International Journal of Clinical Obstetrics and Gynaecology

ISSN (P): 2522-6614
ISSN (E): 2522-6622

www.gynaecologyjournal.com
2020; 4(3): 209-212
Received: 16-03-2020
Accepted: 18-04-2020

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Prevalance and outcome of maternal near miss in a tertiary care centre a cross sectional study at Hassan, Karnataka, India

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DOI: https://doi.org/10.33545/gynae.2020.v4.i3d.605

Abstract
Introduction: According to WHO Maternal "Near miss is said to have occurred when a women who nearly died but survived a complication that occurred during pregnancy, child birth or within 42 days of termination of pregnancy". A retrospective, cross sectional study of 15,625 live births were studied for Near Miss case study at Sri Chamarajendra Government MCH tertiary referral centre Hospital attached to Hassan institute of Medical Sciences, Hassan, Karnataka. The prevalence, maternal and fetal outcome were analyzed statistically.
Methodology: A retrospective analysis of 15,625 live births over a period of 2 years, March 2018- march 2020. The observations among Near Miss cases such as demographic profile of subjects, co-morbidities associated with pregnancy, mode of delivery, causes of maternal morbidity and mortality, icu transfer rate, Mean Duration of hospital stay, average Out of pocket expenditure ,Neonatal outcome were statistically analyzed.
Observation: 34 Near miss cases were analyzed in this study was 2.2/1000 live births, maternal near miss to mortality ratio was 3.7:1, Mortality index was 20.9%,caesarian delivery rate 48%, causes for Near Miss being hemorrhage 85.2%, Hypertention-11.7%, others 3.1%, 29.4%women did not have any preexisting causative illness nor co-morbidities. Neonatal outcome being-preterm-5.88%, IUFD-17.6%, Low Birth Weight-7.8%, abortion-14.7%., ICU transfer rate-9.6%, mean duration of hospital stay---7.5 days, with low out of pocket expenses
Conclusion: Hemorrhage, (Postpartum Hemorrhage) remain main cause of maternal near miss cases, which may be often predicted. Prompt detection, early referral to tertiary centre for timely intervention and early treatment of causes may improve obstetric outcome and prevent Near Miss catastrophe.

Keywords: Maternal near miss (MNM), maternal mortality, post partum haemorrhage (PPH), tertiary care centre, obstetric outcome, neonatal outcome

Introduction
The WHO defines maternal Near miss as-women who nearly died but survived a complication that occurred during pregnancy, child birth and within 42 days of Termination of pregnancy [15]. Near miss is considered as an Adverse event that leads to serious morbidity in mother after delivery but which she survives [3, 4]. Recently Maternal Near miss is looked upon as another additional quality indicator of obstetric care, besides maternal death. Maternal near miss is looked as another quality indicator of Obstetric care besides maternal deaths. The maternal mortality rate (MMR) of India was 178/100000 live births (2010-2012), which was reduced to 167/100000 live births (2011-2013 ,122/ 100000 live births in 2015-2017) and death due to pregnancy and child birth has reduced by 55%, (2017) with a goal target of 70/ lakh live births in India as per Sample Registration Survey [5, 6, 7]. The target is not yet reached in karnataka despite free institutional delivery, provision of 108 free ambulance for transfer to hospital, mandatory registration of all births and deaths, and death review and periodic auditing by regional Health administration. This needs a greater attention targeting high risk and Nearmiss cases.
Maternal Nearmiss /Severe Acute Maternal Morbidity (SAMM), has gained recently an International attention with suitable Timely Intervention, as it is more prevalent than maternal deaths due to early available interventions and MCH services at tertiary care centers. More information can be gained from Near miss case data and survivors. This data can be used to monitor the quality of comprehensive emergency obstetric care at a hospital, and it may be used

for identification and rectification of deficiency at health systems. The Nearmiss data of regions may be a relevant source of information for policy makers of the region and for selection of maternal health care Priorities and Budget allocation to health systems and funding of States.

Various analytical studies have been reported in various resource setting/ regions. This study was intended to study the demographic pattern and the causes of Near miss cases at south east Karnataka, along with neonatal outcome and out of pockect expenses incurred in limited resource settings.

Methodology

This is a retrospective, cross sectional study of 15,625 live births occurring between April2018 to march 2020, that were studied analyzing for Near Miss cases from the medical record data available at Sri Chamarajendra Government MCH Tertiary care Hospital attached to Hassan Institute of Medical Sciences, Hassan, Karnataka. The prevalence, maternal and fetal outcome and other observations were analyzed statistically by using Ms excel sheets, expressed in percentages and univariate analysis as mean and median.

