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A Prospective Study on Maternal Near Miss Cases at a Tertiary Care Hospital in Visakhapatnam

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Abstract : *In many developed countries, maternal mortality has fallen to single digits whereas near miss cases are more and hence useful in evaluation of the present system. A maternal near miss case is defined as a woman who nearly died but survived a complication that occurred during pregnancy, childbirth or within 42 days of termination of pregnancy.*
Objective*: To study the various causes leading to the severe acute maternal morbidity, maternal near miss and Maternal near miss incidence rates among high risk cases.*
Study setting*: A Prospective hospital based Study was conducted.*
Study period*: Study was conducted for a period of 18 months from January 2016 to June 2017*
Methodology*: Detailed history, clinical examination, various investigations done to identify pregnant women who fulfilled the WHO selection criteria of maternal near miss were included in the study. Various indices like MNM, MNMIR have been calculated. Higher ratio indicates bettercare.*
Results*: Majority were primiparas and complications were seen in 3rd trimester. Haemorrhage was a major life threatening cause identified (41%) followed by hypertensive disorders (39%). Ventilatory support was required in 46% of the cases. Massive blood transfusion in 40% of the cases. Laparotomy was performed in 27% of cases.*
Keywords: *Complications, Maternalnearmiss, Intervention, Pregnancy, Tertiarycare center*

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I. Introduction

In any setting women who develop severe acute complications during pregnancy share many pathological and circumstantial factors. While some of these women die a proportion of them narrowly escape death. By evaluating these cases with severe maternal outcomes much can be learnt about the processes in place for the care of the pregnant women. Maternal mortality remains a major challenge to health systems worldwide [1.] The focus on maternal mortality was sharpened when reduction of maternal mortality became one of eight Millennium Development Goals [MDG] .SAMM has been studied extensively in the recent past as a complement for maternal mortality and also to evaluate the quality of obstetric care in that particular institution. This concept is superior over maternal death in drawing attention to surviving women's reproductive health and lives and is equally applicable in developing countries as well as developed countries. In many developed countries, maternal mortality has fallen to single digits whereas near miss cases are more and hence useful in evaluation of the present system. Moreover, they have the advantage of not being as rare as maternal deaths for providing adequate information, as well as still being rare enough not to overload clinicians and data collection personnel within the facility. Till recently there were no set criteria for identification of these cases for routine implementation, and wider application of this concept was limited. But in 2009, WHO has come up with clinical laboratory, and management criteria for the identification of these cases[2].

According to World Health Organisation (WHO), a maternal death is defined as death of a woman while pregnant or within 42 days of termination of pregnancy; irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes . A maternal near miss case is 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]. In practical terms, women are considered near-miss cases when they survive life-threatening conditions i.e. organ dysfunction. Severe maternal outcome (SMO) is the maternal near-miss cases and maternal death. Despite therapeutic advances in medical science and a growing perception of the safety of childbirth; morbidity and mortality continue to occur in obstetrics specially in the developing countries like India . Fortunately, most of the obstetrical complications can be prevented or managed provided a timely and properly taken intervention is

secured to the patient. Near- miss cases share many characteristics with maternal death and can directly inform on obstacles that had to overcome after the onset of an acute complication. Corrective actions for identified problems can be taken to reduce mortality and long term morbidity [2]. Over the last decade, identification of cases of severe maternal morbidity has emerged as a promising complement or alternative to the investigation of maternal death[3].

King George Hospital Visakhapatnam is a tertiary care center where complicated cases from neighbouring districts will be referred to this center. A study was done to assess the complications arising among the referral cases and various types of interventions performed in the cases attending our hospital.

Objective: To study the various causes and conditions leading to the Severe Acute Maternal morbidity, Maternal Near Miss and Maternal Near Miss Incidence Rates among high risk cases in King George Hospital, Visakhapatnam.

Study setting: A Prospective hospital based Study was conducted in the Department of Obstetrics and Gynaecology, King George Hospital, Visakhapatnam.

Study period: Study was conducted for a period of 18 months from January 2015 to June 2016, Department of Obstetrics and Gynaecology, King George Hospital Visakhapatnam.

