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MATERNAL MORTAILITY IN A TERTIARY CARE HOSPITAL A CONTINUING TREGEDY

Farhat Khanum, Farhat Nasreen, Mehr-un-Nisa

Department of Obstetrics and Gynaecology, HMC, PGMI, Peshawar - Pakistan

ABSTRACT

Objective: The objective of this study was to find out the maternal mortality ratio and its causes in a tertiary care hospital of Peshawar.

Material and Methods: This descriptive study was conducted in obstetric and Gynae department of Hayatabad Medical Complex Peshawar from January 2003 to December 2007. All maternal deaths during the above mentioned period were analyzed retrospectively. The information and relevant data was obtained from the patient's record and mortality register.

Results: The maternal mortality ratio for the five year period was 296/100,000 live births (64 maternal death/21654 live birth). Fifty one (79.6%) patients had direct causes and 13 (20.3%) had indirect causes. The most common cause of maternal death was eclampsia in 20 cases (31.2%) followed by hemorrhage in 16 cases (25%) and sepsis in 7 cases (10.9%). In indirect maternal deaths cardiac disease was seen in 4 cases followed by hepatic failure in 3 cases. The mean age was 28.4 ± 7 years. The median parity was 4. Education ante natal care and socioeconomic status were poor in these patients. Majority (48 cases) were received in serious condition. Maximum number of patients (29) died within 12 hours of admission.

Conclusion: The major causes of maternal mortality like eclampsia hemorrhage and septicaemia are preventable, if prompt and appropriate management is provided at the time of pregnancy complication.

Key Words: Maternal mortality, eclampsia, obstetrical hemorrhage, puerperal sepsis.

INTRODUCTION

Maternal mortality ratio (MMR), the number of maternal deaths per 100,000 live births is a sensitive indicator of the overall effectiveness of health system and quality and accessibility of maternal health services available to women[1]. Maternal health is one of the main global health challenges[2]. WHO and UNICEF revised estimates (2010) reported that approximately 358000 women die worldwide from maternal causes[3]. About 99% of these deaths occur in developing world. No other mortality rate is so unequal. Afghanistan has one of the highest MMR (1800/ 100,000 LB) in the world after the African countries where MMR upto 2000/ 100,000 LB is reported (Sierra Leone)[4]. It is for these reason that WHO adopted MMR as a indicator of maternal health and set the goal of reducing maternal mortality from 1990 level by 75% before 2015 also called 5th Millennium development goal (MDG5)[5,6].

In Pakistan all national programs on primary health care have included maternal health as core component inspite all these efforts the maternal health is poor in Pakistan. Each year an estimated 25000 women die due to pregnancy related causes[7]. About 40% pregnant woman do not receive any antenatal care. Moreover almost 2 in 3 births occur at home and 60% of births are not assisted by skilled medical attendance. Delay in seeking medical care for obstetric complications are common[8].

The main causes of MMR in Pakistan as well as other parts of the world are hemorrhage, eclampsia and puerperal sepsis. Mean while indirect causes include cardiac failure, hepatic failure and anemia. A combination of economic social and cultural factors play a significant role in these maternal deaths[9]. It is important to study maternal mortality because the ratio is not declining and majority of the pregnancy related deaths are preventable. The objective of this study was to determine the maternal mortality ratio and identify its main causes in a tertiary care hospital of Peshawar.

MATEIRAL AND METHODS

This study was conducted in Gynaecology and Obstetric Unit of Postgraduate Medical Institute, Hayatabad Medical Complex, Peshawar over a period of 5 years, (2003-2007). All maternal deaths during the

Address for Correspondence:
Dr. Farhat Khanum
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Cell: ??????????????????
E-mail: ???????????????????

above mentioned period were analyzed retrospectively. The hospital is one of the tertiary care hospitals of the province. The nature of admission is mostly emergency and referred from the periphery in critical conditions.

The WHO definition of maternal death, "the death of a woman while pregnant or within 42 days of termination of pregnancy irrespective of the duration and site of pregnancy from any cause related to or aggravated by pregnancy or its management but not from accident or incident"[10] was used as operative definition of maternal deaths. Fortuitous deaths and deaths due to gyneaclogical causes were excluded from the study. Where multiple factors were involved, the most likely factor was assigned the cause of death. Medical records of all maternal deaths were scrutinized and information obtained which included age, parity, admission, status, education, socio-economic status, conditions an admission, referral history, level of antenatal care, distance from the hospital, duration of hospital stay any type of delay, associated medical condition and obstetrical complication. The collected data was analyzed by computer software SPSS version 14 and results presented as frequencies and percentages.

