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Research Article

Maternal mortality at Gulbarga district hospital, a tertiary care centre

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ABSTRACT

Background: Pregnancy, although being considered a normal physiological state, carries serious risk of morbidity and at times maternal death. Maternal mortality ratio (MMR) is a very sensitive index that reflects the quality of health care provided by the country to the women population. It also reflects the educational and socioeconomic state of a country as well as public health consciousness. This study was carried out to determine the causes of maternal deaths at Gulbarga district hospital, a tertiary care hospital.

Methods: This is a cohort of prospective and retrospective hospital based study of 2 years. IPD case records of maternal deaths were studied. A total of 25 maternal deaths were analyzed using percentage.

Results: In the maternal deaths studied, the leading direct causes of death were haemorrhage (32%), followed by eclampsia (15%). Anaemia (8%) and cerebrovascular accidents (9%) were the common indirect causes of maternal death in our study. Most women (72%) died within 12 hours of admission suggesting majority patients reach the tertiary care hospital late.

Conclusions: Most of the maternal deaths were preventable by optimal antenatal, intranatal and perinatal care. Most effective intervention to reduce pregnancy related mortality is education of family planning methods and safe abortion methods, increasing the number of skilled birth attendants, reducing home births and improving emergency obstetric care (EOC).

Keywords: Maternal mortality, Post-partum hemorrhage, Eclampsia, Sepsis

INTRODUCTION

Pregnancy, although being considered a physiological state, carries risk of serious maternal morbidity and at times death. This is due to various complications occurring during pregnancy, labour and thereafter. By definition, maternal mortality is the death of any woman 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.^{1,2}

Maternal mortality is a ratio, and it is expressed as maternal deaths per 1lakh live births. Currently it is estimated to be 212 per lakh live births which is far above the desired goal of 100 per lakh live births as per objectives of Millennium Development Goals (MDG).

Between 1990 and 2010, maternal mortality worldwide dropped by almost 50% but still it is unacceptably high. The high number of maternal deaths in some areas reflects inequities in access to health services, and highlights the gap between rich and poor.

Half million women worldwide are dying every year from pregnancy or childbirth related problems, a quarter of these deaths occur in India alone (Table 1).^{1,2}

Maternal death has serious implications to the family, the society and nation. The event of death of mothers is only the tip of iceberg. Many women are suffering from anaemia, lack of care from the family, pre-eclampsia, eclampsia, placenta previa, postpartum haemorrhage and sepsis.⁴

The government of India is committed to the appalling health statistics of the rural poor which significantly contribute to the global mortality rate of mothers and children under the age of five years.⁵

Hence this present study was conducted to review the existing maternal mortality ratio and the causes of maternal death at a tertiary care hospital, so that corrective steps can be taken to reach the goal within the stipulated time frame as most of the deaths are preventable.

METHODS

This study is a cohort of prospective and retrospective hospital based study of 2 years from 1st November 2012 to 31st October 2014. IPD case records of maternal deaths were studied in detail. A total of 25 maternal deaths were analysed using percentage. Cases were distributed according to age, socio-economic status, literacy rate, areas of residence, parity, antenatal care registration, state of pregnancy at death, time of admission to death, and causes of death. The study & data collection were carried out with the approval from the Institutional Ethical Committee.

RESULTS

Table 1: Global problem (MMR/1 lakh).

Country	MMR
India	200
USA	21
New Zealand	15
UK	12
Switzerland	8
France	8
Srilanka	35
Nepal	170

At District Hospital, Gulbarga, total no. of live births in 2 years (1st Nov 2012- 31st Oct 2014) was 43638. Number of maternal deaths in 2 years was 25.

MMR in the present study is 57 per 1 lakh live births. Admissions of moribund cases referred from peripheral centres have inflated maternal mortality ratio.

In the present study, maximum (68%) number of deaths were in the age group <29 years of 40% maternal deaths were in 19-24 years age, and 28% in 25-29 years age group (Table 2).

Table 2: Distribution of maternal deaths according to age.

