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Analysis of Causes of Maternal Mortality in A Tertiary Care Centre

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Pregnancy and childbirth is a normal physiological process bringing a joyful experience to individuals and families. However, in many parts of the world, pregnancy and childbirth is a perilous journey, a risky and potentially fatal experience for millions of women especially in developing countries. The average maternal mortality rates in developed countries is between 10-15/100,000 live births while developing countries record rates 100-200 times this number.

Maternal death is defined by the World Health Organization (WHO) as "the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the 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]

The world mortality rate has declined 45% since 1990, but still 800 women die every day from pregnancy or childbirth related causes. According to the United Nations Population Fund (UNFPA) this is equivalent to "about one woman every two minutes and for every woman who dies, 20 or 30 encounter complications with serious or long-lasting consequences. Most of these deaths and injuries are entirely preventable." [2]

I. Measurement

The four measures of maternal death are the maternal mortality ratio (MMR), maternal mortality rate, lifetime risk of maternal death and proportion of maternal deaths among deaths of women of reproductive years (PM).

Maternal mortality ratio (MMR): the ratio of the number of maternal deaths during a given time period per 100,000 live births during the same time-period.[13] The MMR is used as a measure of the quality of a health care system.

Maternal mortality rate (MMRate): the number of maternal deaths in a population divided by the number of women of reproductive age, usually expressed per 1,000 women.[13]

Lifetime risk of maternal death: refers to the probability that a 15-year-old female will die eventually from a maternal cause if she experiences throughout her lifetime the risks of maternal death and the overall levels of fertility and mortality that are observed for a given population. The adult lifetime risk of maternal mortality can be derived using either the maternal mortality ratio (MMR), or the maternal mortality rate (MMRate). [13]

Proportion of maternal deaths among deaths of women of reproductive age (PM): the number of maternal deaths in a given time period divided by the total deaths among women aged 15–49 years.[14]

India contributes one-fifth of the global burden of absolute maternal deaths; however, it has experienced an estimated 4.7% annual decline in maternal mortality ratio (MMR) [1], [2], and 3.5% annual increase in skilled birth attendance since 1990 [1], [3]. While not on track to meet Millennium Development Goal number 5, India is making progress in reducing maternal mortality

- **Direct deaths** are defined as those related to obstetric complications during pregnancy, labour or puerperium (six weeks) or resulting from any treatment received.

The major complications that account for nearly 75% of all maternal deaths are:[3]

- severe bleeding (mostly bleeding after childbirth)
- infections (usually after childbirth)
- high blood pressure during pregnancy (pre-eclampsia and eclampsia)

Indirect deaths are those associated with a disorder, the effect of which is exacerbated by pregnancy.{heart disease,anemia,other medical disorders}

II. Materials And Methods

Retrospective analysis of maternal deaths that occurred in Coimbatore Medical College Hospital during the last three years – 2013,2014 and 2015.During this period we had 131 maternal deaths out of 20147 live births.so the MMR in our hospital is 650 which is in par with that of our national MMR.

III. Observation

Table 1: Causes Of Maternal Mortality

Causes	Number	Percentage
Ght	52	40
Hemorrhage	12	9
Sepsis	10	8
Medical disorders	35	26
Others	22	17

Medical disorders	Total 35
Renal	1
Respiratory	7
Heart disease	9
Dm	3
Liver	7
Anemia	8

Others	22
Rta	3
Burns	5
Leukemia	1
Sol	1
Meningoencephalitis	2
Hiv	2
Pulmonary embolism	5
Amniotic fluid embolism	2
Anaesthesia complication	1

Gestational hypertension(40%) ranks first among the causes of maternal mortality followed by hemorrhage(9%) and sepsis(8%).Among the indirect causes,Heart disease stands first,followed by anemia,liver and respiratory illness.

Sepsis even in the era of antibiotics forms about ten percentage of the causes,mainly because of postabortal cases,revealing the pregnancy in late stages while sinking into a state of irreversible shock.All of them were unbooked, multigravidas ,illegal pregnancies which were diagnosed incidentally when they were admitted for some other illness.

Hemorrhage has come down with the advent of adequate conveyances for transport to tertiary care centres,availability of blood components at peripheral centres and liberalization of hysterectomy for saving the life of the mother ,sacrificing the uterus.

Anemia though an indirect cause forms a major bulk because of delayed booking and referrals,noncompliance of the patient,not revealing the pregnancy due to illegacy and illiteracy.

Among the Respiratory illnesses,pulmonary tuberculosis stood first..Due to the availability of ATT,patient survives upto the reproductive age group,but succumbs to the sequelae (fibrosis of the lung) of the disease.

Table 2:' Among the gestational hypertension cases,neurological complications(65%) form the main cause,followed by pulmonary edema(14%),ARF(10%) and HELLP syndrome(7%).

Causes	Number	Percentage
Neurological(cva+cvt+ecl)	34	65
Abruption	2	4
Arf	5	10
Hellp	4	7
Pulmonary edema	7	14

Table3: Age Wise Presentation

Age	No.of deaths
<20	19
20-30	96
>30	16

Third decade death is more common,followed by second and fourth decade.

Table 4: Parity

Parity	No.of deaths
Primi	55
2-4	72
>5	4

Primi forms about 40% of cases and multi(2-4) forms about 57 % and grandmulti(>5) forms about 3%.

Table 5: Distribution Of Gestational Hypertension Cases Parity Wise

	Cva	Cvt	Hellp	Arf	Abruption	Pulm edema
Primi	13	10	2	2	0	2
Multi	5	5	4	1	2	3
Grand multi		2				1

In Primi,the main cause of death is the neurological complication of gestational hypertension which tells us that there is some underlying vascular pathology that also affects the central nervous system which usually runs in families.so a proper history taking at the booking visit may help us overcome this catastrophe.

IV. Summary

From our study,it is obvious that gestational hypertension ranks first among the causes of maternal mortality..Hemorrhage and sepsis has come down in this era..

Among gestational hypertension the main cause in primigravidas,seems to be neurological complications, which tells us that there is some underlying vascular pathology that also affects the central nervous system which usually runs in families.so a proper history taking at the booking visit may help us overcome this catastrophe.

Anemia forms an indirect cause increasing the mortality rate of PPH and sepsis.

V. Conclusion

The unacceptably high maternal mortality rate in India can be reduced by making concerted efforts along the following lines: -

Initiative from the government would be of paramount importance in this effort. This would include allocation of sufficient funds to all the health institutions including Primary Health Centers. Even more important is to ensure that the funds actually reach the users. Construction of better roads and transport facilities especially in the rural areas. Local dais and female health workers should be imparted periodic training and be incorporated as integral part of health care system.

Early registration of antenatal cases.

Health education of couples to make them understand the importance of antenatal check ups,hospital deliveries and small family norms.

Wide spread availability of Iron – Folic acid tablets and fortified food to the remotest of remote area Prevention and early treatment of infection,antepartum and postpartum haemorrhage. Treatment of concomitant illnesses like diabetes,tuberculosis and malaria. Emphasising the importance of observing proper aseptic measures while conducting deliveries.

Providing facilities for hospital deliveries for high risk cases like severe anaemia, diabetes and heart disease. z ccountability in case of the unfortunate event of any maternal death. Taking appropriate remedial measures for preventing lapses noted in the management of these cases will be of immense value.

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