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Maternal Mortality at a Tertiary Care Hospital: A Retrospective Study

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ABSTRACT

Introduction:*Pregnancyis a physiological state women go through, which carries a very high risk of morbidity and mortality. The reason being various complications associated with pregnancy, which is more in developing countries. A death of a mother is a loss, not just to the family but also to the society and country. Maternal Mortality Ratio (MMR) is a significant marker, which reflects the quality of health carewomenreceive in a country.*

Objectives:*To assess the Maternal Mortality Ratio and the causes of maternal death over a period of five years- at a tertiary care teaching hospital in rural India.*

Methods: *A retrospective hospital based study of 44 maternal deaths over a period of 6 years from January 2009 to December 2014. The information regarding demographic profile and reproductive parameters were collected and results analyzed using percentage and proportion.*

Results:*In our study period, there were a total of12,877deliveries. The leading direct cause (47.7%) was sepsis and most primary diagnosis- anemia (40.9%). The age group of below 25 years (56.8%), delivered outside (40.9%) were majorly affected*

Conclusions:*Majority cause for maternal deaths are the ones, which are preventable by regular antenatal, monitored intranatal and appropriate postnatal care. Early identification of the complication, adequate and appropriate treatment and active intervention is essential to reduce maternal deaths.*

Keywords: *Maternal mortality, post partum hemorrhage, preeclampsia, abruption, placenta previa*

INTRODUCTION

Even today the 2015 target for the Millennium Development Goals (MDGs) of ending preventable maternal mortality (EPMM) stands unfinished and is one of the world's biggest challenges, despite significant progress over the past decade. Today the maternal deaths worldwide has decreased to 45%, however since 1990- 800 women have died from preventable causes. Nearly 99% of preventable maternal deaths occur in the low- and middle-income countries [(1)].

It is high time to mobilize global, regional, national and community-level commitment to prevent maternal mortality. In our country, a number of women experience pregnancy related complicationsand those whosurvive this, face severe morbidity [(2)].

Maternal death rate in India was found to be 1000 per 100000 live-births in the year 1959 and has decreased to 301 per 100000 live-births in 2003[3]. Albeit, explained thatthe risk of death from complications related topregnancyhas decreased during past few decades, but it still continues to haunt every Obstetrician.For many years the Maternal mortality has been used as a marker to assess the quality of health care in a community [4].

It is hard to find a definitive report of maternal death,as this information is vast and largely unaccounted for [5].

MATERIAL AND METHODS

Data of cases of maternal mortality was collected for a 6 year period i.e. from January 2009 to December 2014, at M S Ramaiah Medical College. We included all cases of deaths resulting from either medical or other causes that occurred during pregnancy, at delivery and within 42 days of delivery or termination of pregnancy. During this period, a total of 44 cases were recorded out of 12,877.The cases were allanalyzedin respect to maternal age, past medical history, previous pregnancies, pregnancy outcome, antenatal care provided, gestational age, and causes which lead to the death.

RESULTS

Table 1 shows year wise MMR from 2009 to 2014. It is observed from Table 2 that out of total 44 deaths, 25 (56.8%) were in the age group of < 25 years followed by 11 (25%) deaths in the age group 26 to 30 years. Majority of maternal deaths (75%) belonged to the lower class, followed by (12%) from the upper lower class.

