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KEY WORDS:

STUDY OF NEAR MISS AND MATERNAL MORTALITY IN GGH, KADAPA,ANDHRA PRADESH

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ABSTRACT

As we aim to reduce the maternal mortality, there is necessity to evaluate the preceding events and acute morbidities to evaluate and improve the health care system. Hence obstetric near miss previously known by the term Severe acute maternal morbidity (SAMM) has been considered as a better indicator than mortality indicators. According to WHO 2009,a maternal near miss is defined as a woman who nearly died but survived a complication that occurred during pregnancy, child birth or within 42 days of delivery. This is a retrospective study done between May 2017 and April 2018 at the Department of OBG, GGH, kadapa.Near miss cases are identified by WHO, 2009, near miss identification criteria. Among 7854 deliveries, near miss cases were 38, among which 16 cases (42%) were due to haemorrhage and severe anemia, 12 cases (37%) due to complications of severe preeclampsia/eclampsia,5 cases (13%) due to sepsis,4 cases(10%) due to rupture uterus. Among 12 cases of maternal death 33% were due to complications of severe preeclampsia, 25% due to haemorrhage and severe anemia, 16% due to sepsis, and 8% due to cardiovascular complications. Near miss to maternal mortality ratio being 3.15: 1.

INTRODUCTION:

Despite many therapeutic advances and improvised health care policies, significant maternal morbidity and mortality continue to occur. As we aim to reduce the maternal mortality there is prime necessity to evaluate the preceeding events and acute morbidities resulting in mortality to evaluate and improve the obstetric services.

"Near-miss" describes a patient with an acute organ system dysfunction, which, if not treated appropriately, could result in death (1). Near-miss cases have similar pathways as maternal deaths, with the advantages of offering a larger number of cases for analysis. 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. (2)

The maternal mortality ratio (MMR) of India was 130/100,000 live births (2014–2016), which was reduced to 122/100,000 live births (2015–2017) as per Sample Registration Survey.(3) Many other studies have reported obstetric near-miss to maternal death ratios ranging from 5:1 to 11:1.

Hence, this study was conducted to study and analyse, near-miss cases, and maternal deaths and to determine the frequency of severe maternal complications, maternal near-miss cases,and maternal deaths at Government General Hospital,Kadapa,AndhraPradesh.

AIMS & OBJECTIVES

- In our study, we aimed to determine the frequency of maternal near miss, MNM incidence ratio (MNRM), maternal near miss to mortality ratio, and mortality index.
- Our second objective was to analyse the nature of near miss events and compare the causes of near miss cases with that of maternal mortality. We also saw the trend of near miss events and maternal deaths in the period.

MATERIAL AND METHODS

A retrospective study has been done at Department of Obstetrics and gynecology, GGH, kadapa between May 2017 and April 2018.Near miss cases are identified by WHO 2009 identification criteria. All obstetric admissions during the study period were reviewed and followed up till six weeks after delivery.It is a referral hospital for both public and private hospitals in kadapa and three other surrounding districts in Andhra Pradesh.

In addition to providing twenty-four-hour emergency obstetric services, the hospital also provides antenatal care and delivery services for both low and high risk pregnant women. Hospital has 24-hour facility for blood component therapy.

Data pertaining to the age of the patient, admission details (booked/referral case), antenatal risk factors (obstetric formula, previous caesarean section, anaemia, preeclampsia, diabetes, HIV), intrapartum events (mode of delivery, baby details), postpartum events (near-miss events, maternal deaths), Intensive Care Unit care details, other interventions, and complications of these patients were collected and analysed.

Potentially life threatening conditions were diagnosed, and those cases which met WHO 2009 criteria for near miss were selected. WHO criteria included a set of clinical, laboratory, and management-based criteria. Maternal mortality during the same period was also analyzed. Patients were categorized by final diagnosis with respect to hemorrhage, hypertension, sepsis, Anemia, thrombocytopenia, and other medical disorders were considered as indirect causes contributing to maternal near miss and deaths.

The following near miss indices were calculated.

(1) Maternal Near Miss (MNM) 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 a percentage.

The higher the index, is more women with the life threatening condition die (low quality of care), while low index suggests better quality of health care. (MI = MD/(MNM+MD)×100.

