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CAUSES OF MATERNAL MORTALITY IN FIRST TRIMESTER- 3YEAR RETROSPECTIVE STUDY IN A TEACHING HOSPITAL

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ABSTRACT WHO estimates that 5,85,000 women die every year in the world as a result of complications related to pregnancy, delivery, postpartum and abortion, the later contributing to 13% of all maternal deaths. Ectopic pregnancy is responsible for 10% of maternal mortality and is the leading cause in first trimester of pregnancy. Aims and Objectives: To study the causes for maternal mortality in first trimester in our institution.
Material and Methods: It was a retrospective study conducted in the department of OBG over a period of 3 years (March 2016 to March 2019).
Results: There were 5 cases of maternal mortality in this period, of which two were cases of ectopic pregnancy ,one of abortion with uterine perforation, one case of Atypical Eclampsia and a case of severe anaemia complicating pregnancy.
Conclusion: Ectopic pregnancy and unsafe abortion continue to be a preventable cause of maternal mortality in first trimester.

KEYWORDS : : Maternal mortality, first trimester, preventable deaths.

INTRODUCTION:

Maternal death or **maternal mortality** 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." Direct maternal death is the one resulting from a complication of the pregnancy or delivery, or their management. A pregnancy-related death in a female patient with a preexisting or newly developed health problem is described as indirect maternal death. Maternal mortality ratio is defined as the number of registered maternal deaths due to birth- or pregnancy-related complications per 100,000 registered live births. WHO commends India for its groundbreaking progress in recent years in reducing the maternal mortality ratio (MMR) by 77%, from 556 per 100 000 live births in 1990 to 130 per 100 000 live births in 2016.

India's present MMR is below the Millennium Development Goal (MDG) target and puts the country on track to achieve the Sustainable Development Goal (SDG) target of an MMR below 70 by 2030.In India, 50-98% of maternal deaths are caused by direct obstetric causes (hemorrhage, infection, and hypertensive disorders, ruptured uterus, hepatitis, and anemia).(1). 50% of maternal deaths due to sepsis are related to illegal induced abortion. Ectopic pregnancy is the most common cause of death among women during the first trimester at approximately 10% of the total.(2)In the developed world ,outcomes have improved while in the developing world they often remain poor.

The risk of death among those in the developed world is between 0.1 and 0.3 percent while in the developing world it is between one and three percent. According to WHO statistics, unsafe abortion is responsible for at least 8% of maternal deaths. About 25 million unsafe abortions occur a year, of which most occur in the developing world(3).Approximately 72,000 pregnant women die every year because of eclampsia and severe preeclampsia. That amounts to nearly 200 women every day.

Preeclampsia–eclampsia ranks second only to hemorrhage as a specific, direct cause of maternal death. The risk that a woman in a developing country will die of preeclampsia or eclampsia is about 300 times that of a woman in a developed country (4). 17 % of preeclampsia patients are actually in the adolescent age group reflecting the very early age at marriage in spite of several awareness programs and legal guidelines. Atypical eclampsia constitutes about 8% of eclamptic cases (5). Problems with the atypical forms are their unpredictable onset and thus the difficulty in making a timely diagnosis to initiate management, which is critical in avoiding complications. Most maternal deaths are preventable, as the health-care solutions to prevent or manage complications are well known.

AIM OF THE STUDY:

To analyse the causes for preventable maternal deaths in first trimester in our institution.

MATERIAL AND METHODS:

This is a retrospective study done in the department of Obstetrics and Gynaecology, at Government General Hospital attached to Kurnool Medical College, Kurnool during a period of 3 years(from March 2016 till March 2019).Maternal Mortality statistics were collected from the mortality register and cases of first trimester deaths were studied in detailed, by retrieving case records from the medical records section. Our hospital is a tertiary care center catering to the needs of near by districts of our state (Andhra Pradesh) and also those of Telangana and Karnataka.

RESULTS:

There were a total of 35,061 live births during this period with a maternal mortality rate of 482 per 10,0000 live births.Out of the total of 169 maternal deaths,5 occurred in first trimester,10 in second trimester,154 in third trimester.

Table:1 Trimester wise distribution of maternal deaths.

SL No	Number	Percentage
First Trimester	5	2.9%
Second Trimester	10	6%
Third Trimester	154	91.1%

Table:2 Causes for mortality.

SL No	Number	Percentage
Ectopic pregnancy	2	1.2%
Unsafe abortion	1	0.6%
Atypical Eclampsia	1	0.6%
Severe anaemia	1	0.6%

Of the first trimester deaths, two were due to ectopic pregnancy. One of these patients was referred from a community health centre with history of abdominal pain of one day duration. She was a 32year old G3P1L1A1 with history of secondary infertility for 10yrs.At the time of admission, she was grossly pale with a hemoglobin of 3.4gm% and was soon diagnosed as a case of ruptured ectopic gestation in shock, confirmed on ultrasound pelvis. Patient collapsed within one and a half hour of admission, as she was being shifted to operation theatre and could not be revived.

