



OBSTETRIC NEAR-MISS IN A TERTIARY CARE HOSPITAL: A RETROSPECTIVE STUDY

Obstetrics & Gynaecology

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ABSTRACT

Introduction: When a woman nearly dies but survives a complication during pregnancy, childbirth or within 42 days of termination of pregnancy, irrespective of emergency medical/surgical interventions received, she is said to be a maternal near-miss case. The review of near-miss cases provides a lot of information regarding the management of critically sick patients. **Objectives:** To find out the maternal near-miss ratio, and its causes. **Materials And Methods:** It was a hospital based retrospective study conducted for a duration of 6 months. The necessary data were collected from the monthly statistics and analysed. **Results:** There were two maternal mortalities, and 33 maternal near-miss cases during the study period. The maternal near-miss ratio was found to be 8.6 per 1000 live births, the maternal near-miss to mortality ratio was found to be 16.5:1. Ruptured ectopic pregnancy was seen to be the most common cause of maternal near miss cases. The common interventions required were blood transfusion, admission to ICU, emergency laparotomy. **Conclusion:** The health care workers should also be educated well about the maternal near-miss and its importance in handling the critically sick patients in obstetrics so as to further reduce the maternal mortality.

KEYWORDS

BACKGROUND:

According to WHO, a woman is defined to be a maternal near-miss case when she nearly dies but survives a complication during pregnancy, childbirth or within 42 days of termination of pregnancy, irrespective of receiving emergency medical/surgical interventions.¹ Maternal near-miss is rather a new terminology which has become popular over the last few years. The maternal mortality has been on decreasing trend over the years thanks to the improving healthcare system. This would mean that there will be increasing number of maternal near-miss cases. The maternal mortality ratio of India was 130 per 1 lac live births in the year 2014-16, 103 in 2017-19, and it has come down further to 97 in 2018-20 (sample registration system).² The maternal death review, as we already know, is a great tool to critically look into the health system, but at the same time, the maternal near-miss review also provides a lot of learning opportunities due to the availability and willingness of both the patient and the health care providers to share the management and interventions that had been undertaken.³ For diagnosis of maternal near-miss, the patient should meet a minimum of three criteria- one each from clinical findings, investigations, and interventions done; or any single criteria which signifies cardiorespiratory collapse³, as are being given in the operational guidelines of maternal near-miss. The various clinical scenarios can be in the event of obstetric haemorrhage, pregnancy related sepsis, hypertension, postpartum collapse, organ (s) dysfunction, anaemia, accidental/surgical conditions or assault, anaphylaxis, infections or thromboembolic events, etc.

Our tertiary care hospital is the referral center for many peripheral health centers in the state. Cases from the remote areas are often referred in critical conditions. The maternal near-miss ratio in the hospital during 2009-2011 was 2.18 per 1000 live births⁴ and postpartum haemorrhage was the leading cause.

OBJECTIVES OF THE STUDY

- 1) To find out the maternal near-miss ratio
- 2) To find out the causes of the maternal near-miss cases

MATERIALS AND METHODS

The study was conducted in the department of obstetrics and gynecology, Regional Institute of Medical Sciences, Imphal over a

period of 6 months from March to August, 2022. It was a hospital based retrospective study. The monthly statistics over that six months period were collected. The cases registered as maternal near-miss under the already defined criterias were collected and studied individually as well. The maternal mortality over the same time period was also collected. Maternal near-miss ratio (MNM ratio) was calculated as the number of maternal near-miss cases per 1000 live births. Maternal near-miss mortality ratio was also calculated as the ratio between maternal near-miss cases and maternal deaths. Mortality index is again defined as the number of maternal deaths divided by the number of women with life-threatening conditions (mortality index = MD/MNM+MD).

RESULTS

The total number of live births during the study period was 3794 and the total number of maternal near-miss cases during the same period was 33 while the maternal deaths were 2. Both the cases of maternal mortality were due to the complications arising from severe pre-eclampsia.

Table No 1. Monthly Statistics During April To September, 2022.