RESULTS

A total of 21654 live birth occurred during the study period (1.1.2003-31.12.2007). Total number of maternal deaths was 64. MMR calculated for the five year period was 296/100,000 live births. Out of 64 maternal deaths 51 (79.6%) patients had direct causes and 13 (20.3%) had indirect causes. (Table 1) The most common cause of maternal death was eclampsia in 20 cases (31.2%). The second leading cause of maternal mortality was obstetrical hemorrhage in 16 cases (25%). Primary post partum hemorrhage due to atonic uterus were seen in 7 cases and same number were due to trauma to the genital tract where 5 cases were ruptured uterus. Septicaemia was seen as a 3rd common cause in 7 cases (10.9%). Indirect causes of maternal mortality included cardiac diseases in 4 cases (6.2%) followed by hepatic failure 3 cases (4.8%) (Table 1). Out of 64 cases of maternal mortality only 10 cases had received any kind of antenatal care and remaining cases had not received any kind of antenatal care. Out of 64 deaths, 31 (48.4%) were referred from the periphery hospital which include

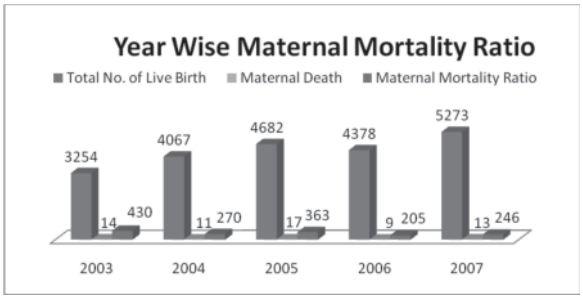

Table 1: A cause related contribution in MMR

Causes	Total No. of Maternal Mortality and %age
A: Direct	
Eclampsia	20(31.2)
Haemrrohage	16(25.0)
Septicaemia	07(10.9)
Amniotic fluid embolism	03(4.8)
Pulmonary embolism	03(4.8)
Anesthesia complication	02(3.1)
Total Direct	**51(79.8)**
B: Indirect	
Cardiac Diseases	04(6.2)
Jaundice/ Hepatic failure	03(4.8)
Transfusion reaction	02(3.1)
Multi-organ failure	02(3.1)
Respiratory failure	01(1.5)
Meta static bone disease	01(1.5)
Total Indirect	**13(20.2)**

Table 2: Age & Parity distribution in maternal death

Age in year	Total No. & %age
< 20	6(9.3)
20-29	28(43.7)
30-39	26(40.6)
40 & above	4(6.3)
Parity	
Primigravida	17(26.5)
Multigravida (G_2-5)	28(43.7)
Grand Multiravida (G_6 & above)	19(29.6)
Total	**64(100)**

district hospital, rural health centre and private clinic. Ninty percent of the patients were from poor socioeconomic class and none from upper class. Analysis of education status showed that all of them were uneducated.

Table 3: Condition on arrival and time interval between arrival & death

Condition on arrival	No.	Time interval between arrival & death	No.
Morbiund	09	Within 2 hours	09
Very serious	13	Between 2-12 hours	29
Serious	26	Between 12-24 hours	08
		Between 24-48 hours	04
Apparently stable	16	3-7 days	11
		After 1 Week	03
Total	**64**	**Total**	**64**

The ages range from 18-42 years with mean age was 28.4 ± 7 years. Most (84%) of the maternal deaths occurred between 20 to 39 years age group. The median parity was 4 (ranging from 0-10). Seventeen patients (26.5%) were multigravida and 19 (29.6%) were grand multigravida (Table 2). Overall maximum number of deaths occurred in postpartum period 41 (64%) cases, followed by antepartum (12) and intrapartum period (11 cases). The distance from hospital was observed and it was found that 18 patients (28.2%) were living within 10 km from hospital, 22 (34.3%) patients within 10-50 km, 17 (26.5%) within 50-100 km and 7 patients were more than 100 km from hospital.

Out of 64 patients, majority (48 cases) was received in serious condition and 16 cases were apparently stable. Maximum number of patients (29) died within 12 hours, 15 patients spent 2-7 days in hospital and 3 patients died after 7 days (Table 3).

DISCUSSION

The maternal mortality ratio of 296/ 100,000 live births observed in this study is comparable to studies done in other tertiary care hospitals where the MMR ranges between 204 to 1650[11-18]. Fahim F observed no significant fall in MMRs and the trend more or less remain the same over the 9 year period (2000-2009)[18]. The MMR given by the Pakistan demographic and health survey (2007) is 276/100,000 live births whereas the MDG target for 2015 in 140/100,000 live births[6]. It means that Pakistan is still for behind the MDG target.

Analysis of various studies of on maternal mortality in developing countries like Nigeria[19], Nepal[20] and Bangladesh[21] have shown decline in maternal mortality. This is due to better access skill birth attendant, emergency obstetric care and family planning services. However, in Pakistan much has not been achieved inspite of all efforts to improve maternal health.

