



MATERNAL NEAR MISS REVIEW : THE NEED OF THE HOUR

Gynaecology

Dr Jayati Nath*

Professor, Ob Gyn, MMIMSR, Mullana, Ambala, Haryana. *Corresponding Author

Dr Himani
Aggarwal

PG trainee, Ob Gyn, MMIMSR, Mullana, Ambala, Haryana

ABSTRACT

Maternal morbidity is a true mirror reflecting the standard of health-care of a nation & is frequently described to be "just the tip of the iceberg" since a vast proportion of the same remains unreported. Therefore, the concept of Maternal Near Miss (MNM) or Severe Acute Maternal Morbidity (SAMB) was introduced in maternal health-care to complement information required from Maternal Death Review (MDR). This review is an attempt to clear the misconceptions & update the readers regarding the concept of MNM which may prove to be instrumental in helping in formulating policies to improve the health-care services at each level across the whole nation.

KEYWORDS

Maternal near miss review, Maternal death review, Maternal morbidity & mortality, Maternal mortality rate, Maternal health, Maternal Death Review.

INTRODUCTION:

Maternal Health reflects directly on the status of health care of a nation and the 5th Millennium Development Goal (2,3) aims at reducing the maternal morbidity and mortality to a minimum. Apart from helping in conceiving & selling up of new health-care goals, it also helps in comparison between different countries and also different regions within a country regarding the level of health-care status. (1). It is estimated that around 20% of all global maternal deaths occur in India. (2). The maternal mortality rate (MMR) in India is 212 (national) with some states registering figures as high as 390. (3). The death of a mother not only ruins the integrity of the family unit, but also compromises the subsistence of the child for up to a decade. (4).

Maternal Mortality is not only a consequence of the innate risks related with the gravidity and parturition, but also the financial and socio-cultural aspects which keep the pregnant women away from the available health-care services. (1). Even though a health infirmity may be reached, but non-availability of vital facilities and suboptimal care may compromise maternal survival. (5).

Traditionally, maternal mortality (MM) has been used as an indicator of maternal health (6). It is judged by maternal mortality rate (MMR) defined as the number of maternal deaths per 100,000 live births. For this purpose, Maternal Death Review (MDR) was launched by MOHFW (Ministry of Health & Family Welfare) India in 2010. (7). Though quite useful, now it is not considered sufficient alone for the proper evaluation of obstetric health in India in isolation.

THE INSUFFICIENCY OF MATERNAL MORTALITY:

Maternal Mortality reflects just the tip of the iceberg with a vast base to the iceberg-maternal morbidity- which to a large extent remains unreported and relatively unevaluated. (8). MMR has declined drastically globally especially in the developed nations. Even in the Low to Middle Income Countries (LMIC) the absolute number of maternal deaths in facility is low, therefore, it hardly allows reliable quantitative analysis of maternal health. (1). In India, the MMR has fallen from 212 to 178 per 100,000 live births (SRS 2010-12) (9). For every woman that dies, many more survive a life-threatening pregnancy complication. An estimated 2,89,000 women died in 2013 (9), but in contrast, 300 million survived & suffered along term or short term disability due to pregnancy & childbirth (9). It is therefore evident that for adequate and appropriate evaluation of maternal health, all these survivors should be included in all the analysis, so as to get the correct picture of the actual health care status of the obstetric population.

WHAT IS MATERNAL NEAR MISS (MNM) ?

Women who have experienced and survived a severe life-threatening condition during their pregnancy, child birth or post-partum, are considered as maternal near miss (MNM) or Severe Acute Maternal Morbidity (SAMB) cases. (10). These cases share many characteristics with maternal deaths & can directly inform about the

hurdles that need to be overcome after the onset of an acute obstetric complication (11).

This can thus aid in formulating corrective actions for the identified problems so as to reduce the related mortality and also long term morbidity due to the same. Therefore, MNM has emerged as an adjunct and proxy measure for identifying gaps and loop-holes in our maternal health-care services and act as a complementary to maternal mortality.

WHO defines MNM (Maternal Near Miss) as "a woman who nearly died but survived a complication that occurred during her pregnancy, childbirth or within 42 days of termination of pregnancy." (2). For all practical purposes, women are considered to be near miss cases when they survive life-threatening conditions i.e. organ dysfunction.

