

Assessment of Maternal Mortality at Tertiary Care Hospital in Bihar Region

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Received: 19-06-2023 / Revised: 25-07-2023 / Accepted: 13-08-2023

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Conflict of interest: Nil

Abstract

Aim: The aim of the present study was to determine the maternal mortality at tertiary care Hospital in Bihar region.

Methods: The present study was conducted in the Department of Obstetrics and Gynaecology, Mata Gujri Memorial Medical College & Lions Seva Kendra Hospital, Kishanganj, Bihar, India. IPD case records of maternal deaths were studied in detail. A total of 20 maternal deaths were analysed using percentage.

Results: In the present study, maximum 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. All mothers belonged to lower socio-economic status. 85% of the women were illiterate and 10% had primary education. In the present study, maximum (85%) women were from rural areas. Out of 20 deaths, 14 mothers (70%) were Multigravidas and 30% were primigravidas. 85% mothers had not taken any antenatal check-ups and were unbooked cases. 85% deaths occurred in post-partum period. Out of 20 maternal deaths, 9 women (45%) died within 6 hours of admission and 5 women (25%) died between 7-12 hours. Direct causes contributed to 65% of maternal deaths of which 35% were due to Hemorrhage, 15% eclampsia, sepsis and pulmonary embolism attributed to 10% and 5% respectively. Amongst 35% of indirect causes of maternal death, heart disease, anaemia and cerebrovascular accident (CVA) were noted. Jaundice and ARDS accounted to 5% each.

Conclusion: 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.

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Introduction

Maternal mortality in a region is a measure of the reproductive health of a woman in the area and the quality of the health care delivery system. According to WHO, 'maternal mortality is defined as death of a woman while pregnant or within 42 days of termination of pregnancy irrespective of duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes. [1] Globally 5,00,000 women die due to pregnancy related causes and 99% of these are in developing countries. [2] Sub-saharan Africa accounted for 67% and South Asia 24%. [2] India and Nigeria account for one-third of the maternal deaths. [3]

Global maternal mortality reduced by 38% between 2000 and 2017 (from 242 to 211/1,00,000 live births) according to UN

interagency estimates. Among the various states in India, Assam has the highest MMR of 215/1,00,000 live births and among Southern states Kerala has least MMR of 45/1,00,000 live births and Tamil Nadu it was 60/1,00,000 in the year 2016-2018. [1] Maternal mortality is classified according to WHO into-(1) obstetric causes-(a) direct obstetric causes, and (b) indirect obstetric causes; and (2) non-obstetric causes. Direct maternal death is the death of the mother that results from obstetrical complications of pregnancy, labour or the puerperium and from the intervention, omissions, inadequately managed or a chain of events resulting from any of these factors e.g. gestational hypertension, antepartum hemorrhage, post-partum haemorrhage, obstructed labour, rupture uterus, septic abortion, puerperal sepsis, complications of

anaesthesia, surgical complications following LSCS, PPCM, etc. [4]

The maternal mortality ratio in India has declined from 130/1,00,000 live births in 2014-2016 to 122/1,00,000 live births in 2015-2017 to 113/1,00,000 live births in 2016-2018. [1,5] The MDR provides detailed analysis on various factors at community, facility, district, regional and national level to reduce maternal deaths. The guidelines of MDR is revised with focus on surveillance, response and a component of confidential review has been incorporated. [6]

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. [7] 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. [8]

The aim of the present study was to determine the maternal mortality at tertiary care Hospital in Bihar region.

Materials and Methods

The present study was conducted in the Department of Obstetrics and Gynaecology, Mata Gujri Memorial Medical College & Lions Seva Kendra Hospital, Kishanganj, Bihar, India. IPD case records of maternal deaths were studied in detail. A total of 20 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.

Results

Table 1: Baseline characteristics

Age (yrs.)	Number	Percentage
<19	0	0
19-24	8	40
25-29	5	25
30-34	4	20
>35	3	15
Total	20	100
S-E Status		
Upper	0	0
Middle	0	0
Lower	20	100
Total	20	100
Education		
Illiterate	17	85
Primary education	2	10
Secondary education	1	5
Higher secondary education	0	0
Residence		
Urban	3	12
Rural	22	88
Residence		
Urban	3	15
Rural	17	85

In the present study, maximum 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. All mothers belonged to lower

socio-economic status. 85% of the women were illiterate and 10% had primary education. In the present study, maximum (85%) women were from rural areas.

Table 2: Distribution of cases according to parity and ANC registration

Parity	Number	Percentage
Primi	4	20
Multi (2-4)	14	70
Grand multi (≥ 5)	2	10
ANC		

Booked	3	15
Unbooked	17	85

Out of 20 deaths, 14 mothers (70%) were Multigravidas and 30% were primigravidas. 85% mothers had not taken any antenatal check-ups and were unbooked cases.

Table 3: State of pregnancy during death and Time from admission to death

State of pregnancy	Number	Percentage
First trimester	0	0
Second trimester	1	5
Third trimester	1	5
Post-partum	17	85
Post abortion	1	5
Hours		
0-6	9	45
7-12	5	25
12-24	1	5
>24	5	25

85% deaths occurred in post-partum period. Out of 20 maternal deaths, 9 women (45%) died within 6 hours of admission and 5 women (25%) died between 7-12 hours.

Table 4: Direct and indirect causes of death

Cause of death	Number	Percentage
Eclampsia	3	15
Hemorrhage (APH+PPH)	6	30
Sepsis	2	10
Pulmonary Embolism	1	5
Total	13	65
Causes of death		
Heart disease	2	10
CVA	2	10
Renal failure	0	0
Anaemia	1	5
Jaundice	1	5
ARDS	1	5
Total	7	35

Direct causes contributed to 65% of maternal deaths of which 35% were due to Hemorrhage, 15% eclampsia, sepsis and pulmonary embolism attributed to 10% and 5% respectively. Amongst 35% of indirect causes of maternal death, heart disease, anaemia and cerebrovascular accident (CVA) were noted. Jaundice and ARDS accounted to 5% each.

Discussion

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. [9,10]

In the present study, maximum 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 which was similar to studies by Dogra et al and Ratan Das et al. [11,12] With the prevailing custom of early marriage in rural areas, majority presented with pregnancy in early age group. All mothers belonged to lower socio-economic status. 85% of the women were illiterate and 10% had primary education. In the present study, maximum (85%) women were from rural areas. Out of 20 deaths, 14 mothers (70%) were Multigravidas and 30% were primigravidas. 85% mothers had not taken any antenatal check-ups cases which was similar to studies by Dogra et al¹¹ and Purandare et al. [13] In our study, majority (85%) of maternal deaths were seen in unbooked cases, as has been also observed in Roy et al [14] study. 85% deaths occurred in post-partum period. Out of 20 maternal deaths, 9 women (45%) died within 6 hours of admission and 5 women (25%) died between 7-12 hours. Similar results have also

been reported by Dogra et al [11] and Purandare et al. [13] 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. [15]

Direct causes contributed to 65% of maternal deaths of which 35% were due to Hemorrhage, 15% eclampsia, sepsis and pulmonary embolism attributed to 10% and 5% respectively. Amongst 35% of indirect causes of maternal death, heart disease, anaemia and cerebrovascular accident (CVA) were noted. Jaundice and ARDS accounted to 5% each. 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. [15]

Conclusion

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.

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