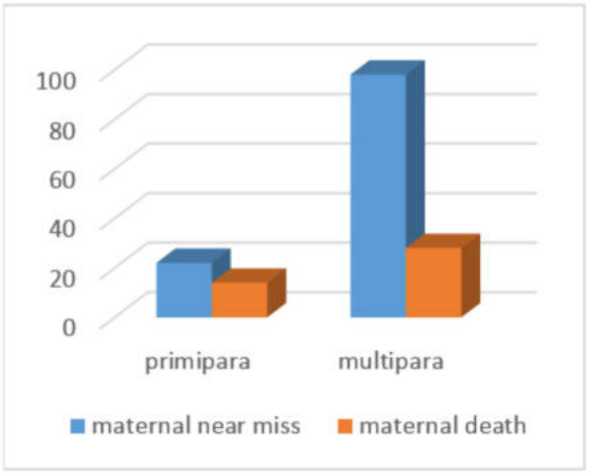


FIGURE NO 5: Parity



The p-value is .044171. Significant

Mode of delivery for near miss cases

Most of the near miss cases have become near miss after delivery by caesarean section. It highlights the importance of trail of labour, promotion of VBAC in selected cases and spacing between pregnancies.

Figure no 6: Underlying disorder in MNMM

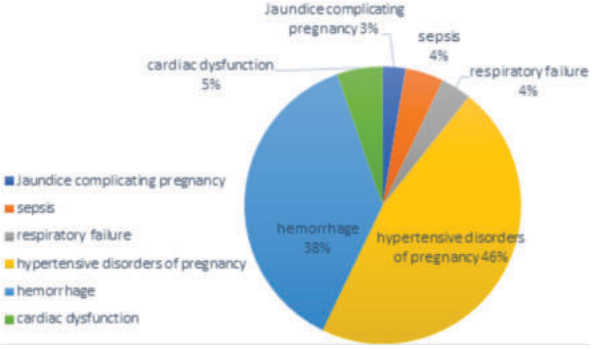


FIGURE no 7: SURGICAL INTERVENTION

Lifesaving Surgical interventions to control haemorrhage were required in 42cases;

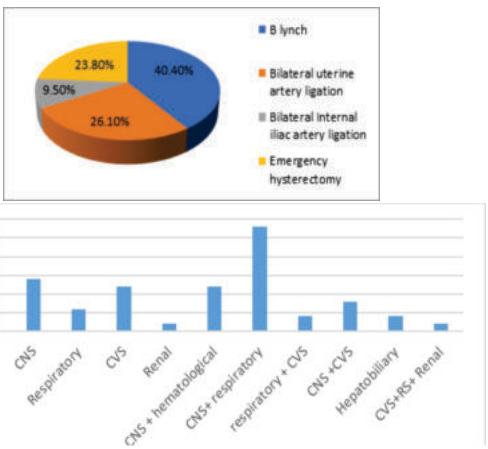


Figure No 08: Organ systems affected

REASONS FOR NEAR MISS:

Hypertension is the major cause for the near miss 50 (41.66%), followed by haemorrhage 42(35%), heart disease 12 (10%), fever, sepsis 6 (5%).However the morbidity due to Hypertension and Haemorrhage is low because of expertise management in our institution. Under Hypertension- severe pre-eclampsia(5%), severe

preeclampsia with pulmonary oedema(6%), severe preeclampsia with abruption (5%), HELLP(6%), AP Eclampsia (7%), PP Eclampsia (5%). Under haemorrhage- APH(3%), PPH(13%), Placenta Previa(8%), Ruptured ectopic pregnancy(5%), hypovolemic shock(3%), ruptured uterus(2%). Under heart disease- PPCM(6%), Rheumatic heart disease(1%), congenital heart disease(1%)

DISCUSSION:

The majority of cases 80% in SIDDHARTHA government hospital were near miss on arrival; This same pattern-73% near miss on arrival was observed in the Bolivian study.

