

A Retrospective Study of Maternal Mortality in A Tertiary Care Hospital

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Abstract

Introduction: Maternal mortality is defined as the death of any woman while being pregnant or within 42 completed days of termination of pregnancy, irrespective of the duration or site of pregnancy, from any cause related to or aggravated by pregnancy, but not from accidental or incidental causes.¹ Maternal mortality ratio (MMR) is defined internationally as the maternal mortality rate per 1 lakh live births.

Materials and Methods: A retrospective hospital based study was conducted in the Department of OBG, M.G.M Medical College, Jamshedpur, India over a period of 2 years from January, 2017 to December, 2018. All booked or unbooked maternal deaths admitted at the time of pregnancy, delivery or during puerperium were included in study. The data was collected from hospital records. The medical records sheets of all identified women were reviewed regarding age, parity, residence, antenatal booking status and cause of maternal death. Data was collected on a proforma and entered into computer using SPSS version 10 for analysis. Permission of the institutional ethical committee was obtained before recording data on proforma with the assurance of its confidentiality. Causes of death were identified as direct cause and indirect cause.

Results: A total of 53 deaths were analyzed. The mortality rate in study period was 441 per 1,00,000 live births. Maximum maternal deaths were reported in the age group 20-24 years. More deaths were reported in primiparous women (49.16%) as compared to multiparous women (35.83%). Most of them were unbooked cases (56.66%). The classic triad of haemorrhage (36.66%), hypertensive disorders (23.33%) and sepsis (12.5%) were the major direct causes of maternal death. Anemia was the major indirect cause of death. Other indirect causes of maternal death were jaundice, heart disease, respiratory disease and epilepsy.

Conclusion: A number of sociodemographic factors affect maternal mortality. It was observed that poor, illiterate, unbooked women coming from remote rural areas were more vulnerable to morbidity and mortality. Haemorrhage is the leading cause of maternal death followed by hypertensive disorders and sepsis. Anemia continues to be the most common indirect cause. Death due to haemorrhage can be controlled by SBA training of all nursing staff. Death due to hypertensive disorders can be reduced by early identification of PIH, use of Magnesium sulphate and early termination of eclampsia.

Key Words: Maternal mortality, primiparous, hypertensive disorders, Haemorrhage

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I. Introduction

Maternal mortality is defined as the death of any woman while being pregnant or within 42 completed days of termination of pregnancy, irrespective of the duration or site of pregnancy, from any cause related to or aggravated by pregnancy, but not from accidental or incidental causes.¹ Maternal mortality ratio (MMR) is defined internationally as the maternal mortality rate per 1 lakh live births. Maternal mortality remains one of the most daunting public health problems in India. Even today 20% global maternal deaths occur in India.² MMR for India was 301 per 100,000 live births by Sample Registration Survey (SRS) 2003 estimate and came down to 167 by SRS survey 2013 estimate.³ Maternal mortality is ascribed usually to complications that generally occur during or around labor and cannot be accurately predicted. The direct causes of maternal mortality, that is, hemorrhage, unsafe abortion, eclampsia, obstructed labor, infection, and others account for about three-fourths of maternal deaths. The remaining one-fourth are indirect causes such as anemia, hepatitis, heart disease, malaria, and human immunodeficiency virus (HIV)/ acquired immunodeficiency syndrome (AIDS). The other contributory causes are early marriage, adolescent pregnancy, poverty, malnutrition, harmful traditional practices, illiteracy/ignorance, etc.⁴ These are mostly preventable through regular antenatal checkup, proper diagnosis, and management of labor complications.⁵ Maternal mortality is an indicator of the quality of obstetric care in a community, directly reflecting the utilization of healthcare services available.⁶ One of the

most important goals of the MDGs is to reduce the maternal mortality. It was in this context, this study was conducted with the objectives to assess the existing MMR and the causes of maternal mortality over a period of 2 years in a tertiary care hospital in Jamshedpur.

II. Materials And Methods

This was a retrospective study of 53 cases of maternal deaths over a period of 2 years from January 2017 to December 2018. All booked or unbooked maternal deaths admitted at the time of pregnancy, delivery or during puerperium were included in study. The data was collected from hospital records. The medical records sheets of all identified women were reviewed regarding age, parity, residence, antenatal booking status and cause of maternal death. Data was collected on a proforma and entered into computer using SPSS version 10 for analysis. Permission of the institutional ethical committee was obtained before recording data on proforma with the assurance of its confidentiality. Causes of death were identified as direct cause and indirect cause.

