ORIGINAL ARTICLE J. Med. Sci. (Peshawar, Print) July 2010, Vol. 18, No. 3: 140-142

MATERNAL MORTALITY: A PREVENTABLE TRAGEDY

Rubeena Gul

Department of Community Medicine, Khyber Medical College, Peshawar - Pakistan

ABSTRACT

Objectives: The objectives of the study were to determine the frequency of maternal mortality in the urban areas of Peshawar and the high risk factors contributing to maternal mortality.

Material and Methods: A Cross-Sectional Study of high risk factors contributing to maternal mortality amongst females of reproductive age in Peshawar district in 2008 is presented**.** A cluster sampling of five hundred households were included in the study; a total of 476 women in their reproductive ages were surveyed.

Results: Eleven maternal deaths were recorded as a whole. Maternal mortality rate (MMR) was tabulated as 5.28 (1.10%) live births. High-risk mothers were determined to be between the ages of 15-20 years that is 174 (37.7%). Most of the women surveyed 215 (45.45%) were living in houses with monthly income less than Rs. 5000/month (less than $ 3/day). Six patients of 11 (54.54%) maternal deaths were in grand multi-parous during or following normal vaginal delivery (NVD). Most prevalent risk factors responsible for high MMR were the complications of pregnancy. These included pre-existing risk factors such as hypertension 22.9%, anemia 19.6%, while sepsis and hemorrhage made 13.1% each.

Conclusion: Low socioeconomic status, marital age, grand multiparity and high risk mothers are still major causes of maternal deaths.

Key words: Maternal Mortality, NVD, sepsis, Ante partum, hemorrhage, normal vaginal delivary.

INTRODUCTION

Maternal death, as defined by the 9th and 10th revisions of the International Statistical Classification of Diseases and Related Health Problems (ICD)," is the death of a woman while pregnant or within 42 days of the end of the pregnancy, irrespective of the duration and site of pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes."[1]

The high level of maternal mortality in the developing world is an issue of public health concern. The state of maternal health in Pakistan is poor. Each year an estimated 25,000 to 30,000 women die because of pregnancy related issues and many suffer from complications ranging from mild to severe.[2] The major causes of maternal mortality are hemorrhage, sepsis, hypertensive disorders, obstructed labor, and abortions. All of these causes are mostly preventable through proper understanding, diagnosis, and management of labor complications.[3]

Although varying levels of maternal mortality are reported in hospital settings, which vary from one place to another, we have no such data available from the community. This study is an attempt to collect such information.

Address for Correspondence:
Dr. Rubeena Gul
C/o Gul Kor, Rehman Baba Road,
University Town, Peshawar - Pakistan
Contact: 0301-8965970
Email: gul_rubeena@yahoo.com

MATERIAL AND METHODS

A descriptive cross sectional survey was conducted in old Peshawar City from January 2008 to December 2008. A cluster sampling was used to collect a sample of five hundred households, of these households, 476 women in their reproductive ages were selected, of whom 24 were non-responders.

Inclusion criteria were, all married women between reproductive ages of 18 to 49 years, grand-multiparae, history of complications with previous pregnancies, and those with concurrent medical problems such as anemia, hypertension and diabetes. Exclusion criteria was nulliparous female.

Detailed histories of the respondents were taken using a structured questionnaire. Proxy autopsy was done of relatives in case of women who had died due to pregnancy or causes related to it. The questionnaire was prepared in accordance with the objectives of the study. The questionnaire was used to collect preliminary information regarding age, address and socio-economic status of the respondents. Information was also sought about the risk factors that could lead to maternal death including socioeconomic, marital and obstetric factors.

Finally statistical analysis of the data was performed and association of risk factors with maternal mortality was studied.

RESULTS

This epidemiological survey covered a total of 476 women in their reproductive ages. The average number of married women per house was two. A total of eleven maternal deaths were recorded during the survey, from January 2008 to December 2008.

In our study the MMR was 5.28 per thousand live births. In measuring socioeconomic factors related to maternal mortality, 173 (36.36%) of the women were found to belong to blue-collar occupations. Most of the women 215 (45.15%) were living in households with a monthly income of less than Rs.5000/month (less than $3/day), rest of the patients belong to higher income group (Figure 1).

Maternal mortality was 4 (36.36%) in women of the 15-20 years age group (Table 1). None of the women had a height of less than 5 feet. Women with a history of complications in previous pregnancy such as still birth and premature delivery contributed 50% each towards maternal mortality. Concurrent medical problems like diabetes mellitus and chronic hypertension were the most common contributing factors, 50% each, to maternal mortality. MMR in normal vaginal delivery was (54.55%) as compared to Ceaserian section where it was 27.27% and in assisted deliveries, it was 18.18%.

Table 1: Age-wise distribution of high risk mothers and maternal mortality

Age of Mother (in years)	Frequency	Pregnancies	Mortality
15 – 20	63	277	4
21 – 25	170	744	—
26 – 30	135	592	2
31 – 35	64	281	1
36 – 40	28	120	2
41 – 45	16	67	2

Pregnancy induced hypertension was reported in 159 (33.3%) of those surveyed. Anti-Partum hemorrhage was reported in 79 (16.7%), sepsis in 79 (16.7%) and moderate to severe anemia in 159 (33.3%) of pregnant women (Figure 2); the figure shows a high trend in maternal mortalities due to complications arising during pregnancy which is 54.5%.

