

**Original Article**

**MATERNAL DEATHS IN BURDWAN MEDICAL COLLEGE, BURDWAN, WEST BENGAL-TRENDS: (1999-2010)**

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**ABSTRACT**

**BACKGROUND:** As pregnancy is not a disease, most maternal morbidity and mortality related to it are preventable. Maternal mortality is also an important measure to determine performance of health care system in the country. Unfortunately, there is a big difference in Maternal Mortality Rate (MMR) between developed and developing countries.

**OBJECTIVE:** This study is to determine different causes and factors related to maternal death at Burdwan Medical College.

**METHOD:** This is an observational analytical study. We have collected data of all 1003 maternal deaths from 1st October, 1999 to 31st December, 2010 at Department of Obstetrics and Gynecology, Burdwan Medical College, Burdwan, West Bengal. Evaluation of collected data is done from 2010 to 2020.

**RESULTS:** The retrospective analysis of maternal mortality shows that 86% of deaths were from direct causes like haemorrhage, eclampsia or severe hypertensive disorder and sepsis. Indirect causes like anaemia, hepatitis and other factors contributed 14% of maternal deaths. Most of the deaths (42%) occurred in women who were below 20 years of age. Highest maternal mortality was seen in primigravidas

**CONCLUSION:** The high MMR is because of the fact that our hospital receives mostly the cases which are usually un-booked and late referrals. Most of the patients die on their way or in the hospital just after reach because of transport problems. Emergency obstetric care (EOC), rural health centres with ambulances, early referral, tertiary care centres with ICU facilities will help to reduce MMR. Confidential enquiries and facility based maternal death review (MDR) in all hospitals is required.

**KEY WORDS:** Maternal death, Haemorrhage, Eclampsia, Anaemia

**INTRODUCTION**

Pregnancy is not a disease. Morbidity and mortality related to it are preventable. According to WHO, maternal mortality is an important measure of a women's health and indicative of the performance of health care system in the country. Unfortunately, there is a

big divide between developed and developing world on the score of maternal mortality. Developed countries have MMR of around 20/100,000 live births per year while countries like Afghanistan the figure is 1600/100,000.

**MATERIALS AND METHODS**

**MATERIAL AND METHODS:**

This study was undertaken at Burdwan medical college, Burdwan, WB. From January 1999 to December 2010. Follow up study was done from 2010 to 2020 Dec.

**Observation and analysis of Maternal Death in Our Hospital:**

A total of 1003 maternal deaths were reported in the period from January 1999 to December 2010 and the total number of live births was 186,202, contributing maternal mortality ratio (MMR) of 538.66/100,000 live births, which is to some extent higher than national goal. Maximum number of maternal deaths occurred in the three months of August to October. The maternal mortality is not influenced by any seasonal factors but August to October is the peak time for delivery in this institution, which influences the maternal death. The maternal mortality ratio is not uniform during 12 years of study period. During this time the overall maternal mortality ranged from 622.26 (1999) to 553.3(2010) per 100,000 live births and there is substantial decline in maternal mortality ratio in 2004 to 2008.

**Causes of Maternal Death:**

The retrospective analysis of maternal mortality shows that 86% of deaths were from direct causes like haemorrhage (APH, PPH), eclampsia or severe hypertensive disorder and sepsis. Indirect causes like anaemia, hepatitis and other factors contributed 14% of maternal deaths.

In the year 2009 to 2010 highest number of maternal death occurred due to hypertensive disorder/ECL (42.30%) followed by haemorrhage (23%) [PPH- 15%, APH-5%, postabortal-3%] and sepsis (16.35 %). Most important indirect causes of death in pregnancy were anaemia (1.92%), hepatitis (5.77%) and other relevant factors (10.57%).

Comparison with previous analysis shows that haemorrhage is the leading cause of maternal death during 1999 to 2008 followed by eclampsia and sepsis.

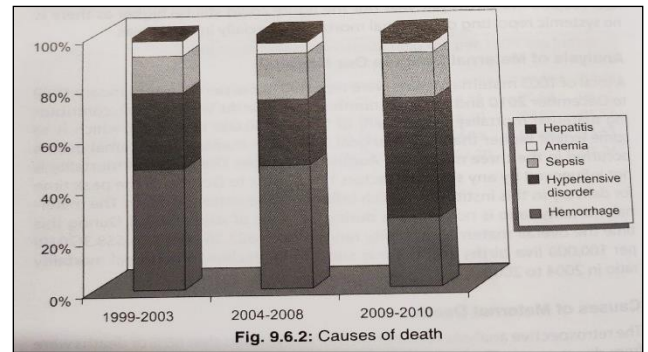


Fig. 9.6.2: Causes of death

Eclampsia was reduced during that period from 26% (1999-2003) to 21% (2004- 2008) and p-value is < 0.004 (significant).

