

## Retrospective Study of Maternal Mortality

1<sup>st</sup> Dr. G. KARUNA  
2<sup>nd</sup> Dr. K.N.MADHAVI

---

### Abstract:

*Back ground: Maternal mortality ratio/rate is a global health indicator which reflects the overall improvement of a community in terms of literacy, occupation and health care system of the country. Most of the maternal deaths are preventable. The aim of the study was to evaluate the causes of material death and to find out preventable factors that can decrease the maternal mortality.*

*Methods: This retrospective study was conducted by analyzing the maternal death records over a period of two years from June 2015 to May 2017.*

*Results: The maternal mortality in the present study is 553/ 1 lakh live births in 2015-16 year, 520/1 lakh live births in 2016-17 year and maternal deaths are 51 in 2015-16 year, 50 in 2016-17year. Most of the maternal deaths occurred 52% in the 20-25 years age group, maximum cases 42% of cases referred from PHCs and 64% of maternal deaths occurs within 72 hours of admission. The most common direct causes of death in this study were hypertensive in pregnancy (31%) and post-partum hemorrhage (8%). The other direct causes of deaths are peripartum cardiomyopathy, amniotic fluid embolism, disseminated intra vascular coagulation (DIC) and antepartum haemorrhage. The indirect causes of death are severe anemia, infection, ARF, Jaundice, which are responsible for 23% of maternal deaths.*

*Conclusion: Hypertensive disorders of pregnancy was found to be the major direct cause of death. Early screening of high risk cases and referring these cases to tertiary centers for further management will decrease maternal mortality.*

---

Date of Submission: 25-07-2022

Date of Acceptance: 08-08-2022

---

### I. Introduction

Maternal death is indeed a tragic event during or after a natural process of delivery and is still the leading cause of death in women of reproductive age group.

According to WHO a maternal death is defined as a death of a women, while pregnant (or) within 42 days of termination of pregnancy, irrespective of the duration, site of the pregnancy, from any causes related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes<sup>1</sup>.

Every minute a women dies during labour or delivery somewhere in the world. In India approximately 28 million women experience pregnancy and 26 million have live births<sup>2</sup>. This averting maternal deaths remains a challenge to health care system, in India.

Millennium development goal 5 (MDGF) aims at reducing 75% of MMR over a period of (1990 to 2015)<sup>3</sup>. However India has observed appreciable decline in MMR from 380 in 1990 to 212 in 2007-2009 and 178 in 2010-2012<sup>4</sup>. MDG 5 aimed at an annual decline of 5.9% but global decline is only 2.3%. India is making progress but not on track to achieve MDG showing only slow progress. India contributes to 17% (50000) of the world's maternal deaths.

Maternal deaths mostly occurs from third trimester to the first week after delivery. Studies show that mortality risks for mothers are particularly elevated with in first two days after birth.

This present study is a retrospective study, aiming to review the maternal deaths. Its causes and to analyses the preventable factors to decrease the maternal deaths.

### II. Materials And Methods

This was conducted by review the records of maternal deaths over the period of 2 years from June 15 to may 2017, in the Obstetrics & Gynaecology department at government general hospital, which is a tertiary care hospital in Guntur, Andhra Pradesh.

The available data about these 101 maternal deaths were correlated with various factors like age, parity, booking status, delivery status, death interval and cause of death and complications which are leading to maternal death were analyzed.

**III. Results**

TABLE -1

**MATERNAL DEATHS IN BOOKED AND UN BOOKED STATUS ACCORDING TO AGE**

S.NO	Age	Booked	percentage	Unbooked	percentage
1	15 -19	1	0.99%	6	5.94%
2	20-24	4	3.96%	52	51.58%
3	25-29	1	0.99%	31	30.69%
4	30-34	-	-	10	9.90%
5	35 and above	2	1.98%	2	1.98%

Total 8 7.92% 93

This table shows 55.54% maternal deaths have been occurred at 20-24 years of age group. 7.92% maternal deaths were booked cases and remaining 92.07% maternal deaths were unbooked cases.

TABLE -2

**MATERNAL DEATHS IN RELATION TO PERIOD OF DELIVERY**

S.NO	Period of delivery	Number of cases	Percentage
1	Post abortal	6	5.94%
2	Antepartum	19	18.81%
3	Intrapartum	-	-
4	Postpartum	76	79.20%

Total 101

This table shows 5.94% maternal deaths occurred in post abortal period, 18.81% maternal deaths occurred in Antepartum period. Maximum 79.20% were occurred in postpartum period and no intrapartum deaths.