Observations

A total of 15,625 live births, out of which 34 Near miss cases were analysed during the study period. The maternal near miss prevalence ratio was 2.20/1000 live births, maternal near miss to maternal mortality ratio was 3.7:1, and mortality index was 20.9%. Hemorrhage was the leading cause (85.2%) followed by hypertension (11.7%), others-3.1%. MNM was slightly more in Multipara 20(58.8%), 67% of the cases were of low socio-economic status

1. Demographic profile of study group is as shown below

1.1 Distribution of Near Miss cases (N=34) according to age distribution. (Table1)

Table 1: Characteristics of near miss cases

Characteristics Age	near miss cases	Percentage (%)
</= 24 years	17	50%
25 – 29 years	09	26.47%
30 years and above	08	23.52%

1.2- distribution of near miss cases on parity index (Table2)

Table 2: parity index

Parity	number	Percentage
Primipara	14	42.2
multipara	20	57.7

2. Mode of delivery

Mode of delivery was a analyzed where in, normal vaginal delivery was the mode of delivery in 41.17% while cesarean delivery was required in 35.29% among maternal near miss cases. Laporotomy operation for ruptured ectopic pregnancy in hemorrhagic shock was observed in 2(5.8%), and massive haemorrhage and acute blood loss severe anemia due to abortion (self medication induced) was observed in 3 (8.82%) cases.

3. Cause of Near miss conditions

Among the primary causes of near miss events, hemorrhage was the main cause - 85.2%, followed by hypertension in pregnancy (Preeclampsia) in 11.7%, other causes 3.17%. as shown in Table 4. Severe anemia (33.33%) was the leading cause of maternal death, followed by Hypertension -pre Eclampsia 22.22% and cardiac disease in pregnancy in 22.22%. (Table3)

Table 3: Distribution of near miss events and primary causes of maternal deaths

Diagnosis	Maternal near miss (n=34)	Percentage%	Maternal-death number	Percentage%
Hemorrhage	29	85.2%	1	11.11%
Hypertension	04	11.7%	2	22.22%
Sepsis	00	00	00	00
Cardiac conditions	00	00	2	22.22%
Severe anemia	1	2.94%	3	33.33%
Pulmonary embolism	00	00	1	11.11%

4. Icu transfer rate

out of total 15625 live births, 1512 women were tranasferred to Icu(9.67%) for observation and further management among which 34(2.2%) were Near miss cases.

5. Neonatal outcome

Out of 15,977 births, near miss cases were 34(2.2%), among them term babies were 22(64.7%) preterm 01(5.8%), IUFD were 06(17.6%), others were ectopic pregnancy and abortions. (Table4)

Table 4: neonatal outcome

Serial no	Neonatal outcome	number	percentage
1	Ful Term babies	22	64.7
2	preterm	01	5.8
3	IUFD	06	17.6

6. Average out of pockect expenditure

Average out of pockect expenditure was Rs 2000/00, that was spent for availing non available services at this hospital such as super speciality care/consultations.

Discussion

Maternal mortality is an indicator for assessment of quality of services provided by health care system. In spite of advancements in the medical field and at most care being provided for maternal and child health, morbidity occurs in obstetric patients. Despite the improvements in obstetric care, free institutional delivery services under JSSK, JSY schemes by government of India, maternal morbidity and mortality remain a challenge in the developing countries.

Studies done in the developing countries show the same trend and vary from anywhere between 15-40/1000 live births [3, 7, 8].

Kerala study indicated that Thirty-two women met the criteria for "near miss" during the 15-month study period, with a maternal near-miss incidence ratio of 9.27/1000 live births. One or more delays were identified in 21 (65.6%) near-miss cases. Delayed access to care was the most important factor for delay. A review of near-miss cases can be used to improve and optimize the existing obstetric services [3].