Age (yrs.)	Number	Percentage
<19	0	0
19-24	10	40
25-29	7	28
30-34	5	20
>35	3	12
Total	25	100

All mothers belonged to lower socio-economic status (Table 3). 84% of the women were illiterate and 12% had primary education (Table 4).

Table 3: Socioeconomic status.

S-E Status	Number	Percentage
Upper	0	0
Middle	0	0
Lower	25	100
Total	25	100

In the present study, maximum (88%) women were from rural areas (Table 5) and 84% mothers had not taken any antenatal check-ups and were unbooked cases (Table 6). Out of 25 deaths, 15 mothers (60%) were Multigravidas and 28% were primigravidas (Table 7). 88% deaths occurred in post-partum period of which 9 deaths occurred in immediate post-partum period (Table 8).

Table 4: Education status.

Education	Number	Percentage
Illiterate	21	84
Primary education	3	12
Secondary education	1	4
Higher secondary education	0	0
Total	25	100

Out of 25 maternal deaths, 12 women (48%) died within 6 hours of admission and 6 women (24%) died between 7-12 hours (Table 9).

Direct causes contributed to 68% of maternal deaths of which 32% were due to Hemorrhage (2 APH, 6 PPH), 16% eclampsia, sepsis and pulmonary embolism attributed to 12% and 8% respectively (Table 10). Amongst 32% of indirect causes of maternal death, heart disease, anaemia and cerebrovascular accident (CVA) accounted to 8% each. Jaundice and ARDS accounted to 4% each (Table 11).

Table 5: Areas of residence.

Residence	Number	Percentage
Urban	3	12
Rural	22	88
Total	25	100

Table 6: ANC registration.

ANC	Number	Percentage
Booked	4	16
Unbooked	21	84
Total	25	100

Table 7: Distribution of cases according to parity.

Parity	Number	Percentage
Primi	7	28
Multi (2-4)	15	60
Grand multi (≥ 5)	3	12
Total	25	100

DISCUSSION

In the present study, maximum (68%) number of deaths were in the age group <29years, of which 40% maternal deaths were in 19-24 years age and 28% deaths in 25-29 years age group, which is similar to studies by Dogra et al and Ratan Das et al.^{6,7} With the prevailing custom of early marriage in rural areas, majority presented with pregnancy in early age group.

In the present study, 15 cases (60%) were multigravida and 28% were primigravidas which is similar to studies by Dogra et al and Purandare et al.^{6,8} Too many pregnancies and less spacing between pregnancies may be attributed as a factor here.

In our study, majority (84%) of maternal deaths were seen in unbooked cases, as has been also observed in Roy et al study.⁹ Highest mortality is observed among the marginalised and poor, who reside in remote and rural areas with limited access to health care services.^{7,10} A delay in accessing care can occur at three time points:

Three delay model^{3,11}:

1. Delay in decision making to seek care by a woman or her family when complication has aroused up.
2. Delay in reaching the health centre due to non-availability or high cost of transport or long distance.
3. Delay in receiving care after reaching health centre.

Despite wide recognition of evidence based interventions and the availability of information and guidelines, major gaps remain in implementation.

In this study, 48% deaths occurred within 6 hours of hospital admission and 24% within 7-12hours which is

similar to reports by Ratan Das et al and Purandare et al.^{7,8} Majority of the patients reach tertiary hospital quite late. So, strengthening of basic and comprehensive emergency obstetric care [EOC] at primary health centre level and first referral unit (FRU) could save many lives.

Table 8: State of pregnancy during death.

State of pregnancy	Number	Percentage
First trimester	0	0
Second trimester	1	4
Third trimester	1	4
Post-partum	22	88
Post abortion	1	4
Total	25	100

In this study, 88% deaths occurred in postpartum period. Similar results have also been reported by Dogra et al and Purandare et al.^{6,8} High number of deaths in postpartum period indicates the need for continuous vigilance in postpartum period and prompt action if problem arises. Intranatal care by skilled attendants and timely management and replacement of lost blood volume can reduce deaths in postpartum period. Skilled birth attendants and postnatal care barely reach half the population in need.¹⁰

Table 9: Time from admission to death.