TABLE -3

**OUTCOME OF FETUS OF MATERNAL DEATHS**

S.NO	Outcome of fetus	Number of cases	Percentage
1	Live Births	56	55.44%
2	Still Births	20	19.80%
3	Not Delivered	19	18.81%
4	Aborted	6	5.94%

The table shows the status of outcome of fetus of maternal deaths, about 55.44% were live deaths, 19.80% still births, 18.81% not delivered and 5.94% were aborted.

TABLE -4

**TIME INTERVAL BETWEEN MATERNAL ADMISSIONS TO DEATH**

S.NO	Time Interval	Number of cases	Percentage
1	Within first 24 hours	33	32.67%
2	2 <sup>nd</sup> day and 3 <sup>rd</sup> day	31	30.69%
3	4 <sup>th</sup> to 7 <sup>th</sup> days	27	26.79%
4	18 <sup>th</sup> to 14 <sup>th</sup> days	8	7.92%
5	15 <sup>th</sup> to 30 <sup>th</sup> days	2	1.98%
6	More than 30 days	-	-

Total 101

This table shows 32.67% of maternal deaths occurred within first 24 hours admission, after admission into hospital followed by 30.69% were on 2<sup>nd</sup> and 3<sup>rd</sup> day, 26.79% during 4<sup>th</sup> to end of first week, 7.92% during 2<sup>nd</sup> week and 1.98% during 3<sup>rd</sup> and 4<sup>th</sup> weeks was observed.

TABLE -5

**MATERNAL DEATHS IN RELATION TO REFERRALS**

S.NO	Hospitals	Number of cases	Percentages
1	PHC's	42	41.58%
2	CHC's	20	19.80%
3	District Hospital	18	17.82%
4	Teaching Hospitals	15	14.85%
5	Private Hospitals	3	2.97%
6	Domestic referrals	3	2.97%

Total

101

This table shows most of the cases about 41.58% referred from PHC's , followed by 19.80% from CHC's , 17.82% from DHS , 14.85% from teaching hospitals, 2.97% from Domestic and private hospitals.

TABLE -6  
CAUSES OF MATERNAL DEATHS

S.NO	Causes of Deaths	Number of Cases	Percentage
	Direct causes		
1	Toxemias of pregnancy	31	30.69%
2	Postpartum Hemorrhage	8	7.92%
3	Peripartum cardiomyopathy	7	6.93%
4	Embolism	6	5.94%
5	DIC	5	4.95%
6	Antepartum Hemorrhage	5	4.95%
7	Puerperal sepsis	3	2.97%
8	Surgical complications	2	1.98%
9	Rupture uterus	2	1.98%
10	Rupture Ectopic	2	1.98%
11	Abortions	6	5.94%
			76.23%
	Indirect causes		
12	Severe Anemia	8	7.92%
13	Infections	5	4.49%
14	Acute renal failure	4	3.96%
15	Jaundice with Hepatorenal failure	4	3.96%
16	HIV with TB	2	1.98%
17	Heart Disease	1	0.99%
			23.77%

Total

101

This table shows causes of deaths maximum 30.69% were due to toxemias, followed by 12.87% Hemorrhage. These two conditions are most leading direct causes of maternal deaths, 7.92% maternal deaths, 7.92% maternal death occurred indirectly due to severe anemia, 3.96% and 3.96% occurred in postpartum period due to ARF and Jaundice with Hepatorenal failure respectively.

#### IV. Discussion

The maternal mortality ratio in our study is 553/1 lakh live births in 2015-16, 520/1 lakh live births in 2016-17. As the maternal mortality ratio (MMR) is one of the global health indicators and also the mother & child health is major concern of the government, every possible attempt has to be made to reduce MMR because most maternal deaths and pregnancy complications could be prevented if pregnant woman access to good quality of antenatal, intranatal and post natal care. The higher incidence of deaths are due to late referral cases from periphery and delayed intervention.

In this study most of the maternal deaths occurred between 20-24 years age group around 52%, and 25-29 years age group around 31% which correlates with Puri A et al<sup>5</sup>, Verma A et al<sup>6</sup> -78.5%.

In relation to period of delivery, maximum maternal deaths occurred in post-partum period which is about 79%, whereas in other studies it was only 70%<sup>7</sup>. In this study about 33% of the maternal deaths occurred in the first 24 hours of the admission followed by 31% in 2<sup>nd</sup> and 3<sup>rd</sup> day, 27% in 4<sup>th</sup> to 7<sup>th</sup> days. Same way highest percentage of maternal deaths were happened with in first 24 hours after reaching the hospital as revealed by the study of Arpitha et al<sup>8</sup> 80%, Vidyadhar B et al<sup>9</sup>.

