

Original Research Article

Trend and causes of maternal mortality in a tertiary care hospital in Jharkhand, India: a five years retrospective study

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ABSTRACT

Background: Maternal mortality ratio (MMR) is an indicator of effectiveness of health care facilities for women of child bearing age. It strongly reflects the overall effectiveness of the health system functioning in a developing country. This study attempts to study the trends of maternal mortality and its association with different causes in RIMS, Ranchi, Jharkhand, India. The objectives were to study the trends of maternal death in RIMS, Ranchi during 2011-2015 and to study the causes of maternal mortality.

Methods: It is a retrospective study design. Data for analysis of trends of maternal mortality were collected from Medical Record Department, RIMS, Ranchi during period 2011 to 2015. Total sample size for this period was 220. Statistical Analysis: Templates were generated in MS excel sheet and analysis was done using SPSS software.

Results: Five year data analysis of 220 subjects showed that number of maternal death was more in rural (80.26%) and tribal (86.92%) population. More number of maternal deaths was of antenatal (77.12%) and primigravida (55.06%) cases. Haemorrhage (37%) was most common obstetric cause of maternal death followed by eclampsia (18.34%).

Conclusions: Trend of maternal death is higher in tribal, rural population and among primigravida. Obstetric causes accounted for more than half of maternal death (71.5%).

Keywords: Trends, Maternal mortality, Primigravida

INTRODUCTION

World Health Organisation (WHO) estimates that globally 358000 women die every year due to pregnancy related complications and India is home to one fourth of these maternal deaths.¹ The global MMR in 2013 was 210 maternal death per lakhs live birth.² With 219 maternal death per lakhs live birth, Jharkhand's maternal mortality ratio is higher than the national average of 178.³

India is in race against time to achieve the Millennium Development Goals (MDG) of the United Nations target of 109 per lakhs live birth by 2015.⁴

Maternal mortality ratio strongly reflects the overall effectiveness of the health system functioning in a developing country. It suffers from weak administration, technical and logistical incapacities, inadequate financial investments etc. The main determinants of maternal mortality in India fall in obstetric causes such as toxemia of pregnancy, haemorrhage, infection; non-obstetric causes include anaemia, cardiac, renal and metabolic diseases and social factors like parity, socio-demographic profile and availability of health services.⁵

The health programmes run by government are also not accessible to them or the government fails to reach the individual level. So analysis of this death can identify the delays that contribute to maternal death at various level

and information used to adopt the measures to fill the gap in service. The present study was undertaken to study the trends of maternal mortality and to find out the causes of maternal deaths in RIMS, Ranchi from 2011 to 2015.

METHODS

This retrospective study included the maternal deaths which occurred in RIMS, Ranchi during the study period of 5 years from 2011-2015. A total of 220 subjects were studied. Maternal death was defined as death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration or site of pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes.⁶ Data were collected from Medical Record Department, RIMS, Ranchi and analyzed using SPSS (Version 20) software.

RESULTS

Year wise numbers of maternal deaths is shown in Table 1. From 2011 to 2015, out of 220 subjects, tribal population constitutes maximum (86.92%) maternal deaths followed by rural population (80.26%). Primigravida contributes 55.06% of maternal deaths whereas 77.12% deaths occurred during antenatal period (Table 2).

Table 1: Year wise data of maternal deaths.

Year	No of maternal deaths
2011	57
2012	49
2013	45
2014	43
2015	26
Total	220

Table 2: Socio-demographic characteristics.

		Frequency n =220	Percentage (%)
Ethnicity	Tribal	190	86.4
	Non-tribal	30	13.6
Age	<20 years	22	10
	20-30 years	178	80.9
	>30 years	20	9.1
Residence	Rural	177	80.5
	Urban	43	19.5
Gravidity	Primi	124	56.4
	Multi	96	43.6
Time	Antenatal	169	76.8
	Postnatal	51	23.2

Among direct causes death due to haemorrhage was the leading cause being 37.04%, followed by eclampsia 18.34%. Septicaemia accounted for 9.18%

maternal deaths and 4.96% died due to abortion. In 2.48% patient's death was due to obstructed labour. Among indirect causes 11.8% women died because of severe anaemia. Medical illnesses like malaria, HELLP syndrome, renal diseases, cardiac diseases accounted for 16.2% of maternal death (Table 3).