MOHFW of India defines a MNM case as a woman who survives life-threatening conditions during her pregnancy, abortion & childbirth or within 42 days of termination of pregnancy, irrespective of receiving emergency medical or surgical interventions. (7).

CRITERIA FOR IDENTIFYING AN MNM CASE:

WHO recommends 3 approaches for the same

1. Disease-specific criteria eg. Severe PreEclampsia/Eclampsia, severe haemorrhage/ severe sepsis/ uterine rupture (2).
 2. Management/intervention-based eg. Admission to ICU, procedures eg. Obstetric hysterectomy/ massive blood transfusion/ intubation/ ventilation.
 3. Organ dysfunction based criteria-based on apparent clinical diseases, clinical markers & management needs.
- The aim is towards the correction of that organ dysfunction to arrest MNM from progressing to MD (maternal death).
 - These consist of cardio-vascular/ respiratory/ renal/ coagulation dysfunction/ hepatic/ neurological/ uterine dysfunction.
 - This is rightly considered as 'the most promising frame' for establishing a standard set of criteria.
 - It needs a minimum level of care or basic critical care monitoring facilities & cannot be used in low-resource settings.

THE INDIAN RECOMMENDATIONS FOR DIAGNOSING MNM:

A Pilot study conducted by MOHFW over 6 medical colleges of India (2014) developed new comprehensive criteria for use in Indian setup for diagnosing MNM. (12)

These criteria were divided into 3 groups:

- Pregnancy-specific medical/ obstetric disorders.
- Pre-existing disorders aggravated by pregnancy.
- Incidental/ accidental disorders.

For identifying or diagnosing case as MNM, a minimum of 3 criteria (Minimum 1 from each of the following must be present):

- Clinical findings (signs & symptoms)
- Investigations
- Interventions warranted

OR

Any single criteria signifying cardio-respiratory collapse.

WHO-PROCESS INDICATORS OF MNM:

These were based on the concept of criteria based on clinical audit. It is a feasible method of auditing the quality of maternal health care. & is useful for assessing the lacunae between the actual use and optimal use of high-priority interventions in preventing and managing severe complications of pregnancy and childbirth.(13)

MNM Indicators:

- Severe maternal outcome ratio (SMOR)= Number of women with life-threatening conditions (MNM+MD) per 1000 live birth (LB) which gives an estimate of the amount of care & resources that would be required in an area or facility.
- $SMOR = (MNM + MD) / LB$ (2, 7, 13)
- MNM ratio (MNM/R) = Number of maternal near miss cases per 1000 live births (MNM/R = MNM/LB) which gives an idea about the amount of care & resources required in an area.
- MNM Mortality ratio (MNM : 1 MD) which refers to the ratio between the MNM cases & maternal deaths. Higher ratio = Better care.
- Mortality Index = Number of maternal deaths divided by the no. of women with life-threatening conditions expressed as a percentage. $[MI = MD / (MNM + MD)]$. Inversely proportional to the status of quality health care.

WHAT IS AN MNM REVIEW ?

The process of an MNM review (MNM-R) involves the following steps:

1. Identification of MNM cases
2. Notification to MO/HOD
3. Data transmission (Institute>District>State)
4. Review (Institutional & District level)
5. Analysis + Feedback for necessary action

WHAT ARE THE ADVANTAGES OF MNM-R ?

MNM cases are much more common than maternal deaths (1,10).

Therefore MNM-R provides adequate information & proper analysis can be done regarding the actual status of health-care facilities & their utilization.

- MNM provides more statistically reliable quantitative analysis & thus more comprehensive profile of functioning of the health-care system (1).
- MNM shares the same pathological pathway as MM
- Normal pregnancy > morbidity > severe morbidity > maternal near miss > maternal death (13)
- The major etiological factors are same for both, therefore, or review of MNM cases will reveal valuable information related to severe morbidity, which if untreated > may lead to MM.
- MNM is a precursor to MM and as the saying goes
- "Prevention is better than cure"
- MNM-R provides valuable insights into the social & family problems & lack of awareness of health care facilities along with identifying the level of delays and where they occur.