Hypertensive disorders and eclampsia are the most common direct causes of maternal deaths which accounts for 30% in our study, which is comparable with studies conducted in West Bengal by Paul A et al, toxemias of pregnancy was 50.51%, Paul A et al<sup>10</sup> and Puri et al<sup>5</sup> 21% respectively. In this study haemorrhage occupied the 2<sup>nd</sup> most common cause (8%) followed by peripartum cardiomyopathy (7%), embolism (6%), DIC (5%), antepartum haemorrhage (5%), puerperal sepsis (3%), ruptured uterus, ruptured ectopic, surgical complications occurs for 2% each and abortions accounts for 6%.

There is a decrease in post-partum hemorrhage cases are mainly due to skilled birth attendant training, Bemonc and Cemonc training to all staff nurses and doctors who were working at the PHC and CHC level.

In this study the major indirect cause of death is anemia which accounts for 8%, in comparison with Mukharjee et al<sup>11</sup> 25%, the other indirect causes of maternal deaths are infections (5%), ARF (4%), jaundice (4%), HIV with TB (2%), and heart disease 1% respectively.

In this study the MMR 553/1 lakh in 2015-16, 520/1 lakh in 2016-17, which is comparable which is comparable with findings of Mukharjee et al<sup>11</sup>, Paul A et al<sup>10</sup>, Arpitha<sup>8</sup>. The reason behind this figure is, this

hospital is tertiary hospital, which receives more number of referrals not only from home district and other adjacent districts, as it is an old hospital having many superspeciality branches.

## **V. Conclusion**

Maternal mortality ratio strongly reflects the overall effectiveness of health care system .Government of India was implementing JSY (Janani Suraksha Yojana) scheme and encourages rural women for institutional delivery with incentives. Maternal deaths are still high in comparison with developed countries.

Maternal deaths are mainly due to hypertensive disorders in pregnancy, obstetric hemorrhages and severe anemia and heart disease, these can be prevented to a large extent by early detection of the high risk group, appropriate care at appropriate time and active management of high risk group by frequent antenatal visits reduces the maternal deaths.

The social and environmental factors which influence human reproduction are region; eg.. age of marriage , child baring, child spacing, family size , fertility patterns , levels of education economic status , customs and beliefs , role women in society should be subjected to studied in detail to improve the overall health status of women of reproduction age group which is important aspect of social obstetrics<sup>12</sup>.

The proposed novel approach e-hacking system by the Government has to be followed scrupulously for better result toward the care of mother and child. Early detection of high risk cases, early referrals and availability of blood and improvement in transport facility and community based maternal education programs will reduce the maternal deaths.

## **References**

- [1]. WHO (2005) , regional health form, vol 9 no.1. 2005.
- [2]. National Rural Health Mission frame work for Implementation 2005 -2012 new Delhi.
- [3]. United Nation Millennium development goals, available at WWW.un.org/millieniumgoals.
- [4]. Maternal mortality in India special bulletin office of the registrar. General of India New Delhi.
- [5]. Puri A, YadavI, Jain N. Maternal mortality in an urban tertiary care hospital of north Indian journal of obst gynaecol .2011 ; 61(3):280-285 .
- [6]. Verma A et al, A study on maternal mortality in DR . Rajendra Prasad medical college ,janda dist, kangra , H.P (jan 1999-dec 2005), Indian journal of obst gynecol , 2008; 58(3):226-9.
- [7]. Khamathem PD ,chanams, maternal mortality and its causes in a tertiary centre. J obst gynecol2012 ; 62 (2);168 -71.
- [8]. Arpita N et al . A retrospective and prospective study of maternal mortality in a rural tertiary care hospital of central india .
- [9]. Vidhyadhar B; Purushottam A, Giri B , Garg RC , maternal mortality at a tertiary care teaching hospital of rural india , a retrocptive study . Int J Bio/med res 2011;2(4): 1043-6.
- [10]. Paul A ,Prasantah R , Samir H , Mondal JK . Review of changing trends in maternal mortality in a rural medical college of west bengal . J obst gynecol IND 2005 : 55(6) : 521 -4 .
- [11]. Mukherjees ,Jheengh c , Bhattacharya S , Mary L . Maternal mortality at a tertiary care institute of central india . Asian journal of obst gynac practice 2010 : 4 ; 23-7 .
- [12]. Menon , MKK (1975) , journal of obstetrics & Gynaecology of India , XXXV, 113 .