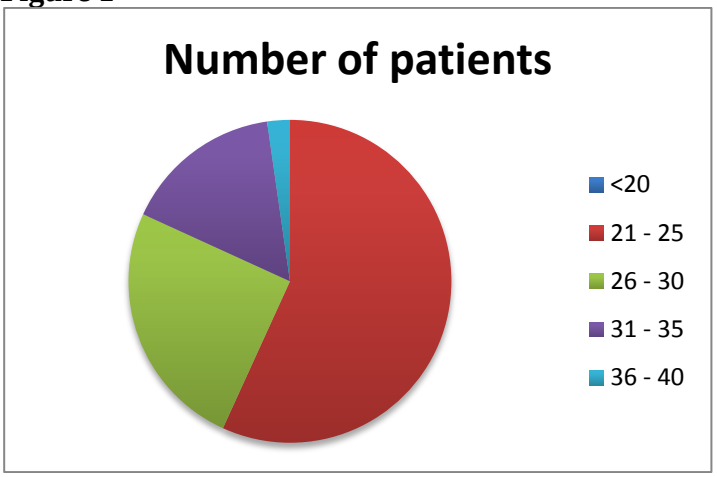
Table1

Year	Total delivery	Maternal mortality
2009	1910	8
2010	1956	4
2011	2200	7
2012	2314	7
2013	2365	3
2014	2132	15

Table 2

Age	Number of patients
<20	0
21 - 25	25
26 - 30	11
31 - 35	7
36 - 40	1

Figure 1



As seen from Table 3, out of the total 44 deaths, 17(38.63%) were primigravidas, 18 (40.9%) were outside delivered and Maximum deaths (88.4%) have occurred which were un-booked cases. 33 (75%) women had regular antenatal checkups, out of which 29 (65.9%) were in the tertiary care center.

Table 3

Parity	Number of patients
Primi	17
2	11
3	12
4	4

In Table 4 we present the modes of delivery conducted, out of which LSCS tops the list with 21(47.7%) followed by 19(43.1%) vaginal deliveries.

Table 4

Modes of delivery	Number of patients
Vaginal	10
Instrumental	9
LSCS	21
Undelivered	4

Table 5 shows the diagnosis of women on admission, iron deficiency anemia was notedin 18 (40.9%) women, 17(38.6%) women had sever pre

ecalmpsia, and 15(34.09%) presented with post partum hemorrhage.

Table 5

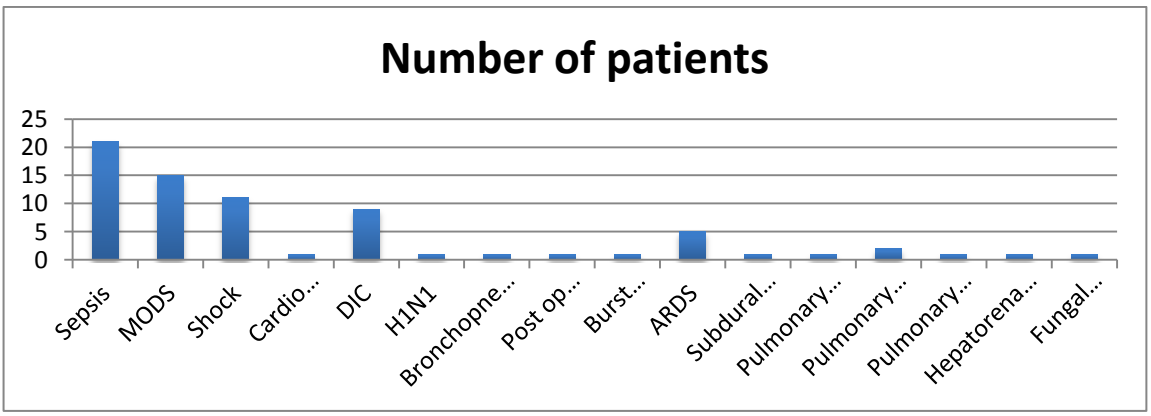
Diagnosis	Number of patients
Sepsis	7
DIC	10
ARF	10
IUFD	6
HELLP	7
Jaundice	6
Pre eclampsia	17
GDM	1
Placenta previa	1
Placenta accreta	1
CCF	1
PPH	15
Previous LSCS	9
Anemia	18
APH	3
Twins	3
Abnormal lie	2
Chronic hypertension	3
RHD	2
Cardiac arreat	1
Darriers disease	1
Bronchopnemonia	3
ARDS	1
Hypothyroid	5
Raynauds	1
Shock	2
AFLP	1

As is evident from Table 6, the threemajorprimary causes of death were : 1) sepsis - noted in a total of 21(47.7%) women,2) Multi organ failure in 15 (34%) and 3) hypovolemic shock in 11(25%).