II. Methodology

The present study was conducted on all women who have been referred from various peripheral health centres. Visakhapatnam district has a vast tribal area from where all the high risk cases were referred to the tertiary care centre i.e. King George Hospital, Visakhapatnam. Detailed history, clinical examination, various laboratory tests and investigations done to identify pregnant women who fulfilled the WHO selection criteria of maternal near miss cases were included in the study. Patient characteristics including age, parity, gestational age at admission, booked (more than three antenatal visits to our hospital irrespective of the gestational age), mode of delivery, ICU admission, duration of ICU stay, total hospital duration, and surgical intervention to save the life of mother were considered. Interventions are done as per the requirement to prevent maternal death.

Exclusion criteria: Patients with conditions unrelated to pregnancy were excluded.

Selection criteria:

1. Based on disease specific criteria
Severe PPH
Rupture Uterus
Severe PPH and Eclampsia
Sepsis and severe systemic infection
2. Critical Interventions/ICU management
Admission to ICU unit
Interventional Radiology
Laparotomy (Hysterectomy Excludes Caesarean section)
Use of blood products
3. Life threatening conditions
CVS Dysfunction
Respiratory dysfunction
Hepatic Dysfunction
Neurological Dysfunction
Renal Dysfunction
Coagulation Dysfunction: Coagulation failure, maximum transfusion >5 Units, Severe acute thrombocytopenia >50,000 platelet count[1].

The following near miss indices were calculated.

(1) Maternal near miss incidence ratio refers to the number of maternal near miss cases per 1,000 live births (LB). MNM IR = MNM/LB.

(2) Maternal near miss: mortality ratio: Proportion between maternal near miss cases and maternal deaths. Higher ratio indicates better care. MNM : 1MD.

(3)Mortality index: Number of maternal deaths divided by the number of women. With life threatening conditions expressed as percentage. The higher the index, more women with the life threatening condition dies (low quality of care), while low index suggests better quality of healthcare. (MI = MD/(MNM+MD) × 100[2].

III. Results

The present study was conducted among all high risk maternal complicated cases who were referred to tertiary care centre at King George Hospital, Visakhapatnam. Total number of live births during the study period were 7639.Out of them total number of Maternal Near Miss cases identified were 485.The number of maternal deaths during the study period were 72.

Total MNMIR=MNM/1000 live births =63.48

Mortality Index =12.92

TABLE-1 Distribution of near miss cases according to parity.

Characteristic	MNM (n=485)
Primipara	261(53.82%)
Multipara	224(46.18%)

Table-1 shows that Primiparas were more in the study group (53.2%).

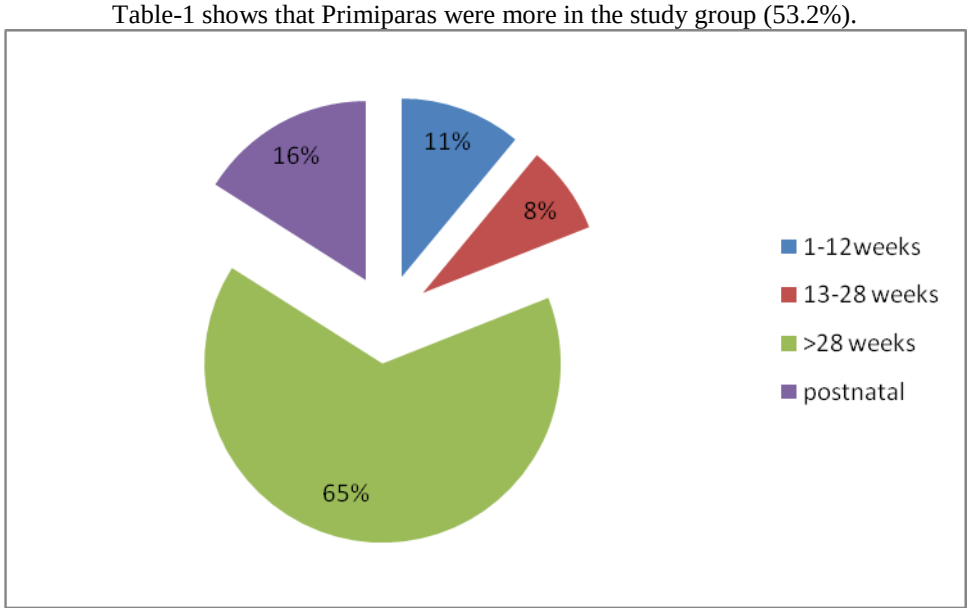

FIGURE-1 Distribution of Near Miss cases according to duration of pregnancy.