RESULTS:

- During the study period, there were a total of 7854 deliveries and 7638 live births. A total of 192 women were identified with severe maternal complications while there were 38 near-miss cases and 12 maternal deaths.
- Among women with potentially life-threatening conditions, severe preeclampsia was the most common complication, accounting for a total of 89/192cases (46.35%) followed by obstetric haemorrhage(42%) and eclampsia (10%).
- Among 12 maternal deaths, most common cause was hypertensive disorders,5 cases (33%)followed by obstetric haemorrhage 4 cases (25%)followed by sepsis 2 cases (16%) and one case (8%) due to cardiovascular complications, one case (8%) due to obstructed labour.
- Among near-miss cases, haemorrhage was the leading cause 16 cases(42%) of morbidity, followed by hypertensive disorders 12 cases(31%) and sepsis 5 cases(13)%,rupture uterus 4 cases (10%).
- Primipara were slightly more in the near miss group. Majority of the patients were in third trimester at a near miss event, whereas, in the maternal death group majority were postnatal patients A huge burden of maternal near miss cases 90% and 86% of maternal deaths were referred from other hospitals.
- Maternal near miss incidence ratio (MNMR) is 4.97/1000 live births.
- Maternal mortality rate is 157/1lakh live births. Maternal near miss to mortality ratio is 3.15 : 1. The mortality index is 6.25%. A total of 64% of the cases required ICU admission.

DISCUSSION:

Obstetric deaths represent the quality of maternal care. But for the present scenario it may not reflect the global situation with regard to obstetric care. Hence new "near miss" criteria take over maternal mortality ratio. WHO criteria, 2009(4) are unique in considering not only clinical but also laboratory and management-based criteria. Hence it incorporates both Mantel's(5) and Waterston's criteria.[6]

A study by Jayarathnam et al. [7] represents near miss from a developed country, and results are as expected; preeclampsia, PPH, and sepsis are the major causes.

Obstetric hemorrhage was the most common cause of near-miss in our study as in Purandare et al.[8] review of a pilot program on maternal near-miss in 2013.

The near miss to mortality ratio was 3.15:1, which means for every three to four life threatening conditions there was one maternal death.It is close to the near miss to mortality ratio by roopa et al was 5.6: 1[13]. Higher ratios indicate better care. Syrian study showed a ratio of 60: 1 and study done in Nepal showed a ratio of 7.2: 1 [9, 10]. This ratio is similar to those of African country where the range is 1: 5–12 [11]. This is a far cry from those reported in Western Europe. Their studies have reported a ratio of 117–223: 1.[12] If this ratio increases over a period of time, it reflects on the improvement achieved in obstetric care.

The maternal mortality ratio at our setup was 157/100000 livebirths.Another Indian study by Roopa et al and The Brazilian study showed a similar mortality rate of 313/100000 live births and 260/100000 live births respectively.(13) In other developing countries the maternal mortality ratios were 423/100000 live births and 324/100000 live births. [14]

Maternal near miss incidence ratio (MNMR) is 4.97/1000 live births Studies done in other countries show the same trend and vary from anywhere between 15–40/1000 live births.(15,16) The above studies have used various criteria for identification of the cases. A cross-sectional study done in Brazil using the Mantel's and Waterson's criteria showed a varying pickup rate of 62 and 86, respectively(17). So some variation in the pickup rate from other studies might be there with the WHO criteria.

Our hospital is a tertiary care referral centre with most of the cases being referred in complicated state. The delays in referrals are a major cause of morbidity and mortality. Establishment of a tertiary care in each district is essential. Delayed diagnosis, inappropriate transfer, and inadequate utilization of resources might have been the cause for maternal morbidities and mortalities in our study.

Availability, accessibility, cost of health care, and behavioural factors play an important role in the utilization of maternal health care services,

CONCLUSION:

Hemorrhage and hypertensive disorders are the leading causes of near miss events. As near miss analysis indicates quality of health care, it is worth presenting in national indices.

Training of the health care personnel dealing with obstetric emergencies on basic management and early referral and provision of blood bank facilities at the primary and secondary care levels helps in reducing the acute morbidities and in return near miss and mortality.

ABBREVIATIONS:

MD: Maternal death
MNMR: Maternal near miss incidence ratio
MI: Mortality index
MMR: Maternal mortality ratio
SAMM: Severe acute maternal morbidity

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