In our study of 12 years, the lowest incidence of eclampsia (2.89%) was noted in the year 2008 and highest incidence (5.3%) was observed in the year 2001.

Increased use of Injection MgSO, as an anticonvulsant drug from the year 2003 resulted in definite reduction of maternal death rate in eclampsia, but there is no gradual reduction of case fatality rate due to difference in year-wise incidence, late referral, and poor antenatal check-up, incomplete management by peripheral hospitals before transfer and transfer of moribund patients before

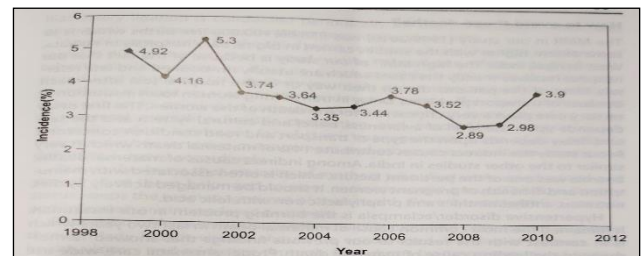


Fig. 9.6.3: Incidence of eclampsia in BMCH

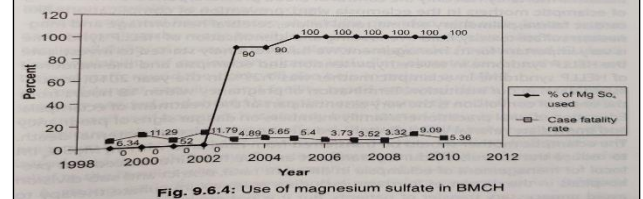


Fig. 9.6.4: Use of magnesium sulfate in BMCH

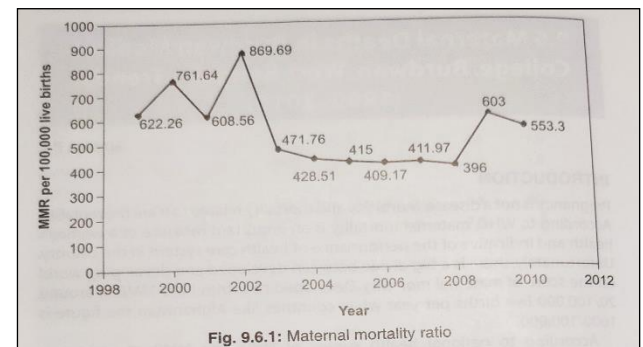


Fig. 9.6.1: Maternal mortality ratio

Death to the tertiary hospital as this hospital is an

apex level teaching hospital with a large catchments area and serves mainly for rural people. Even the referral cards with the patients are not properly filled up during transfer of the patients in higher centres to institute the proper treatment.

Most of the deaths (42%) occurred in women who were below 20 years of age. Highest maternal mortality was seen in primigravidas.

Out of 1003 maternal deaths in twelve years 530 (52.84%) occurred in ante-natal period, 396 (39.48%) occurred in intrapartum period and postabortal death contributed only 77 (7.68%) of cases.

## DISCUSSION:

The MMR in our study (1999-2010) was 538.66/100,000 live births which is to some extent higher with the studies carried in big tertiary hospitals in Kolkata, West Bengal, India. The high MMR of our study is because of the fact that our hospital receives mostly the cases which are usually un-booked and late referrals. Most of the patients die on their way or in the hospital just after reach because of transport problems. Delay in transferring women to an institution of tertiary care plays a very critical role for the death of the women. The first delay depends upon the level of awareness, belief and cultural system and the second delay depends upon the type of transport and road condition concerned. In our study the indirect causes contribute 14% of maternal death which is very similar to the other studies in India. Among indirect causes of maternal deaths, anaemia was one of the pertinent factors, which is often associated with malnutrition and ill health of pregnant women. It should be managed actively by diet, nutrition, anthelmintic and prophylactic iron with folic acid.