In present study, Maternal near miss incidence ratio (MNMR) was higher22.03/1000 live births in our hospital, when compared to Kerala study (9.27/1000), Near miss to Mortality ratio was 3.7:1 which means for every 3-4 life threatening condition there was one maternal death. Higher the ratio indicates better care. Syrian study showed a ratio of 60:1 [9, 10] Anjali mali reported that Near miss death ratio was found to be 3.1:1 which means that for every three MNM women, one woman dies of complications. In the present study, near miss: death ratio was found somewhat similar to other studies, [5, 14, 17] while in some other states, it was found to be higher [4, 13, 16] Higher near miss mortality ratio indicates a better quality of care at that facility

Maternal near miss rate was 2.12/1000 deliveries, Maternal mortality index is 20.9 which was less when compared to a study by Bansal M *et al* [11]. During the study period 09 patients died, out of which 03 patients died due to severe anemia, 02 due to cardiac conditions. 50% of the women were in the age group below 24 years, 41.2% were Primipara, 67% were of low income group, and 64.7% were of full term. Gujarath study observed, half of the women in MNM and MD were nullipara, whereas one-third in MNM and MD group were primipara or second para. Similar findings were found in the study done by Patankar *et al*. on severe acute maternal morbidity (near miss) in a tertiary care center in Maharashtra.[8] However, a study done in a rural referral hospital in northern Tanzania by Nelissen *et al*. shows more cases of multipara in both MNM and MD [9]. This study was comparable with one another study in which 55.34% of women were in age group of 21-25 years, 40.88% were primipara, 64.15% were of low income group and 50.94% were term [12]. this was in par with study by Farzana Mansuri**,** Anjali Mall in their study among the four tertiary hospitals of gujarath, India with 21,491 live births observed that, Severe maternal outcome cases were 326, of which 247 (75.8%) were of MNM cases and 79 (24.2%) were of MD. MNM mortality ratio was found to be 3.13:1. Eclampsia (29.45%) followed by preeclampsia (25.46%) and severe postpartum hemorrhage (22.39%) were the leading causes of potentially life-threatening conditions [14]. For the treatment of postpartum hemorrhage, the use of oxytocin was done in 82.19% women, ergometrine in 41.10% women, misoprostol in 54.79%, and hysterectomy was done in 24.66% of women [15-17]

Complications predisposing pregnant women to near miss events are majorly hemorrhagic disorders may be ante partum, peripartum or post partum. Pregnancies with complication such as hypertension-related disorders and disorders of placenta become more prone to obstetric hemorrhage. In Anjali malli, Gujarath study [14], one-third of the women with potentially life-threatening conditions experienced eclampsia, followed by one-fourth of the women who experienced severe postpartum hemorrhage and severe preeclampsia, few had sepsis and a rupture uterus. A similar finding was seen in the study done by Shrestha *et al*. in Nepal [11]. However, in a study done by Bakshi *et al*. in North India, few cases of eclampsia were detected in a tertiary care hospital while cases of severe postpartum hemorrhage were more than 33% among women with potentially life-threatening near miss conditions [12]. A Kerala study at Trissur found Five maternal deaths during the study period (maternal mortality ratio of 144.9/100,000 livebirths). The causes included hemorrhage in 3 cases, (placental abruption, disseminated intravascular coagulation), suspected pulmonary embolism, and cardiac arrest following manual removal of placenta. All these women, aged between 19 and 30 years, were referred to center in a very morbid state. In our study 29.4% of near miss cases were caused by PPH and 23.5% by hypertensive disorders. The maternal mortality ratio (MMR) at Gujarath study was 367/100,000 live births, which was higher than that in the study done by Roopa *et al*. in 2013 [4] of 144.9/100,00, live births in kerala study [3]. A study conducted in Udupi, Karnataka and Aurangabad showed an MMR of 313/100,000 and 299/100,000 live births, respectively [4, 6].

59per/ lakh live births. In the present study, which is least among various studies indicated adequate ICU care at our centre was free of charge through 108 ambulance services provided by government, but most expenses were for availing super speciality services that were not available at this hospital.

Neonatal outcome were studied in our study and one Kerala study, Twenty (68.9%), one twin pregnancy, prematurely (<37 completed weeks). There were 13 (43.3%) perinatal deaths in this group of 30 babies, which included eight fresh stillborns and five neonatal deaths. Of the 22 babies born alive, 13 (59%) needed care in the Neonatal Intensive Care Unit, with five of them not surviving beyond the 1st week. Twenty-seven (84.4%) women required hospitalization for a week or more. In present study, Out of 15,977 births, near miss cases were 34(2.2%), among them term babies were 22(64.7%), preterm 01(5.8%), IUFD were 06(17.6%), others were ectopic pregnancy and abortions ad mean duration of hospital stay was 7.4 days [11-14, 16].

In Kerala study (66.7%) had to make out-of-pocket payments for transport, but in present study the transport was provided free of cost by 108 ambulance, and out of pockect expenditure was done to avail specialist services that were not available at this hospital.

