Review Article

A study on Maternal Mortality – At BRIMS Bidar

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Abstract

Objectives: To study the maternal mortality and the common causes and complications leading to maternal death over a period of 7 years from 2008 – 2014. **Methods:** Prospective study of maternal death in Brims Bidar over a period of seven years was carried out. **Results:** Maternal Mortality Rates (MMR) of 157.16 to 53.6 were observed over a period of 7 years. Of the women who died 85.29% were from rural areas, 67.6% were unbooked for delivery. 82.35% were in 20 to 30 years age group. Hemorrhage was the commonest cause of death followed by sepsis. Anaemia was the major indirect cause of maternal mortality. **Conclusion:** Hemorrhage and sepsis were the major cause of death. Anaemia was an important indirect cause of death.

Key words: maternal mortality, causes of maternal deaths, cause of prioritization.

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INTRODUCTION

Pregnancy and childbirth is a universally celebrated event. Yet for many thousands of women it is a private hell that may well end in death. The reasons that women die in pregnancy and childbirth are many layered. Behind the medical causes are logistic causes, failure in the health care system, lack of transport etc, and behind these are social, cultural and political factors which together determine the status of women, their health, fertility and health seeking behaviour [1]. Every minute every day, a women dies as a result of pregnancy and childbirth somewhere in the world, be it an unwed adolescent, a teenage bride for want of blood or drugs, or older women trying to terminate an unwanted pregnancy. What is more unfortunate is that, the vast majority of deaths need never have happened. Every year approximately six lacks women die of pregnancy related causes. It is shocking to learn that 98% of these deaths occur in developing countries [2]. Preventing maternal deaths remains one of the most important goals of the national family welfare program. Although a significant decline in maternal deaths has been reported from the developed world, it is still a major health problem in the developing countries. Efforts for monitoring it are limited due to lack of reliable population based reporting of vital events. We analysed the causes of maternal deaths in our BRIMS Bidar catering almost exclusively to the underprivileged rural pregnant women, to understand the common complications leading to maternal deaths and to discuss the remedy. In India approximately 28 million women experience pregnancy and 26 million have live birth. Averting maternal deaths remains a challenge to health care system in India as well as to the developing world. Millennium Development Goal 5 (MDG5) aims at reducing maternal mortality ratio by 75% over a period of 1990 – 2015[7]. An estimated 67000 maternal deaths occur each year[6]. India has observed appreciable decline in MMR from 677 in 1980 to 254 in 2004 – 2006 and to 212 in 2007 – 2009. National rural health mission(NRHM) and MDG5 target to reduce MMR to less than 100 by 2015. To achieve this target, not only India but also all developing countries need to accelerate the current annual reduction rate, keeping in mind the time left is very short.

METHODS

A prospective study of maternal death in BRIMS Bidar over a period of 7 years was carried out from 2008 to 2014. We felt the necessity to look into the issue as to why do the Indian mothers die as a result of pregnancy and childbirth with life time risk of 6 in 1000 [6] compared to women of Sweden having that risk of only 1 in 17400. The gravidas and parturients are brought to Government teaching Hospital even directly and mostly late. Every maternal death was scrutinized from various aspects

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likely to be related to maternal death such as age, locality of residence, parity, socioeconomic status, literacy, antenatal care, admission – death interval and the cause of death.

RESULTS

In the year 2008 to 2014 the total live birth were 43799 of which 34 mothers died giving cumulative maternal mortality rate (MMR) as 77.62 per 100,000 live births.

Table 1: Year wise maternal deaths and live births

Year	Maternal Deaths	Live Births	MMR/100,000 Live Births
2008	7	4454	157.16
2009	5	5940	84.03
2010	2	6102	32.77
2011	9	6258	143.81
2012	3	6419	46.73
2013	4	7166	55.81
2014	4	7450	53.6
Total	**34**	**43799**	**77.62**

Table 2: Maternal deaths according to locality, socioeconomic status, literacy and antenatal care (n=34)

		No	Percent
Area			
	Rural	29	85.29
	Urban	5	14.7
Socio economic status			
	Poor	19	55.9
	Average	15	44
Literacy			
	Primary school	17	50
	High school	9	26.5
	Nil	8	23.5
Antenatal care			
	Unbooked	23	67.6
	Booked	11	32.4
	Referred	16	47

Table 3: Maternal deaths according to age (n=34)

Age in years	No. Of maternal deaths	Percent
<20	1	2.94
20-25	18	52.94
26-30	10	29.41
31-35	3	8.82
36-40	1	2.94
40-45	1	2.94

Table 4: Admission - death interval (n=34)

Admission death interval (Hours)	No. Of maternal Deaths	Percentage
<6	16	47
6-12	9	26.5
13-24	1	3
25-48	1	3
49-72	4	11.7
>72	3	8.8