Hypertensive disorder/eclampsia is the burning problem in our institution. It remained the most common cause of maternal death in last two years which is in contrast with the results to our previous findings that showed haemorrhage to the leading cause of maternal death. Proper antenatal care, wide use of magnesium sulphate as an anticonvulsant in the institution can reduce the maternal mortality. Not only the control of blood pressure, periodic monitoring of eclamptic mothers' cardiac failure, pulmonary edema,

renal failure, cerebral haemorrhage and magnesium sulphate toxicity, fluid overloading and identification of HELLP syndrome is very important for its management. We have routinely started to investigate the HELLP syndrome in severe hypertension and eclampsia and the incidence of HELLP syndrome in eclamptic mother was 7.27% in the year 2010(unpublished data) in our institution. Termination of pregnancy within 18 hours from the onset of convulsion is the very essential part of the treatment of eclampsia. Education of rural practitioners/family members on danger signs of pregnancy and immediate referral will definitely reduce the incidence of maternal death. The eclamptic mother should be transferred from rural area with Inj M9SO, IM to reduce the convulsion during transport and we have introduced our protocol for management of eclampsia in different rural, district and sub-division hospitals in the district of Burdwan including magnesium sulphate therapy to avoid unnecessary transfer of patients. But it is not strictly followed in many of the hospitals. Adjacent districts like Birbhum, Bankura, Purulia, Hooghly and even Jharkhand increase the load of moribund patient in our institution without maintaining proper referral system and care.

Recently, it was identified that haemorrhage was the second leading cause of maternal death in this referral institution. The decline in death due to haemorrhage may be due to the fact that we have now introduced the active management of labour and wider use of prostaglandin as a utero-tonic agent. Whole blood is easily available in our institutional blood bank. Workshop for different conservative surgeries like brace suture, uterine and ovarian artery and internaliliac artery ligation is conducted periodically for the PG students, RMOS and emergency surgeons to tackle the emergency crisis in PPH.

Sepsis came out to be the third most common cause. The high incidence of sepsis is due to the fact that a good number of patients referred to this hospital with abortion done by illiterate quack practitioners. Unsafe abortion, septic induced abortion (SIA), delivery in unsafe circumstances and even at home contribute a slight increase in the incidence of sepsis. The result of this study is in contrast in developed

countries where sepsis is no more a leading cause of maternal mortality. Aseptic precaution and prophylactic antibiotics are the main stay of treatment for obstetric management. Some of the patients may require conservative management and others may need laparotomy and definitive surgery accordingly.

Our study shows that majority of mothers who died were uneducated and almost all of them belonged to poor socioeconomic group. This low literacy status keeps the women ignorant of their health. Poverty, malnutrition, anaemia and infection are interrelated problems.

Education of females about hygiene, vaccination and basic health problems through lady health visitors should be encouraged. Training of doctors, lady health visitors and midwives through workshops by government and institutional level with regards to family planning, antenatal care, eclampsia, anaemia, clean safe delivery and emergency obstetric care (EOC) will help to reduce maternal mortality to a greater extent.

Basic and rural health centres should be provided with ambulances so that early referral can be made possible. In tertiary care centres, we need to improve easy availability of screened blood, plasma and platelet fractions and ICU facilities. Availability of senior consultants including obstetrician/anaesthetists and trained staffs round the clock will also help to reduce our MMR.

Confidential enquiries and facility based maternal death review (MDR) is urgently needed and should be implemented correctly and efficiently in different categories of hospitals. It is already been started in our institution.

Various cash benefit scheme offered through NRHM have really benefited pregnant women to opt for institutional delivery. Cashless facility recently introduced through Rastriya Swasthya Bima Yojana (RSBY) will provide further relief to the families who cannot bear the cost of medical emergencies.

A strong periodic monitoring and supervision system would definitely improve the maternal mortality. Due to above facts recently MMR in WB has come down from 101 [srs 2014 -16] to 98 per 1 lakh [SRS 2016-18]

## CONCLUSION

In India, MMR (400) is alarming. Reducing maternal mortality by 2015 is part of millennium development goals (MDG) set forth by international community and endorsed by government of India, by virtue of which we are committed to reach the stated target in the next five years. According to Regional Health Forum, the three delays increase the risk to a woman's life, i.e., Delay in deciding to seek care, delay in reaching a medical facility and delay in receiving quality care at facility.

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*Received:* 23.12.2021

*Accepted:* 30.12.2021

*Published:* 31.1.2022

*Citation:* Pal A. Maternal Deaths in Burdwan Medical College, Burdwan, West Bengal-Trends: (1999-2010). *J Indian Acad Obstet Gynecol.* 2022;3(2):31-34.

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