III. Results

During the study period January 2017 to December 2018 there were a total of 12004 live births and 53 maternal deaths. The MMR in the study period was 441 per 1,00,000 live births.

Residency	Number	Percentage
Urban	14	27.5
Rural	39	72.5
Total	53	100

Table 1: Distribution of cases according to residence

Maximum maternal deaths were reported in the age group 20- 24 years (37.5%). Death among teenage pregnancies were seen in 6.2% of cases. Regarding parity majority of deaths were seen in primiparous women (49.16%) as compared to multiparous women (35.83%). 56.66% of cases were unbooked. More maternal deaths were reported in women from rural areas (72.5%).

The classic triad of haemorrhage, hypertensive disorders and sepsis were the major causes of maternal death. In our study haemorrhage was the leading cause of maternal death followed by hypertensive disorders seen in 23.33% of cases. Sepsis was seen in 12.5% of cases. Rupture uterus and pulmonary embolism were other direct causes of maternal death. Anemia was the major indirect cause and significant comorbid factor of maternal death. The other indirect causes of maternal death were jaundice, heart disease, respiratory disease and epilepsy (Table 4).

Antenatal care	Number	Percentage
No Antenatal care	36	67.5
Irregular Antenatal care	12	22.5
Regular Antenatal care	5	10
Total	53	100

Table 2: Distribution of cases according to Antenatal care

Patient characteristics	Classification	No of cases	Percentage
Age	<20	9	18.33
	20-24	20	37.5
	25-29	10	19.16
	30-34	7	13.33
	>34	6	11.66
Parity	Primi	26	49.16
	Multigravidae	19	35.83
	Grandmulti	8	15
Antenatal Status	Booked	23	43.33
	Unbooked	30	56.66

Table 3: Demographic characteristics of maternal deaths

Cause	Number	Percentage
Haemorrhage	20	36.66
Hypertensive Disorder	12	23.33
Anemia	9	12.5
Rupture Uterus	2	5
Pulmonary Embolism	3	6.66
Jaundice	1	2.5
Heart Disease	2	4.16
Respiratory Disorder	3	5.83
Epilepsy	1	3.33

Table 4: Causes of Maternal Deaths

IV. Discussion

Maternal mortality is a global health problem. According to estimates by the United Nations, at current levels of fertility and mortality, 1 in 190 women in India face the risk of maternal mortality compared with 1 in 170 in Pakistan and 1 in 1400 in Sri Lanka.⁷ Recently UNICEF has estimated that approximately 80% of maternal death could be averted if women had access to essential maternity and basic health care services.⁸

The maternal mortality ratio (MMR) in our study is 441 per 1,00,000 live births which is very much higher than national standards of MMR in India that is 212 per 1,00,000 live births.⁹ Present study has comparatively higher MMR which could be due to the fact that our hospital is a tertiary care hospital and receives a lot of complicated referrals from rural areas. In a study by Tayade et al reported an MMR of 242 at Wadgwa, Maharashtra where as Shivkumar et al reported MMR of 974 at VIMS Bellary, Karnataka.^{10,11}

Most mothers died in the age group 20-24 years (37.5%). Majority of them were unbooked (56.66%) and Primi (49.16%). In present study demographic characteristics of maternal death were comparable to Pathak et al and Sashikala Mootha.^{12,13} In present study haemorrhage was the leading cause of maternal death followed by hypertensive disorders and sepsis (Table 3).¹⁴ Even today large number of maternal deaths were due to classic triad of haemorrhage, hypertensive disorders and sepsis. The indirect causes of maternal death were jaundice, heart disease, respiratory disorders and epilepsy. Anemia was the significant comorbid factor in our study which is comparable to study done by Paul et al.¹⁵

V. Conclusion

A number of sociodemographic factors affect maternal mortality. It was observed that poor, illiterate, unbooked women coming from remote rural areas were more vulnerable to morbidity and mortality. Haemorrhage is the leading cause of maternal death followed by hypertensive disorders and sepsis. Anemia continues to be the most common indirect cause. Death due to haemorrhage can be controlled by SBA training of all nursing staff. Death due to hypertensive disorders can be reduced by early identification of PIH, use of Magnesium sulphate and early termination of eclampsia. The need for antibiotics and infection control practices are to be strictly followed to reduce death due to sepsis. Early correction of anemia and health education on importance of IFA tablets will reduce death due to anemia. Lastly most deaths could have been prevented with the help of early referral, quick efficient transport facilities, availability of blood and by promoting overall safe motherhood.

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