Mortality ratio comparison with other studies

STUDY	Siddhartha	SYRIAN	NEPAL
MNMM Mortality Ratio	3.1:1	60.1	7.2:1

Booking status compared to other studies

Study	Siddharth Government hospital	Kathmandu Study	Abbott bad Study
No. of Unbooked MNMM	10%	75%	96%

Delivery By Caesarean In Near Miss Compared To Other Studies

study	Dutch survey	Bolivian study	Siddhartha	Netherlands
delivery by caesarean in mnm	43.6%	63%	81%	13%

CONCLUSION:

This study was to determine the frequency and causes of maternal near-misses and mortality in a South Indian tertiary care hospital. The near-miss cases were identified using WHO near-miss criteria and Qsofa. The study discovered that near-miss events followed a pathological pattern similar to maternal mortality. As in other regions of India, haemorrhage, hypertensive disorders, and sepsis were the leading causes of illness and mortality. It was also shown that the majority of near-miss and death cases had never had a prenatal check-up. We observed in majority of the cases level 1 and level 2 delays in reporting to our institution.

ACKNOWLEDGEMENTS: We thank the Principal of Siddhartha Medical College, Dr. N.S.Vithal Rao, the HOD of the department of general medicine Dr P Venkata Krishna, HOD Anaesthesia Dr T Suryasree and to one and all who helped us to publish this study.

REFERENCES:

1. Park K. Park's Textbook of Preventive and Social Medicine. 23rd ed. Jabalpur: Banarsidas Bhanot Publishers; 2015. p. 556
2. Clark SL, Meyers JA, Frye DR, et al: A systematic approach to the identification and classification of near-miss events on labour and delivery in a large, national health care system. Am J Obstet Gynecol 207(5):441, 2012
3. Pregnancy Hypertension. In Cunningham FG, Leveno KJ, Bloom SL, et al (eds). Williams Obstetrics, 26th ed. New York:McGraw-Hill, 2022.p.1777-1826
4. Preeclampsia. In Cunningham FG, Leveno KJ, Bloom SL, et al (eds). Williams Obstetrics, 26th ed. New York:McGraw-Hill, 2022p.40
5. Arias' Practical Guide to High-Risk Pregnancy and Delivery: A South Asian Perspective, 5/e Bhide, Arulkumaran, Damania, Daftary; 2022.p.200-215
6. Souza JP, Cecatti JG, Haddad SM, et al: The WHO maternal near-miss approach and the maternal severity index model (MSI): tools for assessing the management of severe maternal morbidity. PLoS One 7(8):e44129, 2012
7. van der Nelson H, O'Brien S, Burnard S, et al: Intramuscular oxytocin versus Syntometrine versus carbetocin for prevention of primary postpartum haemorrhage after vaginal birth: a randomised double-blinded clinical trial of effectiveness, side effects and quality of life. BJOG 128(7):1236, 2021
8. Gupta D, Nandi A, Noor N, Joshi T, Bhargava M. Incidence of maternal near miss and mortality cases in central India tertiary care centre and evaluation of various causes. The New Indian Journal of OBGYN. 2018; 4(2): 112-6.
9. Chhabra P. Maternal near miss: An indicator for maternal health and maternal care. Indian J Community Med 2014; 39:132-7
10. Severe acute maternal morbidity and intensive care in a public sector university hospital of Pakistan, Bibi S, Memon A, Sheikh JM*, Qureshi AH** J Ayub Med Coll Abbottabad 2008;20(1).
11. WHO maternal death and near-miss classifications, Robert Pattinson,a Lale Say,b João Paulo Souza,b Nynke van den Broek c & Cleone Rooney d on behalf of the WHO Working Group on Maternal Mortality and Morbidity Classifications.
12. Incidence and predictors of severe obstetric morbidity: case-control study, Mark Water stone, Susan Bewley, Charles Wolfe BMJ VOLUME 322 5 MAY 2001.
13. Say L, Pattinson RC, Gülmezoglu AM. WHO systematic review of maternal morbidity and mortality: The prevalence of severe acute maternal morbidity (near miss). Reprod Health 2004; 1:3