WHAT IS THE ROLE OF MNM REVIEW IN REDUCING MATERNAL MORTALITY ?

- MNM-R is relatively simpler to analyse, easier to resolve.
- When used in conjunction with MDR, it aids in recognizing patterns & trends of maternal morbidity & mortality.
- It helps in evaluation of quality of health-care & to monitor it (13,14,15,16).
- It helps in identifying areas of poorer quality care & helps in focussing interventions those particular areas.
- MNM-R is beneficial in gauging & analysing the requirement of health-care facilities in terms of infrastructure, human resources & interventional facilities as well as comparing the existing health-care of optimum health-care that is required in a particular area or

facility.(16)

- It assists in identifying modifiable socio-demographic factors responsible for maternal morbidity & mortality.
- It also helps in international comparisons in imparting optimal health-care. (18,19)

CONCLUSION :

MNM-R is an eminent and powerful adjunctive strategy which can help us identify the lacunae in the health-care services available. MNM-R & MDR are complementary to each other & when used together, yield better results.

MNM when used along with MDR will provide a vital tool that can help recognize the contributory factors of maternal deaths so that appropriate and timely actions can be taken at community and health-care systems level which will go a long way in reducing maternal morbidity and mortality.

ABBREVIATIONS:

1. MNM : Maternal Near Miss
2. SAMM : Severe Acute Maternal Morbidity
3. MMR : Maternal Mortality Ratio
4. MDR – Maternal Death Review

REFERENCES

1. Marwah S. et al – Int. J. Reprod Contr. Obst. Gynaecol – 2017 May ; 6(5) : 1703-1706.
2. Say L. et al – "WHO Systematic Review of Maternal Morbidity & Mortality : the prevalence of SAMM (near miss)" Reproductive Health. 2004 ; 1(1) : 10-19.
3. UNMD : 55th Session of UNGA, M-York ; UN : 2000.
4. WHO : UNICEF : UNFPA : the World Bank. Trends in MMR. 1990-2010. WHO , UNICEF , UNFPA & WB estimates : 2012.
5. Say L. et al – MNM – Best Practice & Research 2009 ; 23(3) : 287-296.
6. Purandare C. N et al – MNM – Review : J. Obstet. Gynaecol. India. 2013 ; 63(4) : 213-215.
7. Souza J. P. et al – Appropriate criteria for identification of MNM & MM : a cross-sectional study. BMC Pregnancy childbirth. 2007 ; 7-20.
8. Stones W. et al – MNM episodes. Health Trends. 2011. 23(1) : 13-15.
9. Noor S. et al – An audit of obstetrical hysterectomy: J. Coll. Phy. Surg. 2011 ; 11 : 642-645.
10. Sahel A. et al – Obstetric catastrophes barely avoided : MNM in Morocco. Cahiers/Sante. 2011 ; 11(4) : 229-235.
11. Sivalingam N. et al – clinical exp with MNM – Med. J. Malaysia, 2015 ; 54(4) : 496-503.
12. Vandecrys H. I et al – SAMM – Eur. J. O. G. Rep Biol. 2012 ; 102(1) : 6-10.
13. Geller S. et al – Defining a conceptual frameworks for MNM & MM – J. Am. Med. Womens Assoc. 2012 ; 57 : 135-139.
14. Pattinson R.C. et al – Near misses – adjunct to maternal death enquiries , British. Medical. Bulletin 2013 ; 67 : 231-43.
15. Cochet et al – SAMM & MM – South African Med J 2013 ; 93(9) : 700-702.
16. Mc Donald A.P. et al – childbirth deaths WHO – 2001.
17. Mentel G. D. et al – SAMM – BJOG British Journal of Ob Gyn 2014 ; 105 : 985-990.
18. Sahel et al – N.M. in obst – Acta Obstet Gynaecol Scand 2016 ; 84(1) : 11-16.
19. Roopa P.S et al – MNM – an audit. Journal of Pregnancy and Childbirth . 2015 ;
20. Sangeeta G. et al – MNM – Journal of Obst & Gynecology - 2016 ; 65(1) : 23-7
21. Sauza J.P. et al – WHO – MNM – Reprod. Health 2017 ; 2(8) : 22-27