

Retrospective Hospital-Based Assessment of Maternal Mortality in Chota Nagpur Region

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Abstract

Aim: A study on maternal mortality in a tertiary care center in Chota Nagpur region, Jharkhand

Materials and methods: This were a retrospective study of 100 cases of maternal deaths over a period of 12 months from June 2012 to May 2013. 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.

Results: Maximum maternal deaths were reported in the age group 20-24 years (49%). Death among teenage pregnancies was seen in 6% of cases. Regarding parity majority of deaths were seen in multiparous women (55%) as compared to primiparous women (45%). 59% of cases were unbooked. More maternal deaths were reported in women from rural areas (84%). 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 29% of cases. Sepsis was seen in 12% 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.

Conclusions: Majority of maternal deaths were preventable by proper antenatal care, early detection of high-risk pregnancies and their timely referral to tertiary care centre.

Keywords: Anaemia, Haemorrhage, Hypertensive disorders, Maternal mortality, Sepsis.

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Introduction

"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 from accidental or incidental causes [1]". Maternal death is a heavy loss to the family and society. Maternal mortality reflects the health care facilities available

to the community. In India maternal mortality statistics has been showing a decreasing trend [2]. It was at an alarming rate of 677 per one lakh live births in 1980, which fell to 174 per one million live births in 2015 [3], still it is on a high.

In 2015 globally 303,000 women died of various causes related to maternity [4]. It has been learned that in Northern Europe the risk of a woman dying because of pregnancy and childbirth in her lifetime is about 1 in 30,000 whereas in Afghanistan is about 1 in 6 [5]. National rural health mission (NRHM) and Millennium development goal's target is to reduce MMR to less than 100 by 2015 in India [1]. This was not achieved despite countless measures.

In India the numbers vary drastically from region to region. Socio demographic factors also cast a major influence. A wide variation in the maternal mortality rate has been shown by various studies done in India in the last 15 years ranging from 47/100000 to 625/100000 [6].

Mortality occurring due to complications related to pregnancy, labor and the puerperium, which can be due to commission and omission of interventions, injudicious treatment or may be due to combination of these factors is termed as the direct causes of obstetric death. Deaths as a result of previously existing condition or a disease, that first occurred during pregnancy which are not direct obstetric causes [7]. Indirect causes of maternal mortality can be worsened by physiological changes of pregnancy. Maternal deaths are most commonly caused by complications associated with pregnancy or delivery or a combination of

both [8]. These complications include hemorrhage, unsafe abortions, infections postpartum, hypertensive disorders during pregnancy, obstructed labour etc which accounts for more than 75-80% of direct maternal deaths [9]. The risk multiplies when more than one factor is involved.

Pregnancy is not a disease but a physiological state; hence pregnancy related mortality is almost always preventable. But this demands a great amount of effort and caution from us. We need to have more of institutional data to pinpoint the various lacunae that led to the increase in maternal mortality over the years in this southern state of India.

Materials and methods:

A retrospective study was conducted in the Department of Obstetrics and Gynecology, Rajendra Institute of Medical Sciences, Ranchi, Jharkhand, India.

Methodology

This was a retrospective study of 100 cases of maternal deaths. 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 22.0 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:**Table 1: Demographic characteristics of maternal deaths**

Pt characteristics	Classification	No. of cases	Percent
Age	<20	6	6
	20-24	49	49
	25-29	25	25
	30-34	11	11
	>34	9	9
Parity	Primi	45	45
	Multigravidae	38	38
	Grandmulti	17	17
Residence	Rural	84	84
	Urban	16	16
Antenatal status	Booked	41	41
	Unbooked	59	59

Maximum maternal deaths were reported in the age group 20- 24 years (49%). Death among teenage pregnancies were seen in 6% of cases. Regarding parity majority of deaths were seen in multiparous women (55%) as compared to primiparous women (45%). 59% of cases were unbooked. More maternal deaths were reported in women from rural areas (84%).

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 29% of cases. Sepsis was seen in 12% 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 2).

Table 2: Causes of Maternal deaths.

Cause	Number	Percentage
Haemorrhage	38	38
Hypertensive disorder	29	29
Sepsis	12	12
Rupture uterus	3	3
Pulmonary embolism	6	6
Jaundice	2	2
Heart disease	3	3
Respiratory disorder	5	5
Epilepsy	2	2

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 [10]. 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 [11].

The maternal mortality ratio (MMR) in our study is 455 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 [12]. 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 whereas Shivkumar et al reported MMR of 974 at VIMS Bellary, Karnataka [13,14].

Most mothers died in the age group 20-24 years (49%). Majority of them were unbooked (59%) and multigravidae (55%). In present study demographic characteristics of maternal death were comparable to Pathak et al and Sashikala Mootha [15,16]. In present study haemorrhage was the leading cause of maternal death followed by hypertensive disorders and sepsis (Table 3) [16,19]. 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.

Table 3: Comparison of causes of maternal death by various authors.

Authors	Haemorrhage	Hypertensive disorder	Sepsis
Mootha S et al	28.9	47.9	23.4
Vidhyadhar B et al	21.5	10.5	7.8
Soni M et al	29.5	12.9	18.0
Sundari KPM et al	17.8	26.7	12.5

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.

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