Month	Total number of live births	Total number of maternal mortality	Total number of maternal near miss cases
April	588	0	6
May	544	0	8
June	536	0	9
July	604	1	2
August	759	1	3
September	763	0	5
TOTAL	3794	2	33

Maternal near miss ratio was found to be 8.6 per 1000 live births. The ratio of maternal near-miss to maternal mortality was found to be 16.5:1. Mortality index was also found to be 0.05.

Majority of the cases (51.1%) belonged to the age group of 30-40 years. Twelve cases (36.3%) belonged to the age group of 20-30 years, there were two cases each belonging to the age group of <20 years, and >40 years (figure 1).

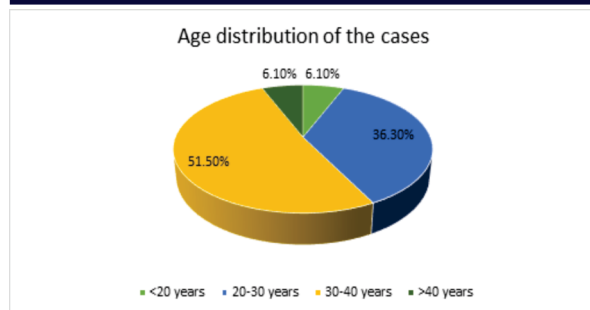


Figure 1. Age Distribution Of The Patients.

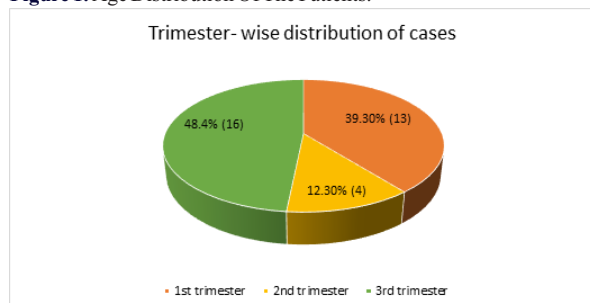


Figure 2. Trimester- Wise Distribution Of The Cases.

Majority of the near- miss cases (48.4%) presented in the third trimester of pregnancy while 39.3% and 12.30 % presented in the first trimester and the second trimester respectively (figure 2).

Table 2. Causes Of The Near-miss Cases In The Present Study

Causes	Number of near-miss cases	percentages
Ruptured ectopic pregnancy	12	36.4%
Antepartum haemorrhage	4	12.1%
Uterine rupture	4	12.1%
Incomplete abortion in shock	3	9.1%
Post-partum haemorrhage	3	9.1%
Placenta accreta	2	6.1%
Severe pre-eclampsia	1	3.02%
ITP at term pregnancy	1	3.02%
Uterine inversion	1	3.02%
Anaphylactic shock	1	3.02%
Puerperal sepsis	1	3.02%

Haemorrhage from various causes- ruptured tubal ectopic pregnancy, antepartum haemorrhage, post-partum haemorrhage, incomplete abortion, constituted 60.6% of all the causes of maternal near-miss cases as shown in table 2. Out of them, ruptured tubal ectopic pregnancy was the most common cause i.e. 12 out of 33 cases (36.36%). There were 4 cases (12.12%) of uterine rupture out of which three required emergency peri-partum hysterectomy. Two of those three cases were referred from the peripheries and both the babies were stillborn. The third was following a trial of instrumental delivery and the baby survived. There were also 4 cases (12.12%) of abruptio-placentae associated with severe pre-eclampsia. Three cases (9.09%) encountered severe post-partum haemorrhage and one of them required emergency peri-partum hysterectomy. She was referred in shock from a private hospital after a cesarean section because of continued bleeding. Re- exploration was done in our institution, and hysterectomy was undertaken. Incomplete abortion after a self-intake of over the counter abortifacient drugs constituted for another three (9.09%) of the maternal near-miss cases. Two cases of placenta accreta (6.1%) were also seen, one was diagnosed in the antepartum period by imaging, while the other one was diagnosed intra-operatively. 100% of placenta accrete cases required peri-partum hysterectomy. There was yet one case of acute uterine inversion (3.02%) following a vaginal delivery. Repositioning was required under general anaesthesia in operation theatre. There was one case of immune thrombocytopenic purpura (3.02%) at term pregnancy, one case of eclampsia (3.02%), one case of anaphylaxis to medications (3.02%) and one case of puerperal sepsis in shock (3.02%) following a normal delivery.

