

Causes of Maternal Mortality: Our Scenario

Monica Soni, Sudesh Agrawal, Prasoon Soni, Haritasha Mehra

ABSTRACT

Objective: To analyze the cases of maternal mortality over a period of 3 years with regard to direct, indirect and associated causes and social correlates.

Materials and methods: Retrospective evaluation of the cases with respect to causes, admission to mortality interval, age, parity, antenatal booking, socioeconomic status, etc. and systemic analysis of all contributing factors.

Result and observation: A total of 66.67% of the deaths were due to direct causes with obstetric hemorrhage being the most common cause followed by puerperal sepsis. Anemia was the most important indirect cause followed by hepatitis and cardiovascular diseases.

Conclusion: 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 up-gradation of the status of females in the society with emphasis on literacy and general health awareness.

Keywords: Maternal mortality, Maternal deaths, MMR.

How to cite this article: Soni M, Agrawal S, Soni P, Mehra H. Causes of Maternal Mortality: Our Scenario. *J South Asian Feder Obst Gynae* 2013;5(3):96-98.

Source of support: Nil

Conflict of interest: None declared

INTRODUCTION

According to WHO, maternal death is defined as 'the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of pregnancy, from any cause related to or aggravated by the pregnancy or its management but not by accidental or incidental cause'.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 approximately 80% of maternal deaths could be averted if women had access to essential maternity and basic healthcare services.² The extent of maternal mortality is an indicator of disparity and inequity in access to appropriate healthcare and nutrition services throughout a lifetime, and particularly during pregnancy and childbirth.³ Maternal deaths not only question our health infrastructure but also point on the social and literacy status of females in any society.

The present study was conducted at Department of Obstetrics and Gynecology, PBM Hospital, Bikaner, Rajasthan and was meant to analyze the risk factors and causes associated with maternal mortality, with a motive to guide measures to lower MMR and improve maternal and fetal outcomes.

MATERIALS AND METHODS

A retrospective analysis of 186 cases of maternal mortality over a period of 3 years, i.e. 1st April 2008 to 31st March 2011 was done. Each case was analyzed with respect to age, parity, antenatal booking, literacy, socioeconomic status, residence, mode of delivery, admission-to-mortality interval, etc. Direct, indirect, associated causes and sociodemographic factors contributing to mortality were studied and systemically analyzed.

Observations

- Age distribution:

<20 years	40	21.56%
21-25 years	79	42.47%
26-30 years	43	23.12%
31-35 years	14	07.53%
36-40 years	04	02.15%
>41 years	06	03.23%
- Parity distribution:

Primigravidae	79	42.47%
Multigravidae	96	51.61%
Grand-multi	11	05.91%
- Education status:

Literate	63	33.87%
Illiterate	123	66.13%
- Residence:

Rural	119	63.98%
Urban	67	36.02%
- Antenatal booking:

Unbooked	166	89.25%
Booked	20	10.75%
- Socioeconomic status:

Lower	143	76.88%
Middle and upper	43	23.12%
- Delivery:

Undelivered	56	30.11%
Home delivery	74	39.79%
Delivery at hospital other than ours	10	05.38%
Delivery at our hospital	46	24.73%
- Admission- to-mortality interval:

<1 hours	28	15.05%
1 to 6 hours	44	23.66%
6 to 12 hours	36	19.35%
12 to 18 hours	10	05.38%
18 to 24 hours	13	06.99%
24 hours to 7 days	43	23.12%
>7 days	12	06.45%
- Cause of death: As per the International Classification of Diseases (ICD), 66.67% of the cases were direct obstetric deaths and 33.33% were indirect obstetric deaths. Obstetric

hemorrhage and sepsis were the leading direct causes. Important indirect causes were anemia, hepatitis and heart disease. The details are shown in Table 1 and Figure 1.

