



RETROSPECTIVE ANALYTICAL STUDY ON CAUSES AND CONTRIBUTORY FACTORS OF MATERNAL MORTALITY

Dr. Riya Desai

Third year resident, Department of Obstetrics and Gynaecology, Civil Hospital, Ahmedabad

Dr. Mahima Jain *

Professor and Head of Unit, Department of Obstetrics and Gynaecology, Civil Hospital, Ahmedabad *Corresponding Author

ABSTRACT

Maternal mortality is an important indicator which reflects the health status of a community. Main causes of maternal mortality are hemorrhage, infection, unsafe abortion, hypertensive disorder of pregnancy and medical disorders associated with pregnancy. This study was done to analyze the causes and contributory factors of maternal mortality at a tertiary care hospital and take early intervention measures to decrease its incidence in developing countries. The retrospective study was done over a period of 1 year. Total 51 maternal deaths occurred from April 2021 to March 2022. Retrospective evaluation of the cases with respect to causes, admission to mortality interval, age, parity, antenatal booking, socioeconomic status, period in which she died (antenatal or postnatal) etc. and systemic analysis of all contributing factors were done. A total of 55% of the deaths were due to direct causes with preeclampsia and eclampsia being the most common cause followed by obstetric haemorrhage and sepsis. Anemia was the most important contributory factor followed by respiratory, cardiovascular diseases and other medical disorders. Other rare causes included renal disease, Acute promyelocytic leukemia, sickle cell, etc. A large number of maternal deaths seem to be avoidable if we are able to strengthen our maternity and child health services. Equally important, however, remains the upgradation of the status of females in the society with emphasis on literacy and general health awareness.

KEYWORDS : Maternal mortality, Preeclampsia, Eclampsia, Obstetric haemorrhage

INTRODUCTION

According to WHO, Maternal death is defined as The annual number of female deaths from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy and childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy.¹

The maternal mortality ratio (MMR) is defined as the number of maternal deaths during a given time period per 100,000 live births during the same time period. It depicts the risk of maternal death relative to the number of live births and essentially captures the risk of death in a single pregnancy or a single live birth.¹

Maternal mortality ratio (MMR) is an important indicator of maternal and child health (MCH) care. Reduction of MMR is an important demographic goal for all countries, especially for developing countries like ours. Research has shown that most of the maternal deaths could be averted if women had access to essential maternity and basic healthcare services. Maternal deaths not only question our health infrastructure but also point on the social and literacy status of females in any society.

AIMS AND OBJECTIVES

To analyze the cases of maternal mortality over a period of 1 year with regard to direct, indirect and associated causes and social correlates with a motive to guide measures to lower MMR and improve maternal and fetal outcomes.

Justification of The Study:

Between 1990 and 2015, the global maternal mortality ratio (MMR) decreased by 44%² Despite this progress, the world still fell far short of the Millennium Development Goals target of a 75% reduction in the global MMR by 2015.

Sustainable Development Goals:

Maternal mortality reduction remains a priority under "Goal 3: Ensure healthy lives and promote well-being for all at all ages" in the new Sustainable Development Goals (SDGs) agenda through 2030. In February 2015, the World Health Organization published "Strategies towards ending

preventable maternal mortality (EPMM)" (EPMM Strategies), a direction-setting report outlining global targets and strategies for reducing maternal mortality under the SDGs.²

Targets:

Global Target:

By 2030, reduce the global maternal mortality ratio (MMR) to fewer than 70 maternal deaths per 100,000 live births.³

National Targets:

By 2030, countries should reduce their MMRs by at least two-thirds from their 2010 baseline; countries with the highest maternal mortality burdens will need to achieve even greater reduction and by 2030, no country should have an MMR greater than 140 maternal deaths per 100,000 live births, a number twice the global target.³

METHODOLOGY

The present study was conducted at Civil Hospital, Asarwa, Ahmedabad.

A retrospective analysis of 51 cases of maternal mortality over a period of 1 year, i.e. 1st April 2021 to 31st March 2022 was done. Each case was analyzed with respect to age, parity, antenatal booking, literacy, socioeconomic status, period in which she died (ante partum or post partum), mode of delivery, etc. Direct, indirect, associated causes and socio demographic factors contributing to mortality were studied and systemically analyzed.

Also, the number of cases referred from peripheral centres were studied which showed that early detection of high risk cases and early referral can prevent morbidity and mortality significantly.

RESULTS

Total 51 maternal deaths occurred in a period of 1 year. Total number of live births during this period was 5705. Hence maternal mortality ratio turns out to be 8.9 per 1000 births (as the total number of live births are less, we have calculated per 1000 live births⁷) which is 0.89% of the total live births. Various factors contribute directly or indirectly to maternal death.