Majority of the women had complications of pregnancy in 3rd trimester (65%). Complications in the postnatal period were seen in 16%. So majority of the cases develop life threatening conditions during 3rd trimester.

TABLE-2 Various causes for developing life threatening conditions among maternal near miss cases.

Diagnosis	MNM	MNMR
Hypertension in Pregnancy	189(39%)	24.74
Severe Preeclampsia	82(17%)	10.73
Eclampsia	145(29%)	18.98
HELLP Syndrome	12(2.47%)	1.57
Severe Heamorrhage	198(41%)	25.39
In Early Pregnancy		
Ectopic pregnancy	68(14%)	8.9
Abortions	30(6.2%)	3.92
Hydatiform mole	08(1.6%)	1.17
Late pregnancy		
Abruptio	41(8.45%)	5.36
PPH	13(2.68%)	1.7
Placenta Preavia	22(4.53%)	2.87
Rupture Uterus	12(2.47%)	1.57

Table-2 shows various causes for developing life threatening conditions. Haemorrhage was a major life threatening cause identified among the referral cases (41%) followed by hypertensive disorders (39%). In early pregnancy ectopic pregnancy was observed followed by abortions. In late pregnancy abruptio and placenta preavia and rupture uterus were observed. However more than one condition was observed among near miss cases.

TABLE-3 Various interventions performed to prevent maternal Deaths

Type of intervention	n (%)
Peripartum Hysterectomy	32(6.6%)
Laparotomy	131(27%)
Laparotomy for Rupture Ectopic	68(14.02%)
Rupture Uterus with Rent repair	05(1.03%)
Correction of Involuted Uterus	02(0.4%)
B-Lynch with 4 vessel Ligation	53(10.9%)
Drainage of Rectal sheath	03(0.6%)

Massive blood transfusion >5 Units	194(40%)
Platelet transfusion	12(2.47%)
Mgso4	157(32.3%)
Vasopressin	391(80.6%)
Ventilatory support	222(45.7%)
Dialysis	17(3.5%)
Suction evacuation	30(6.18%)

Table-3 shows various interventions done to prevent maternal deaths. Ventilatory support was required in 46% of the cases. Massive blood transfusion i.e. more than 5 units of blood transfusion was required in 40% of the cases. Laparotomy was performed in 27% of cases. Dialysis was done in 3.5% cases.

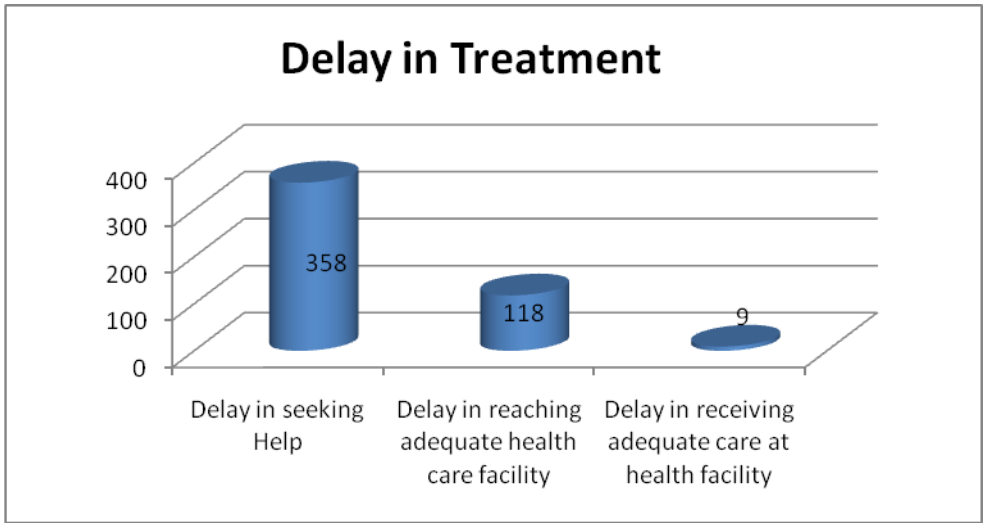

Figure-2 Basic Underlying facts for the development of life threatening conditions and divided into three delays The above figure shows that in majority (73.8%) of the cases there is delay in seeking help.

