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A REVIEW OF MATERNAL MORTALITY IN A RURAL MEDICAL COLLEGE HOSPITAL AND ANALYSIS OF DEMOGRAPHIC FACTOR AND ITS IMPACT ON MMR

Medical Science

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ABSTRACT

Objective: To assess the maternal mortality rate at rural medical college hospital
Impact the demographic factors on MMR

Methods: A retrospective study of 72 maternal deaths over a period of 7 years from January 2011-December 2017.

Results: Over the study period there were a total of 43,639 deliveries giving a maternal mortality rate of 165 per lakh live births . The major causes of maternal deaths were pre eclampsia of pregnancy and hemorrhage .Indirect causes of maternal death include anaemia ,hemorrhage,jaundice and viral hemorrhagic fever. Most deaths ——occurred in multiparous women and from rural areas. Most death occurred in age group of 20-30 years, often in rural areas of about 76.38%, the referral cases constituting about 63.88%. Most death occurred postpartum within a period of 24 hours(47.22). About 54.3% of death occurred following ceasarean section and 49% of patients were admitted in shock.

Conclusion: Although this Study depicts the rural institutional MMR is lower than the national MMR, still more maternal death can be avoided by proper early screening of high risk and prompt referral.

KEYWORDS

INTRODUCTION

MMR (Maternal Mortality Ratio) is the number of maternal death per 100,000 live births during a given period.It differs from place to place, country to country and institute to institute reflecting the type of care provided and health status of the region. Maternal mortality is the death of women in relation to pregnancy. According to WHO, a maternal death is defined as death of a women 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 pregnancy and its management.

Overall, the maternal mortality ratio in India is 165 per lakh live births. The current study was aimed at evaluating the impact of demographic factors on maternal mortality rate.

METHOD

This is a retrospective study of last 7 years (January 2011-December 2017).This records were collected and analysed with special emphasis on age, parity, antenatal registration, socio economic status admission-death interval and high obstetric factors contributing to maternal death.

RESULT

There were 72cases of maternal death among 43639 deliveries over the study period giving an MMR of 165 per 1 lakh live births. The mean mortality rate was 164.99 per lakh live birth.

Majority of death among women of age group between 21-30 years (table 1). About 8 were over the age group of 30 years and 9 were in the age group of less than 19 years.

Out of 72 deaths, 48 were multigravida and 24 were primigravida (Table 2)

49 (66.7%) out of 72 deaths were patients from rural area.(Table 3)
Out of 72 deaths, 46(64.7%) were referred from other hospitals(PHC's, nursing homes, clinics) and 26(35.3%) were direct admissions to the hospital(table 4)

Among the 72 maternal deaths, 47.22% of death occurred within 24 hours of admission(table 5), 44.44% occurred within 24 hours-7 days.Only 16.67% of death occurred in more than 7 days of admission. Antepartum death constitutes 12.5%(9), intrapartum-8.3% and postpartum deaths constitute 79.17%(table 6). About 20 maternal deaths (35.08%) occurred following vaginal delivery, 31 death (54.38%) occurred following caesarean section, 6 death(10.52%) occurred following abortion(table 7).

49% of patients were admitted in shock. Among 72 death 72.5% patients received blood transfusion. Majority of maternal deaths were due to hemorrhage accounting to 49% (25), among which PPH accounts for 33% , pre eclampsia and complications like abruption and coagulopathy constitutes 16%, cardiac cases constitutes 11.76% followed by septicemia 5.88%.