The other was a 43year old G4P3L3 post tubectomy with history of lower abdominal pain and distention for one week, referred from a distant community health centre. She was diagnosed as a case of unruptured ovarian pregnancy on ultrasound of pelvis. As she was pale with Hb of 7.4gm/dl at admission and was febrile also, she could not be taken up for emergency laparotomy. But on second day,before being shifted for laparotomy,she complained of numbness of both lower limbs.

Physician opinion was sought and it was suspected it to be a case of

superior sagittal sinus thrombosis and was advised preoperative evaluation as she was hemodynamically stable and the ectopic was unruptured.The patient suddenly became irritable,followed by unconsciousness.After the next 4 hours,she sustained cardiac arrest and could not be revived.

There was one case of unsafe abortion with uterine perforation and peritonitis,referred from a district hospital,where she was admitted for three days.She was a 20 year old G3P2L2 with history of induced abortion at 3 months gestation,performed by a quack.

At the time of admission,she was in septic shock and sustained cardiac arrest after 3 hours of admission.

There was one case of Atypical Eclampsia at 15weeksgestation.She was a 20 year old primigravida with history of high blood pressure records for the past 3 days and 4 episodes of generalized tonic clonic convulsions since then.She was referred from a district hospital after administering inj.Magnesium sulphate loading dose .At the time of admission,she was conscious and coherent with a BP record of 200/120mm of Hg and was treated with inj.Labetolol.BP records were closely monitored and he was evaluated to exclude causes of chronic hypertension. As she had further episodes of convulsions, injection Phenytoin, Inj.Mannitol and Midazolam were added and termination of pregnancy was initiated with misoprostol 24 hours afteradmission.

Few hours after induction ,she developed pulmonary edema.In view of falling oxygen saturation,she was intubated and connected to mechanical ventilator.Afte 10 hrs,she succumbed to cardiac arrest.

The last was a case of 38year old elderly primigravida at 8weeks gestation who presented to the delivery room as a case of severe anemia with hepatosplenomegaly in congestive heart failure.She succumbed to cardiorespiratory failure within 50 minutes after admission.

DISCUSSSION:

The contribution of ectopic pregnancy to maternal mortality in our institute is significantly low(1.18%) compared to WHO statistics.(10%) Pain was the major presenting symptom. Marked delays occurred between first symptom, first consultation, and diagnosis. Physicians should be sensitive to the fact that in the reproductive age group any women presenting with pain in the lower abdomen, diagnosis of ectopic pregnancy should be entertained irrespective of the presence or absence of amenorrhoea, whether or not she has undergone sterilization.

In the second case, prolonged starvation, elderly age, pregnancy and unidentified underlying risk factors incidentally resulted in cerebral venous thrombosis as immediate cause for mortality. A high index of suspicion is absolutely essential to diagnose cerebral venous thrombosis. Diagnosis of CVT should be considered in all young and middle-aged patients with recent onset unusual headache, with stroke-like symptoms, especially with seizures, more so when it occurs in the absence of the usual risk factors for arterial thrombosis.(6)

About one in eight pregnancy-related deaths worldwide is associated with unsafe abortion .(3)In our institute,it amounted to one in six deaths. Any woman with an unwanted pregnancy who cannot access safe abortion is at risk of unsafe abortion. Deaths and injuries are higher when unsafe abortion is performed later in pregnancy. The rate of unsafe abortions is higher where access to effective contraception and safe abortion is limited or unavailable. An accurate initial assessment is essential to ensure appropriate treatment and prompt referral for complications of unsafe abortion.

Unsafe abortion can be prevented through:

- comprehensive sexuality education;
- prevention of unintended pregnancy through use of effective contraception, including emergency contraception; and
- provision of safe, legal abortion.

Eclampsia is a complex phenomenon as a result of cerebral dysrhythmia due to the multifarious pathogenesis started by abnormal trophoblastic invasion initiating vasospasm, endothelial dysfunction, and platelet aggregation. Atypical eclampsia constitutes about 8% of eclamptic cases(6). I our study,it contributed to 3.33% of cases of eclampsia .

Problems with the atypical forms are their unpredictable onset and thus the difficulty in making a timely diagnosis to initiate management, which is critical in avoiding complications. Antenatal care has been identified as the single intervention which could influence the maternal mortality of our country. Many women still seem to be unreached with this basic pregnancy evaluation. Most of the patients reported by the registry were registered for antenatal care either in the second (40.98 %) or the third trimester (46.28 %). Very few (12.54 %) booked in the first trimester.(1)

Maternal undernutrition and iron-deficiency anaemia increase the risk of maternal death, accounting for at least 20% of maternal mortality worldwide (1).In our study,anemia contributed to 13% of total mortality.Anaemia and pre eclampsia in combination contributed to another 13%.

CONCLUSION:

Though there is positive impact on the national average MMR, our intitution statistics reflects that we are lagging behind the national average. Upliftment of the rural population in terms of improved literacy, delaying age at marriage, proper utilization of reproductive health and family planning services, preconception counseling and antenatal care is the need of the hour. Early diagnosis of ectopic gestation can prevent mortality and all health care professionals in peripheral hospitals need to undergo refreshment courses in identification of early pregnancy complications also along with routine antenatal care.

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