Majority of our patients died of direct causes (79.6%). This favour the trend from other hospital studies where over 80% of deaths were from direct causes[11-18], while this is in contrast to that in developed nations where indirect and incidental causes accounted for the majority of deaths[22].

Hypertensive disorders are the most common medical problem in pregnancy and accounts for a significant proportion between 12 and 20% of maternal deaths world wide[9]. In our study eclampsia is the top leading cause of MMR (20 cases 31.1%). A study from the same hospital has shown eclampsia contributing for 48% of maternal mortality[23]. Two hospital based studies from Nigeria[24] and Turkey[25] also showed the similar results. All these patients were brought to hospital in emergency, in serious condition with no antenatal care. They died mostly from DIC, Renal failure, intracranial hemorrhage and pulmonary edema.

Obstetric hemorrhage accounts for 25% of all maternal deaths globally with primary postpartum hemorrhage (PPH) the largest share of the cases[26]. Mortality due to hemorrhage reflects the appropriateness of obstetric care. It is not only the largest contributing factor in developing countries but it is also the leading cause in the most developed nations[27]. In our study it was the second leading cause of maternal mortality (16, 25%) with primary PPH in 7 cases, ruptured uterus seen in 5 cases and cervical trear in 2 cases. These patients were usually brought in moribund and serious condition due to excessive bleeding. Unsafe obstetric practices like injudicious use of oxytocin, prolonged obstructed labour and late referral were identified in these cases. WHO recommends active management of 3rd stage of labor by skilled birth attendant for all mothers for reducing PPH[4].

Septicaemia was seen as a third leading cause of MM in our study mainly because of unhygienic practices by untrained people, delayed admission in hospital in case of infections leading to septicaemia and death. It was a major cause of maternal death in one hospital of Karachi[12]. Also reported as a main

cause of maternal mortality from one district hospital of Nigeria[28].

Other direct causes of MM seen in our study were amniotic fluid embolism (3) pulmonary embolism (3) and death due to anesthesia (2 cases). In the last triennium report (2003-2005) of confidential enquiry into maternal death in UK, the most common cause of direct deaths was the thromboembolism, followed by hemorrhage, sepsis and anesthesia complication[22].

In the indirect causes cardiac diseases was leading cause of maternal mortality seen in 4 cases. Other studies also reported the same results. Pregnant women with sever cardiac diseases should be admitted for stabilization in adult critical care unit under care of multidisciplinary team to ensure a best possible outcome. Other causes include hepatic failure, transfusion reactions, multiorgan failure and respiratory failure. Emphasis should be on early detection of complication, prompt referral to tertiary centers with intensive care unit facilities to minimize the mortality in ill obstetric patients[29].

Our study showed that maximum death (64%) occurred in postpartum period. This is in accordance with other studies where the vast majority of women die during the first 48 hours after delivery[14]. High quality care during these periods especially to prevent and manage PPH is crucial to prevent these deaths.

The delay in getting prompt and appropriate treatment in the event of complication during pregnancy is one of the identified factors in maternal death[30]. In this study 98% of deceased mother had multiple delays in getting, the appropriate treatment with type I delay the major contributor (70.3%) i.e. delay in deciding to seek appropriate care. A recent study from Karachi reported 94% of mothers had multiple delay with type II delay was the major contributor[11] i.e delay in reaching the appropriate facility. The delay occur even at tertiary care hospital i.e. type III delay because of failure to recognize the complication in time and intervene promptly. The delay may also be due to non availability of blood and blood products, late investigations, delay in surgery, absence of senior staff round the clock and lack of modern technology in hospital.

The causes for these delays are a number of barrier at household, community and health care level that prevent a women in labour from receiving the care that might save her life. These include the basic factors like poverty, illiteracy, social exclusion, gender discrimination and insufficient resources especially in rural areas. In Pakistan quality of public sector maternal health services regarding management of obstetric complications are poor[31]. Majority of the hospitals are not providing emergency obstetric care (Emoc) services round the clock and most referral hospital are in accessible in term of cost and social accessibility, depriving the women of their basic human right of care during pregnancy and labour[32]. Our study reflects the entire above mentioned barrier at various level mostly of which are avoidable. These factors make series of event leading to maternal death.

CONCLUSION

A reasonably high maternal mortality ratio reflects the poor socioeconomic, educational and health status of our population. All the causal factors responsible for high maternal mortality are interrelated and preventable if urgent interventions are implemented. These include community education, maternal health awareness through media, improve the socio-economic condition of the population. The effective and efficient referral system is essential. The female skilled health care worker are essential for the provision of antenatal, natal and postnatal care. The quality Emoc services should be accessible and affordable especially for the poor if the millennium development goal is to be achieved.

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