TABLE-1 Maternal Death In Relation To Various Factors

AGE	NUMBER	PERCENTAGE
</=19	9	12.5%
20-30	55	76.38%
>30	8	11.11%

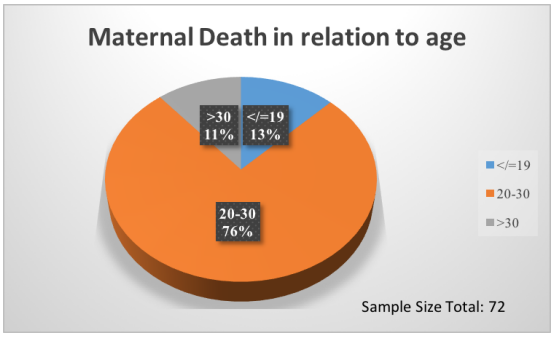

TABLE 2- Distribution Of Maternal Deaths Based On Parity Of Study Group

PARITY	NUMBER	PERCENTAGE
Primi	24	33.3%
Multi	48	66.7%

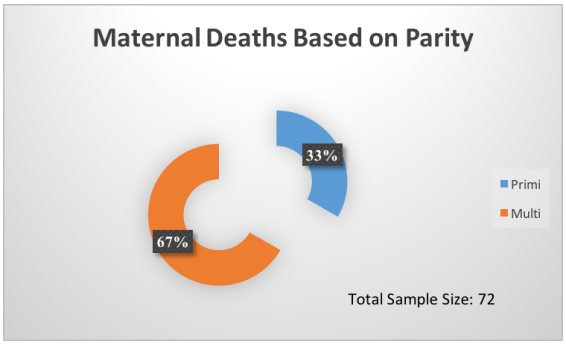

TABLE 3: Distribution Of Study Population Based On Living Area

AREA	NUMBER	PERCENTAGE
Rural	49	66.7%
Urban	23	33.3%

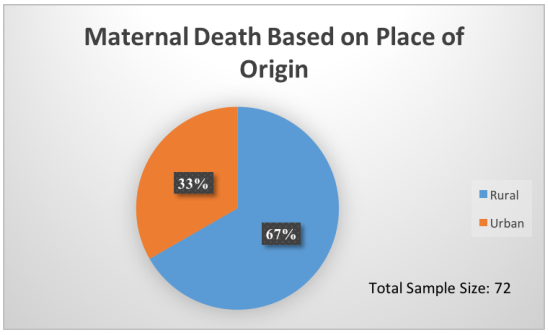

TABLE 4: Distribution Of Study Population Based On Referral.

ADMISSION	NUMBER	PERCENTAGE
Direct	26	36.11%
Referral	46	63.88%

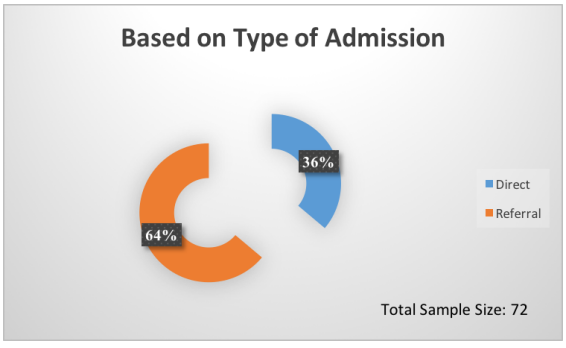

TABLE 5: Distribution Of Study Population Based On Admission Death Interval

ADMISSION DEATH INTERVAL	NUMBER	PERCENTAGE
< 24 hours	34	47.22%
24 hours-7 days	32	44.44%
>7 days	6	16.67%

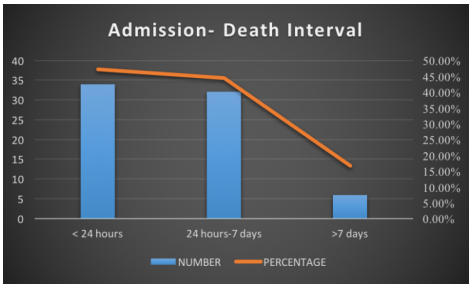

TABLE 6: Distribution Of Study Population Based On Period Of Death During Pregnancy

MATERNAL DEATH	NUMBER	PERCENTAGE
Antepartum	9	12.5%
Intrapartum	6	8.3%
Postpartum	57	79.17%

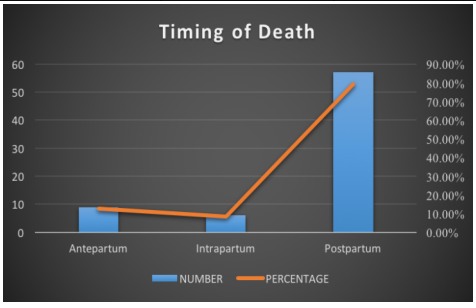

TABLE 7: Distribution Of Postpartum Deaths Based On Mode Of Termination Of Pregnancy N=57

MATERNAL DEATH	NUMBER	PERCENTAGE
Following vaginal delivery	20	35.08%
Following caesarean section	31	54.38%
Following abortion	6	10.52%

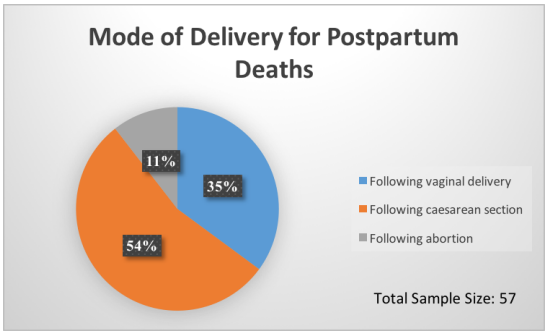

TABLE:8 Distribution Of Maternal Mortality Ratio During Whole Study Period

	2011	2012	2013	2014	2015	2016	2017
Maternal death	9	11	10	10	11	14	7
Deliveries	5441	5789	5945	5983	6581	6900	7000
Rate	165	190	168	167	167	202	100

DISCUSSION

Most maternal deaths takes place in institutions more in Government tertiary care centers. In India 1,00,000 maternal deaths occur yearly and 1 death every 5 minutes leading to maternal mortality rate of 174 per 1,00,000 death.