One or more delays in seeking or receiving adequate obstetric care were identified in about two-thirds of women with near miss. A regular audit of near miss would facilitate collection of information regarding these delays. Knowledge about the circumstances which aided survival and recovery may also help.

Conclusion

Most of the pregnancy related complications leading to high risk childbirth are undesirable. Evaluating near miss events can help in creating safer and more approachable obstetric healthcare for future patients.

Maybe associated with lacking at patients end viz, inadequate antenatal care, non-compliance with health care practitioner's advice and others. Along with increased awareness of one's health, health education may go a long way in improving the quality of obstetric care.

Maternal mortality in our centre maybe due to delayed referrals to tertiary care centre, poor antenatal care at place of registration in peripheral Health care centres, and lack of skilled personnel and resources, preparedness for emergencies at sub-centre, PHC and CHC levels. A regular audit of near miss would facilitate collection of information regarding these delays. Knowledge about the circumstances which improoved survival and recovery may lead to corrective steps in future for reducing deaths due to near miss scenario.

Acknowledgement

The authors are thankful to The Medical Superintendent, Sri Chamarajendra government Teaching hospital, HIMS, Hassan, Karnataka, India for data collection and statistician for data Analysis.

References

1. Stones W, Lim W, Al-Azzawi F, Kelly M. An investigation of maternal morbidity with identification of life-threating "near-miss". Cliniepisodes. Health Trends. 1991; 23(1):13-5.
2. Sivalingam N, Looi KW. Clinical experience with management of near-miss cases in obstetrics. Medical Journal of Malaysia. 1999; 54(4):496-503
3. RP Reena**,** KR Radha. Factors associated with maternal near miss: A study from Kerala; Indian journal of publichealth. 2018; 62(1):58-60
4. Roopa PS, Verma S, Rai L, Kumar P, Pai MV, Shetty J. Near miss Obstetric events and maternal deaths in a tertiary care hospital: An audit .Indian J Community Med., 2019.
5. Parmar NT, Parmar AG, Mazumdar VS. Incidence of maternal "Near-miss" events in a tertiary care hospital of central Gujarat, India. J Obstet Gynaecol India. 2016; 66:315-20
6. Tallapureddy S, Velagaleti R, Palutla H, Satti CV. "Near-miss" Obstetric events and maternal mortality in a Tertiary care Hospital. Indian J. Public Health. 2017; 61:305-8.
7. Indian MMR. causes, causes use based on NHS: PLOS ON: www. PPLOS ONE.org, NHS for population, 2014; 9(1):e83331, 1-7,
8. Van Roasmalen J, Zwart J. "severe acute maternal morbidity in high- income countries", Best practice and Research: Clinical Obstetrics and Gynaecology. 2009; 23(3):297-304.
9. 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 and childbirth. 2007; 7(20):1-8
10. Shrestha NS, Saha R, Karki C. Near miss maternal morbidity and maternal mortality at Kathmandu Medical college teaching Hospital. Kathmandu University Medical Journal. 2010; 8(30):222-6
11. Almerie Y, Almerie MQ, Matar HE, Shahrour Y, Alchamat AA, Abdulsalam A. Obstetric near miss and maternal mortality in maternity university hospital, Damascus, Syria: A restrospective study. BMC Pregnancy and childbirth. 2010; 10(65):2-7.
12. Bansal M, Lagoo J, Pujari K. Study of near miss cases in Obstetrics and maternal mortality in Bastar, Chattisgarh, India.Int J Reprod Contracept Obstet Gynecaal. 2016; 5:620-3.
13. Jain U. A study on maternal near miss cases in government medical college Shivpuri, India. Int J Reprod Contracept Obstet Gynecaal. 2019; 8:3047-55
14. Farzana Mansuri, Anjali Mall. Analysis of maternal near miss at tertiary level hospitals, Ahmedabad: A valuable indicator for maternal health care; Department of Community Medicine, B. J. Medical College, Ahmedabad, Gujarat, India;Indian journal of community Medicine. 2019; 44(3):217-221.
15. World Health Organization. The WHO Near-Miss Approach for Maternal Health. World Health Organization, 2011.
from: http//www.who.int/reproductivehealth%0Ahttp://apps
.
16. who.int/iris/bitstream/10665/44692/1/9789241502221
17. Roberts CL, Ford JB, Algert CS, Bell JC, Simpson JM, Morris JM. Trends in adverse maternal outcomes during childbirth: A population-based study of severe maternal Morbidity
18. 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. BMCPregnancyChildbirth2009.