The various interventions given were in the form of transfusion of blood and blood products, emergency hysterectomy, ionotropic

supports, admission in ICU, ventilator support, emergency laparotomy, hemodialysis, thrombolysis etc. Emergency peri-partum hysterectomy was required for total of 6 cases (18.1%) - three were cases of uterine rupture, two were cases of placenta accreta, and one was a case of intractable PPH. Twenty five patients out of the total cases (75.7%) received transfusion of some amount of blood or blood products. Out of them, four cases (16%) required massive blood transfusions. The patient who underwent hysterectomy for PPH after a cesarean section from a private hospital went to disseminated intravascular coagulation, and required 17 packed RBC's, 26 fresh frozen plasma, and 12 platelets (a total of 55 blood and blood components). Those two placenta accreta requiring hysterectomy were given at least 10 blood components. Another patient with immune thrombocytopenic purpura at term pregnancy received 23 platelet units during her hospital stay.

DISCUSSION

In a close study done by Pratima K et al⁴ at the same institute in 2012, the ratio of maternal death to maternal near-miss was found to be 1:2.3, as compared to 1:16 in the current study. It either denotes a significant improvement in the management of the life threatening conditions or it may be because of the under-reporting of cases earlier. Since the concept of maternal near-miss cases has become clearer, the reporting of cases is increasing as well. In the present study, ruptured tubal ectopic pregnancy was the leading cause of maternal near-miss cases, while in the earlier study, post-partum haemorrhage was the most common cause.

In another study done by Roopa PS et al⁵ in a tertiary care centre in Karnataka for a year in 2011 to 2012, maternal near-miss incidence ratio was 17.8 per 1000 live births and the mortality index was 14.9%. In our institution, maternal near-miss ratio was found to be 8.6 per 1000 live births which is much lesser, and the mortality index was 5%. While in the study done by Deepti Gupta et al⁶, the maternal near-miss incidence ratio was 16.3/1000 live births, and the maternal near-miss to mortality ratio was 3.5:1. Haemorrhage was reported as the leading cause of maternal near miss mortality (40.5%). In our study, haemorrhage constituted 60.6% of the maternal near-miss cases out of which tubal ectopic pregnancy was the most common cause for haemorrhage while antepartum hemorrhage, postpartum haemorrhage, incomplete abortion were the other causes. Nishat Parveen Begg⁷ had found in his study that 12.58% of the maternal near-miss cases had ectopic pregnancies; and 33.24% of the cases required obstetric hysterectomy.

In a study done by Farjana Ahmed Surovi et al⁷, hypertensive disorders during pregnancy was the major cause of maternal near-miss cases. Sreekumari Umadevi et al⁸ also had found post-partum haemorrhage to be the leading cause of both maternal mortality and maternal near-miss in their institute in Kerala. Hypertensive disorders in pregnancy was also the leading cause of maternal near-miss events in the study done by Sonali J Ingole et al¹⁰ comprising 42.22% of cases. In the same study, sepsis following cesarean section was the leading cause of maternal mortality. 70% of the patients required admission to ICU. 24.1% of the cases required blood transfusion in contrast to the 75.5% of the cases required in our study.

There were various limitations of the study. It was done for a limited period of time of only 6 months. The cases were evidently under-reported because of lack of concept of the definition of maternal near-miss among the health care workers. There is also lack of enough prior studies, or a proper national or regional statistics for comparison.

CONCLUSION

With the improving health care system and the better understanding of the management of near-miss cases, many critically ill patients are being saved. The maternal mortality has also been on declining trend over the years. Like the maternal death review which has been ongoing since years, the maternal near-miss review was also started rather recently. Every institute should train its staffs to use the operational guidelines correctly. Proper review will provide more valuable information to the health care workers, and will also help us in achieving the goal of bringing down the maternal mortality ratio to 70 per 1 lac live births by 2030 as being put forward in Sustainable Development Goals.

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