Table 6

Cause of death	Number of patients
Sepsis	21
MODS	15
Shock	11
Cardio respiratory arrest	1
DIC	9
H1N1	1
Bronchopneumonia	1
Post op peritonitis	1
Burst abdomen	1
ARDS	5
Subdural hemorrhage	1
Pulmonary hemorrhage	1
Pulmonary embolism	2
Pulmonary edema	1
Hepatorenal failure	1
Fungal sinusities	1

Figure 2:



DISCUSSION

Death of a mother is a catastrophic event. In today's world, it has a significant impact on the family, societyand country. The newborn surviving infants are left motherless and some are therefore unable to cope with daily survival and are at an increased risk of infantdeath. Reduction of maternal mortality is the objective of MDGs, especially in the lower income and developing countries, where 1 in 16 women die due to pregnancy related complications. In the our study, out of the 44 deaths, 7 deaths were among primigravidas and 19 (43.1%) among multigravidas, similar to that reported by the other studies, Agarwal et al [6] reported that high deaths among multiparas (43%) than the primiparas (25%); Sikdaretal[7] revealedthat (25.5%) deaths in primigravidas and (74.5%) in multigravidas; Thomas et al [8] showed that primigravida contributing to 29.2% and multigravida 50.8% of deaths. Purandare et al [9] observed that out of the 30 deaths, 21 were multigravida and 9 were primigravidas. Too many and too frequent pregnancies together adversely affect the mother's health and have its roots in the social status of the woman.

In our study, 2 women died within an hour of admission; 7 (15.9%) within 12 hours of admission; and 10(22.7%) between 13-24 hours of admission and 12 (27.27%) after 7 days of admission. Similar to that reported by the other studies, Sikdar et al reported that 48 (19.7%) died within first 12 hours of admission and another 30 (12.5%) died within next 12 hours; 78 (32.2%) died within 1 day, 58 (23.8%) died within 1-3 days, 39 (16%) died in between 4 to 7 days. Agarwal et al [6] revealed that 44% died within 24 hours of admission and 22% within 12 hours of hospital stay; Purandare et al [9] showed that among the 30 deaths, 3 died within 30 minutes of admission, 14 died between 30 minutes and 6 hours, 7 died between 6 and 24 hours and remaining 6 died after 24 hours of admissions.[10].

In the present study, maximum (38.04%) deaths occurred in the 3rd trimester; followed by (36.7%) in the post-partum period and (21.76%) in the 2nd trimester. Similar results have been reported by other studies, Purandare et al [9] showed that (73.33%) in the post-partum period followed by (26.66%) during theante-partumand (3.3%) during intra-partum period. Thomas et al [8] showed that who presented in the 1st, 2nd and 3rd trimester and post natal/ postabortal were 3.5%, 9.7%, 31.9% and 54.9% respectively. Dongra et al [11] revealed that maximum deaths 86.20% occurred in the 3rd trimester of pregnancy.

Common direct causes were hemorrhage 22(50%) (Post-partum hemorrhage, ante-partum hemorrhage and abortion related hemorrhage), and sepsis 21 (47.7%) (Puerperal sepsis, ante-partum sepsis and intra-partum sepsis) and indirect causes of anemia 18 (40.9%).The reportedhad a significant difference in outcome in comparison with the other studies; Trivedi et al [12] reported that among indirect leading causes, hepatitis accounting for 29.43% of deaths. Bera et al [13] revealed that among the direct causes, hemorrhage contributed in 23.8% and sepsis for 16.4% deaths and among the indirect causes, jaundice resulted (19.9%), followed by anemia and heart disease, with 5.9% and 3.4% deaths respectively.

CONCLUSION

In developing countries like ours, Maternal health, wellbeing and survival must remain a central goal and an investment priority in the post-2015 framework for sustainable development to ensure that progress continues and accelerates, with a focus on reducing inequities and discrimination. Attention to maternal mortality and morbidity must be accompanied by improvements along the continuum of care for women and children, including commitments to sexual and reproductive health and new-born and child survival.

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