Hours	Number	Percentage
0-6	12	48
7-12	6	24
12-24	1	4
>24	6	24
Total	25	100

Direct causes contributed 68% of deaths. 32% were due to hemorrhage (2 APH, 6 PPH), 16% due to eclampsia, sepsis and pulmonary embolism attributed to 12% and 8% respectively. Prevention and treatment of anaemia during pregnancy, early diagnosis of hypertension during pregnancy and good intranatal care can help in prevention of haemorrhage, which is the leading cause of death in our study.

Table 10: Direct causes of death.

Cause of death	Number	Percentage
Eclampsia	4	16
Hemorrhage (APH+PPH)	8	32
Sepsis	3	12
Pulmonary Embolism	2	8
Total	17	68

The high maternal mortality due to eclampsia was among patients who had multiple seizures outside hospital and those without prenatal care. The close links among

poverty, inequity, undernutrition and human deprivation have shown to reduce the potential for human development considerably.¹⁰

Table 11: Indirect causes of death.

Causes of death	Number	Percentage
Heart disease	2	8
CVA	2	8
Renal failure	0	0
Anaemia	2	8
Jaundice	1	4
ARDS	1	4
Total	8	32

Amongst 32% of indirect causes of maternal deaths, heart disease, anaemia and cerebrovascular accident accounted to 8% each. Jaundice and ARDS accounted to 4% each.

It is important to look beyond survival of lives to issues of reducing morbidity and disability and improving long term outcomes of human development.

CONCLUSIONS

Most of the deaths could have been avoided with good antenatal, intranatal and postnatal care, early referral, quick, efficient and well equipped transport facilities, availability of adequate blood and blood components, and promotion of overall safe motherhood.

Despite wide recognition of evidence based interventions and the availability of information and guidelines, major gaps remain in implementation.

Maternal mortality can be averted by implementation of 3E's-Emergency obstetric care (EmOC), early risk screening and efficient obstetric service.

Analysis of every maternal death through maternal death audit should be carried out. Community participation is more necessary. Awareness of birth control measures, sex education in adolescence can reduce deaths due to septic abortion.

Maternal death audit will help in identifying the actual cause of maternal deaths and deficiencies in health care delivery system that might contribute in formulating preventive measures to reduce pregnancy related deaths.

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REFERENCES

1. Countdown to 2015 for maternal, newborn and child survival: Accountability for maternal, newborn and child survival. Geneva: Who Health Organization, 2013.
2. Trends in maternal mortality: 1990-2010 estimates developed by WHO, UNICEF, UNFPA and the World Bank, 2012.
3. Debalina D, Datta P. Maternal Mortality in India: Problems and strategies. *Asian J Med Res.* 2013;2(1):33-5.
4. Central Intelligence Agency Publications. The World Fact book. Country comparison: Maternal Mortality Rate.
5. Marmot M. Closing the health gap in a generation: the work of the commission on social determinants of health and its recommendations. *Glob Health Promot.* 2009;16(1):23-7.
6. Dogra P, Gupta K B. A study of maternal mortality at a tertiary institute. *Obs and Gynaecol India.* 2008;58:226-9.
7. Das R, Soumya B, Amitava M. Maternal mortality at a Teaching Hospital of Rural India:A retrospective study. *Int J of Biomed & Adv Res.* 2014;5(2):114-7.
8. Purandare N, Singh A, Upadhyae S, Saraogi R M. Maternal mortality at a referral centre: a five year study. *J Obstet gynaecol India.* 2007;57:248-50.
9. Roy S, Singh A, Pandey A, Roy H et al. Maternal mortality in Apex Hospital of Bihar. *J Obstet Gynaecol India.* 2002;52:100-4.
10. Bhutta Z A, Black R E. Global Maternal, Newborn, and Child Health – so near and yet so far. *N Engl J Med.* 2013;369:2226-35.
11. Mullick SS, Serle E. Achieving millenium development goals 4 and 5: a snapshot of life in rural India. *BJOG.* 211;118(2):104-7.

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