A vast majority of maternal deaths are preventable. High maternal mortality indicates poor quality maternal and child health care and non availability of MCH care. This tragedy has immense effects on the family especially in the children.

Hemorrhage especially during postpartum is sudden, unpredictable and is more dangerous when women has pre-existing anaemia. Liberal use of blood and component transfusion, vigorous fluid management and follow up can lead to a significant decrease in death due to hemorrhage Eclampsia and PIH account for 13% of maternal deaths. Active magnesium sulphate regime, better monitoring and investigations facilities could bring a significant decrease in maternal deaths.

The present study highlights the importance of early antenatal registration of all pregnancies and regular follow up of cases by trained staffs.Poor nutritional status,lack of antenatal care, unawareness of warning signs of pregnancy, unsupervised/dai handled deliveries, social bias towards blood donation and late referrals are the major contributing factors leading to poor maternal prognosis.

MCH is essential as regular ANC check up can help detect and correct anaemia. As most of the patients that died were transferred cases, it is areas that many deaths could be avoided by early referral. The basic obstetric care for all and early detection of complications and management of emergency obstetric care services need to be seriously looked into the urban areas as well.

Even facilities in tertiary hospitals are inadequate with the shortage of anaesthetist, pathologists and blood banks. This prevents early intervention and adequate EMONC care. Reduction in maternal mortality achieved by smaller countries like Bangladesh,Sri lanka and we should further then to achieve our goals.

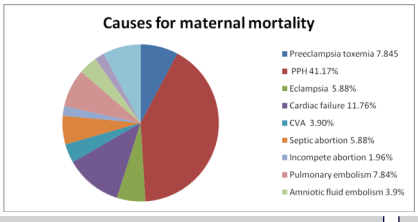

TABLE 9 -Causes Of Maternal Mortality

Preeclampsia toxemia	7.8%
PPH	41.1%
Eclampsia	5.88%
Cardiac failure	11.76%
CVA	3.9%
Septic abortion	5.88%
Incomplete abortion	1.96%
Pulmonary embolism	7.84%
Amniotic fluid embolism	3.9%
Rupture uterus	1.96%
Hepatic disorder	7.84%

Reduction in maternal mortality is one of the targets of millennium development goals of 2015. It is one of the major challenges faced by developing countries. Every minute a woman dies during labor or delivery. The highest maternal mortality rates are in Africa, with a lifetime risk of 1 in 16; the lowest rates are in Western nations (1:2800), with a global ratio of 400 maternal deaths per 100,000 live births.[1]

In this study,a retrospective analysis of 72 maternal death over a period of 7 years from Jan 2011 to December 2017 was done. The maternal mortality rate over this study period was 165 per lakh live birth. As compared to fereshtehfaizianpour et al [2]which was 13,1,19.1,14.3 from 2008 to 2011.

In our study,majority of maternal deaths are preventable. PPH accounted 41.1% cause for maternal death(table 9). Hemorrhage in postpartum period is sudden,unpredictable and is more dangerous when the woman has pre-existing anemia. Liberal use of blood products, vigorous fluid management can lead to significant decrease in maternal death. This result is on par with Melissa Bausermanet al[3]in which hemorrhage had a relative risk of 3.3 in maternal deaths.

Hypertensive disorders of pregnancy account for 7.8% and eclampsia account for 5.8% of maternal death. Regular antenatal monitoring of blood pressure, active magnesium sulphate regimen could bring a significant decrease in maternal death. This can be compared to ronsmanet al[4] wherein hypertensive disorders and hemorrhage were considered treatable causes of maternal deaths. Eclampsia is more frequently reported in adolescents as compared to elderly and more often in obese women[5,6]

In the present study,cardiac failure accounts for 11.76% of maternal mortality. Pre-existing heart disease accounts for majority of cardiac failure. Pregnancy related severe preeclampsia, peripartumcardi omyopathy can also lead to myocardial dysfunction.

Septic abortion and incomplete abortion still remains a major challenge in developing countries. In our study it accounts for 5.8 and 1.9% respectively. The other rare causes being pulmonary embolism 7.8% ,hepatic disorders 7.8%,amniotic fluid embolism 3.9% , rupture uterus 1.96%

Many of the maternal deaths are under reported[7] Maternal deaths in poorer states were more likely to seek consultation in the community; whereas, maternal deaths in richer states were more likely to transport directly to a health-facility or be there already whilst receiving routine care . Health-facility admission, for both routine and emergency admission, was significantly lower for maternal deaths in poorer versus richer states (37.5% versus 50.4%)[8]. Maternal mortality and poor access to healthcare is disproportionately higher in rural populations of the poorer states of India.

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