IV. Discussion

Total number of live births during the study period were 7639. Out of them total number of Maternal Near Miss cases identified were 485. The total number of maternal deaths occurred during the study period were 72. Maternal near miss incidence ratio (MNMIR) was 63.48 and Mortality Index was 12.92. The maternal near miss to mortality ratio was 6.7:1. Studies from developing countries especially in the African region have reported a high incidence of near miss when compared to the developed world[4, 5, 6, 7, 8, 9]. In a study conducted by Rupa P S et al at Kasturba hospital, Manipal, Karnataka, the maternal near miss incidence ratio (MNMIR) was 17.8/1000 live births[2]. The near miss to mortality ratio was 5.6:1, which means for every five to six life threatening conditions there was one maternal death. Higher ratios indicate better care[2]. In a study conducted by Hemakanta Devi Sarma et al, the maternal death to near miss ratio was 1 / 3.9[3]. Among near miss cases, 59% cases were primipara and 37.8% cases were in the age group of 15 – 20 years. The most common type of near miss events were eclampsia (39.4%) whereas severe anaemia was responsible for 47.1% of all maternal death. Mortality index was 20.4%[3].

In the present study majority of the cases were primipara (53.82%). More than 65% of cases were from 3rd trimester of pregnancy. 16% of the near miss cases were from postnatal period. These results were similar to the study conducted by Hemakant Dev Sharma et al where 39 cases (59%) were primipara; 27 (41%) cases were multipara. On the other hand, 42 cases (72.7%) were in the third trimester or intra partum period indicating that late pregnancy and delivery is the worst affected period[3].

During the study period severe haemorrhage (41%) and hypertensive disorders (39%) are the main causes of developing MNM. They were followed by eclampsia (29%). The areas of intervention are blood transfusion, Mgso4 for eclampsia, laparotomies for rupture uterus and rupture ectopic and ventilator dialysis .When we analysed various reasons for developing life threatening conditions which were divided into three categories it was observed that in 74% of the cases there was delay in seeking help. As many of the cases were referred from tribal and hard to reach areas it indirectly reflects the health seeking behaviour of the study subjects. As our hospital is a tertiary care centre with ANC, delivery services for high risk women, 24 hours emergency obstetric services, 24 hour blood bank facility and surgical and medical ICU, corrective action for identified problems reduced the maternal deaths. Therefore MNM share many characteristics with maternal deaths and can directly inform the obstacles that had to be overcome after onset of acute complications.

V. Conclusions

Majority of The cases reported were primipara. During the study period severe haemorrhage (41%) and hypertensive disorders (39%) are the main causes of developing MNM. Massive blood transfusion i.e more than 5 units of blood transfusion was required in 40% of the cases.

References

[1] World Health Organization - Evaluating the quality of care for severe pregnancy complications: The WHO near miss approach for maternal health. WHO (2011).
[2] Roopa PS, Verma S, Rai L, Kumar P, Murlidhar V, Pai, et al. "Near Miss" Obstetric Events and Maternal Deaths in a Tertiary Care Hospital: An Audit Journal of Pregnancy. (2013).
[3] Sarma HKD, Sarma HK, Kalita AK. A prospective study of maternal near-miss and maternal mortality cases in FAAMCH, Barpeta; with special reference to its aetiology and management: First 4 months report. Journal of Obstetrics & Gynaecology Barpeta, 1(2):100-6.
[4] kalra P, Kachhwaha CP.Obstetric near miss morbidity and maternal mortality in a Tertiary Care Centre in Western Rajasthan. Indian J Public Health 2014;58:199-201.
[5] Chhabra P. Maternal Near Miss: An Indicator for Maternal Health and Maternal Care. Indian Journal of Community Medicine : Official Publication of Indian Association of Preventive & Social Medicine. 2014 Jul-Sep; 39(3):132-137.
[6] 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.
[7] Prual A, Bouvier-Colle MH, de Bernis L, Bréart G. Severe maternal morbidity from direct obstetric causes in West Africa: Incidence and case fatality rates. Bull World Health Organ. 2000; 78:593–602.
[8] Khosla AH, Dahiya K, Sangwan K. Maternal mortality and 'near-miss' in rural north India. Int J Gynaecol Obstet. 2000; 68:163–4.
[9] Khan KS, Wojdyla D, Say L, Gülmezoglu AM, Van Look PF. WHO analysis of causes of maternal death: A systematic review. Lancet. 2006; 367:1066–74.

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