DISCUSSION

Our study was a retrospective analysis of 186 cases of maternal mortality over a period of 3 years at the Department of Obstetrics and Gynecology, PBM Hospital, Bikaner, Rajasthan. About 67% of maternal deaths were due to direct causes, i.e. obstetric complications of pregnancy, labor and puerperium. The single most important cause leading to maximum number of maternal deaths was obstetric hemorrhage, generally occurring postpartum. PPH also needs special attention because it can lead to death very rapidly in the absence of prompt life-saving care. It has the shortest reported episode to death interval. The time available for intervention being short, demands an efficient medical back-up for all deliveries. Institutional deliveries should be reached to 100%. Sepsis was the cause of about 23% maternal deaths. This was mainly due to puerperal infections, often the consequences of poor hygiene during delivery, or untreated reproductive tract infections. Such infections can be easily prevented. Hypertensive disorders of pregnancy, particularly eclampsia (convulsions) result in 11% of all maternal deaths. They can also be prevented by early detection and management of hypertension in pregnancy. Other direct causes include prolonged or obstructed labor, unsafe

abortions, embolism and deaths related to interventions. Deaths due to abortions can be prevented by increasing access to safe abortion services.

UNICEF reports that approximately 80% of maternal deaths could be averted, if women have access to essential maternity and basic healthcare services.² About three quarters of maternal mortalities result from direct obstetric complications.⁴ Worldwide, the most common cause of maternal mortality is hemorrhage (24%) but the proportion due to other causes varies between regions.⁴ Data from sample registration scheme (SRS) indicate that the major causes of maternal mortality in India are hemorrhage (30%), anemia (19%) and sepsis (16%).⁵

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. One of the most significant was anemia. Other important indirect causes were hepatitis and cardiovascular diseases. Swine flu and pneumonia (swine flu not confirmed) also accounted for the tool due to epidemic of H1N1 virus. Malaria with higher prevalence in this area also plays a role.

It was observed that many maternal deaths were due to preventable causes. The low status of women in the society, coupled with low literacy levels prevents the women from taking antenatal care even if the services are available. Similar results have been reported by various studies.¹⁻⁴

Social Correlates

A number of social factors influence maternal mortality. The optimal and high childbearing years are between 20 and 30 years. Most of the patients were of 21 to 30 years of age but age specific mortality was highest at both extremes of age. High parity contributes to high maternal mortality especially in cases with short birth intervals. Poor, illiterate patients coming from remote rural areas with no antenatal case and unbooked cases are more vulnerable to morbidity and mortality. Not only these variables are interrelated but they also precede the medical causes and make pregnancy and child birth a risky venture.

About 30% were antenatal or intranatal deaths and about 70% were postnatal cases. Of the delivered patients, about 57% of the cases were delivered at home. Most of these were delivered without the services of a trained midwifery personnel.

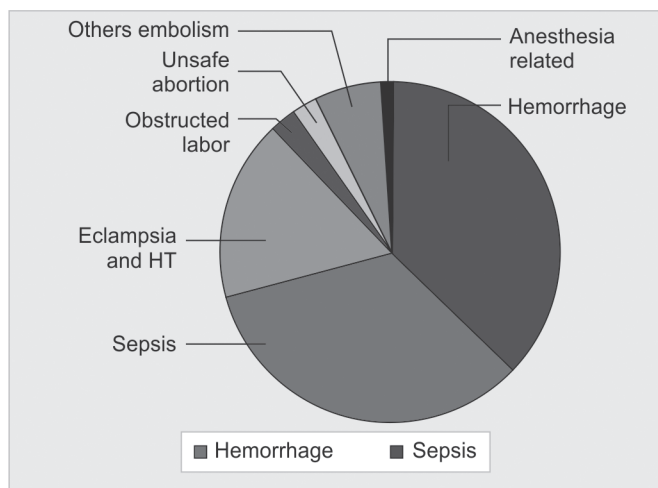


Fig. 1: Direct causes of maternal mortality

Table 1: Direct causes of maternal mortality

Total number of cases = 186							
Direct deaths = 124 (66.67%)				Indirect deaths = 62 (33.33%)			
Sl. no.	Cause of death	No. of patients	%	Sl. no.	Cause of death	No. of patients	%
1	Hemorrhage	46	24.73	1	Anemia	13	6.99
2	Sepsis	42	22.58	2	Heart disease	8	4.30
3	Eclampsia and HT	21	11.29	3	Hepatitis	8	4.30
4	Obstructed labor	3	1.61	4	Swine flu	6	3.23
5	Unsafe abortion	3	1.61	5	Pneumonia	7	3.76
6	Others - embolism - Anesthesia related	8	4.30	6	Other resp. diseases	5	2.69
		1	0.54	7	Malaria	7	3.76
				8	Others	8	4.30

About 15% of the maternal deaths occurred within 1 hour of admission in the hospital, pointing to the critical condition in which they were brought. About 70% succumbed within 24 hours.

CONCLUSION

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.

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