Table 3: Causes of maternal deaths.

Cause of death	Frequency (n=220)	Percentage (%)
Haemorrhage	84	37.04
Eclampsia	39	18.34
Septicaemia	20	9.18
Severe anaemia	27	11.8
Abortion	11	4.96
Obstructed labour	6	2.48
Medical illness	33	16.2
Total	220	100

**Medical illness includes malaria, cardiac diseases, HELLP syndrome, renal diseases etc.

DISCUSSION

The number of maternal death among rural population is more as compared to urban population because they inhabit remote geographical locations and awareness regarding antenatal care is also very low among them. The number of maternal deaths among primigravida is on rise because of the tradition of being married at early ages among rural and tribal population, during which their body is not ready to undergo the physiological changes of pregnancy.

Maternal death is on higher side in antenatal cases because of lack of awareness regarding antenatal care, lack of institutional delivery and low accessibility to health care facility.

Though number of maternal deaths due to haemorrhages has declined because of increased institutional delivery and antenatal care, still it accounts for the maximum maternal deaths. Maternal deaths due to anaemia has also decreased due to proper health care facility and nutrition.

Number of maternal deaths is increasing due to eclampsia, obesity, diabetes, sedentary life style etc.

In Latin America and the Caribbean, hypertensive disorders (25.7%) were the commonest cause of death. In developed countries, most deaths are due to other direct causes, mainly complication of anaesthesia and surgery.⁷ In studies from India by Purandre et al and Priya et al haemorrhage was the leading cause of maternal mortality 35.05% and 70.83% respectively.^{8,9} Hypertensive disorders of pregnancy were the major cause of maternal mortality in studies by Singh et al and Paul et al being 24.01% and 32.6% respectively.^{10,11}

CONCLUSION

From the present study it was concluded that obstetrical causes accounted for 71.5% of maternal death and death due to severe anaemia were 11.8%.

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REFERENCES

1. World Health Organization (WHO), UNICEF, UNFPA and The World Bank estimates. Trends in maternal mortality: 1990 to 2010. Department of Reproductive Health and Research WHO;2012. Available from http://www.unfpa.org/webdav/site/global/shared/documents/publications/2012/Trends_in_maternal_mortality_A4-1.pdf [Last accessed on 2013 Mar 15].
2. WHO etc. Trends in maternal mortality: 1990 to 2013, Estimates by WHO etc. 2014. http://apps.who.int/iris/bitstream/10665/112682/2/789241507226_eng.pdf.
3. Press Information Bureau Government of India Ministry of Finance. <http://pib.nic.in/newsite/printrelease.aspx?relid=103446>.
4. World Health Organization: Health and millennium development goals. Geneva: World Health Organization; 2005.
5. Government of India. Annual Report 2012-13, Ministry of Health and Family Welfare, New Delhi. 2013.
6. Wilmoth J, Mathers C, Say L, Mills S. Maternal deaths drop by one-third from 1990-2008: A United Nations analysis. Bulletin of the World Health Organization. 2010;88:718-718A.
7. Purandre N, Chandock A, Upadhya S, Sanjanwala SM. Maternal mortality at a referral centre: A five year study. J Obstet Gynecol India. 2007;57:248-50.
8. Priya N, Verma A, Verma S. Maternal mortality: Ten years retrospective study. J Med Educ Res. 2010;12:134-6.
9. Singh R, Sinha N, Bhattacharyya K, Ram R. Pattern of maternal mortality in a tertiary care hospital of patna, Bihar. Indian J Community Med. 2009;34:73-4.
10. Paul B, Mohapatra B, Kar K. Maternal Deaths in a Tertiary Care Centre of Odisha: An In-depth study Supplemented by Verbal Autopsy. Indian J Community Med. 2011;36:213-6.
11. Murthy BK, Murthy MB, Prabhu PM. Maternal Mortality in a Tertiary Care Hospital: A 10 Year Review. Int J Prev Med. 2013;4:105-19.

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