Age distribution of mothers at the time of death showed that maximum female were in the age group of 21 to 30 years.

FIG 1 showed that a little less than one third of the women had received Antenatal Care whatever is the source:

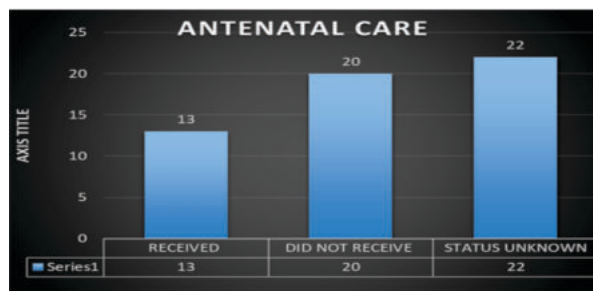


Fig 1

Among the maternal deaths, 58% of them were referred from peripheral centres. Also, 51% of the women were multigravida and 49% were primigravida.

73% of the mortality took place in postpartum period, remaining were still antepartum. Out of postpartum cases, 16 had vaginal delivery, 20 were delivered through C-Section and 3 cases were post abortion.

Outcome of pregnancy:

24 out of 51 mothers had live births, 10 had intrauterine death, 3 had still birth ,3 were post abortion and 11 were still undelivered.

Causes of Maternal Mortality

Direct causes contribute 67% to maternal mortality, Indirect medical causes contribute the remaining 33% in maternal mortality.

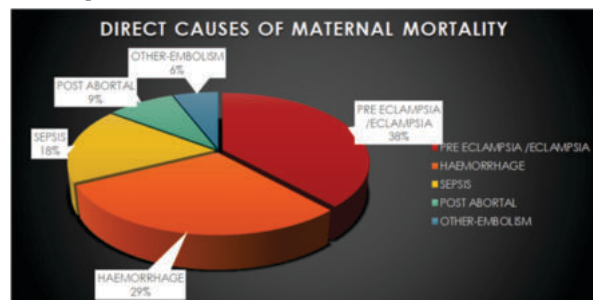


Fig 2 shows direct causes of maternal mortality.

Table 1 shows Causes of Maternal Mortality Overall:

TOTAL NUMBER OF CASES=51					
DIRECT DEATHS			INDIRECT DEATHS		
CAUSE OF DEATH	NO. OF PATIENTS	%	CAUSE OF DEATH	NO. OF PATIENTS	%
PRE-ECLAMPSIA/ECLAMPSIA	13	25%	OTHER RESPIRATORY CAUSES	6	11.71%
HAEMORRHAGE	10	19.6%	CARDIAC CAUSES	4	7.84%
SEPSIS	6	11.71%	JAUNDICE	2	3.92%
POST ABORTAL	3	5.88%	ANEMIA	2	3.92%
OTHERS-EMBOLISM	2	3.92%	OTHERS	3	5.88%

DISCUSSION

The major or leading causes of maternal deaths reported (Preeclampsia and eclampsia followed by hemorrhage⁶) in this assessment has been the trend in developing countries in the recent times⁴. Hypertensive disorders of pregnancy result in 25% of all maternal deaths. They can be prevented by early detection and management of hypertension in pregnancy.

Around 33% of maternal deaths were due to indirect causes,

that is the result of pre-existing diseases or disease that developed during pregnancy, which are not due to direct obstetric cause but are aggravated by physiological effect of pregnancy.

Overall, there is overwhelming evidence that most maternal deaths are a fall out of un-booked cases. When a pregnant woman is not booked for antenatal care or does not deliver in a health facility, she misses all the opportunities offered by antenatal care, benefits of active management of labour, Emergency Obstetrics Care (EOC) and management of the puerperal period, thereby having a higher risk of maternal death.⁵

It is thus important to stress the need for active management of labor and the immediate post-partum period to all care providers.

The need for Early Detection of High Risk Cases And Prompt Referrals should be stressed to health care workers in all primary health care facilities so as to prevent further maternal deaths.

CONCLUSION

We concluded that majority of causes and contributory factors to reported maternal deaths are preventable through combined safe motherhood strategies of focused antenatal care, prompt referral, active management of labour and immediate post-partum period and access to family planning.

High maternal mortality reflects not only inadequacy of healthcare services for mothers, but also a low standard of living and socioeconomic status of the community. Provision of essential and emergency obstetric care at root levels should be a priority care.

Equally important is an attack on social and cultural factors. This calls for proper implementation of maternal and child healthcare programs and overall socioeconomic development of the community through active community involvement, only then maternal mortality can be reduced to targeted levels.

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