Table 5: Causes of maternal death

	No.	Percentage
Direct	**24**	**70.5**
Postpartum Haemorrhage	13	38
Puerperal sepsis	3	8.8
Eclampsia	2	5.9
Amniotic fluid embolism	2	5.9
Rupture uterus	2	5.9
Septic Abortion	1	3
Cerebrovascular accidents	1	3
Indirect	**10**	**29.6**
Anaemia	3	8.8
Pulmonary Embolism	3	8.8
Status Epilepticus	1	3
Cerebral Malaria	1	3
Anaesthesia complication	1	3
Hepatic disease	1	3

As shown in Table 2, 85.29% women came from rural and 55.9% belonged to poor socioeconomic status and 44% had average socioeconomic status. 50% women studied up to primary school , 26.5% studied up to high school and 23.5% women had never been to school. 67.6% were unbooked for delivery while 32.4% were booked and 47% were referred from PHC, CHC and taluka hospitals. As shown in Table 3, parity distribution showed predominance of primipara 45.5%. 82.35% women were in 20-30 years age group while 2.94% were below 20 years of age and 14.76%above 30 years. Of 22 postpartum deaths 20 women delivered in hospital, of whom 10 women had vaginal delivery, 8 delivered by caesarean section and 2 women delivered at home. Out of 34 women 10 (29.41%) died in antenatal or intra natal period while 2 women (5.88%) died due to complication of abortion. Time interval from admission to death is depicted in Table 4 and causes of maternal deaths are shown in Table 5.

DISCUSSION

In the present study MMR varied from 157.1 in 2008 to 53.6 in 2014. Most women in the present study were from far areas with poor connectivity to roads resulting in delayed intervention. Other studies from tertiary care institutions reported mortality rates of 371 to 4286 per 100000 live births. Due to large number of referred cases[1, 3]. We are dealing with all kinds of patients including uncompleted deliveries and hence the lower MMR. Most maternal deaths were observed in 20-30 year age groups in the present study and also in the other studies[3, 4]. Since highest number of pregnant women

belonged to this age group. 47% of maternal deaths accord within 6 hours of admission to hospital, 76.5 % within 24 hours. Patel et al[3] reported 70.69% maternal deaths within 24 hours. Hemorrhage is the most important cause of maternal mortality as 37%(13/34) women died due to post partum hemorrhage, similar observation made by Bedi all[1] reported 24% deaths due to postpartum hemorrhage. Most death in over study occurred in spite of availability of blood bank and availability of specialist doctors with in the hospital. 1 to 6 units of blood were provided to the patients with post partum hemorrhage two of whom had hysterectomy for rupture uterus. Although, obstetric hemorrhage was vigorously tackled, the prevalence of nutritional anaemia and poor general condition, non availability of blood components failed to prevent the maternal tragedy, need for availability of blood banks at all first referral units (FRUS) is emphasized. 5.9% of maternal deaths in the present study were due to eclampsia. Bedi et al' observed 70% death due to PIH. Due to good primary health care facilities incidence of eclampsia was low and most women reported soon to the hospital. Use of magnesium sulphate has improved the scenario. 8.8% (3/34) died of puerperal sepsis and another 3% (1/34) died of septic abortion. Despite legalization of abortion, facilities for abortion are for from satisfactory. Many of the lives could be saved if all abortions and deliveries could be performed by qualified medical personnel with aseptic precaution. Sepsis is probably the most easily preventable cause of maternal death. Rupture following obstructed labour, caused death in 5.9% women in the present study. Similar observation was made by other authors[1.3] who observed 2.55 to 3.1% deaths due to obstructed labour and rupture uterus. Anaemia accounted for 8.8% of maternal deaths. 11.5% maternal deaths in Bedi et al's study preexisting anaemia worsens as pregnancy advances leading to congestive heart failure and death. It also impedes the mother ability to resist infection or cope with hemorrhage and increases the likelihood of her dying in child birth.

3% of maternal deaths were due to hepatic disease. In one case hepatic failure and PPH due to coagulation failure leads to the death. 4.16 to 7.1% maternal deaths have been reported in other studies[1,3]. 8.8% women died due to pulmonary embolism, 5.9% due amniotic fluid embolism, 3% due to cerebrovascular accident, 3% due to anaesthesia complication, 3% due to cerebral malaria and 3% due to status epilepticus. What is tragic is that most of these deaths are preventable. We need to ensure that all women have access to high quality essential and emergency obstetric services along with provisions for safe abortions, contraceptive services at FRU level to reduce mortality due to unplanned pregnancies. The strategy of NRHM (2005), Government of India, through Janani Suraksha Yojana (JSY) is a step forward. It encouraged rural women for institutional delivery with incentives and care through ASHA (Accredited Social Health Activities) which reduced the MMR to great extent.

CONCLUSION

Post partum haemorrhage is the most important cause of maternal mortality followed by puerperal sepsis, eclampsia, septic abortion, amniotic fluid embolism, pulmonary embolism and medical disorders complicating pregnancy. Most maternal mortality are preventable by health education of masses, adequate health care in the community and transport facilities. This study has provided a strong background for evaluation of maternal mortality rate.

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