DISCUSSION

Pregnancy and labor, if not kept under constant vigil, can end in serious complications or even death at any moment. The death is a tragedy and carries a

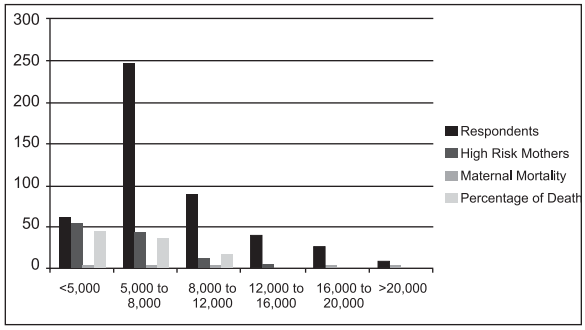

Fig. 1: Relationship of socioeconomic status with maternal mortality

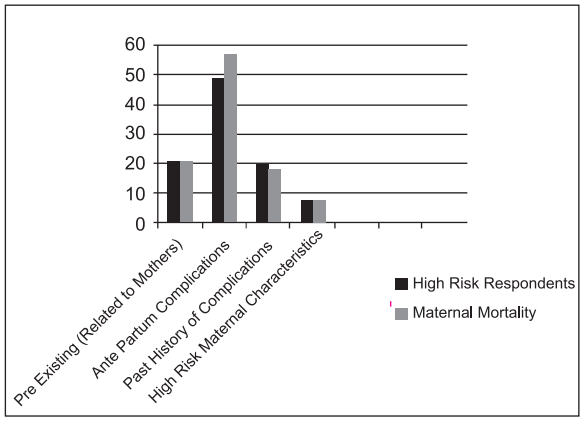

Fig. 2: Trends of maternal mortalities due to complications

huge burden of grief and pain for the family, especially for the young ones. Half a million women die each year due to pregnancy-related complications and 95% of them come from developing countries.[4] Avoidance of unwanted births, proper antenatal care by trained staff supported by institutional quality care, and delivery coupled with the empowerment of women has made maternal deaths during pregnancy a rare phenomenon in the industrialized world. In the developing world, however, it is still a commonly encountered phenomenon, where these figures are underestimates because of under reporting from various countries. There is no systematic mechanism of death reporting in general and particularly of maternal deaths in our country, especially in rural areas and thus it becomes extremely difficult to assess the maternal morality rate.

The maternal mortality in our study was 5.28/1000 live births, with a percentage mortality at 1.10%. These findings correlate with the findings of Begum et al.[4] In a study at United States which report the maternal mortality rate as 10.3 in 1991 and 12.9 in 1997 per 100,000 live births.[3]

Teenage pregnancy is often referred to as 'at-risk pregnancy' and is of grave concern. Teenage women face a greater risk of obstetric complications than women in their twenties. The risks are greatest for the very poor who have poor nutrition and the least access to health services. Social problems like

illiteracy, poverty, and low socio-economic conditions aggravate the situation.[5]

The Demographic and Health Survey 1990-1991[6] found that 7% neonatal deaths occured in mothers under 20 years, while post-neonatal deaths occur at a rate of 5.1%. The figures drop as the age of mothers increases, and climbs again for mothers 40 years or older NIPS/IRD 1992.[7] Existing research shows that adolescents figure prominently in deaths associated with childbearing. A survey of 30 hospitals and private clinics across Pakistan, covering 104,551 live-births showed 703 maternal deaths. Ten percent of these were aged between 15-20 years. Jafarey[8] identified social, economic, cultural and logistical factors preventing women from seeking medical advice even in urban area residents.

Anemia is a common complication of teenage pregnancy[9]. Chahande, et al, reported 72.6% of pregnant women to be anemic.[10] In our study moderate to severe anemia was found in 33.3% of the pregnant women. A possible contributory factor for this high incidence of anemia may be the high fertility rate.

Pregnancy induced hypertension was reported in 33.3% and hemorrhage in 16.7% of our subjects whereas a history of sepsis was given in 16.7% cases. Although the majority of maternal deaths occur in developing countries, each day two to three women die of pregnancy-related causes in the United States. The risk of dying of pregnancy-related complications in USA fell significantly in the last 50 years, but is unchanged since 1982. The leading causes of deaths being hemorrhage, embolism, pregnancy-induced hypertension, sepsis and complications of anesthesia[11].

Women having complications in previous pregnancy such as still birth and premature delivery contributed 50% each to maternal mortality. Diabetes mellitus and chronic hypertension were the most common medical conditions contributing 50% each to maternal mortality. 43% women experienced some type of morbidity (an obstetric complication, a preexisting medical condition, a cesarean delivery, or any combination of these) during their hospital stay. In a study by Danel I et al 31% women had at least one obstetric complication or at least one preexisting medical condition[12]**.** The high percentage in our cases is because of lack of education.

In our findings the interval between two childbirths was less than two years for 59% cases. The odds of dying in the neonatal and post-neonatal period is 2.27 and 2.12 times higher respectively for children born after preceding birth intervals of one year or less compared to children born after longer intervals. Children born within two years of a subsequent birth are at 4.09 times higher risk of dying in the second year of life than children whose mother gave birth more than 2 years after the index birth.[13]

CONCLUSION

It is concluded that high risk pregnencies are leading cause of maternal mortality. Improved quality of antenatal care services like provision of basic equipment such as blood pressure machines, heamoglobinometers must be made available in all health care facility centers.

REFERENCES

1. Salhan S. Process documentation of the initiative to improve the quality of Maternal Health through implementation of facility based review of maternal deaths. Regional Health Forum. 2005; 9(1): 19-26.
2. State of the World's children UNICEF 1998.
3. Berg CJ, Chang J, Callaghan WM, Whitehead SJ. Pregnancy related mortality in the United States, 1991-1997. Obstet Gynecol 2003; 101: 289-96.
4. Begum S, Aziz-un-Nisa, Begum I. Analysis of maternal mortality in a tertiary care hospital to determine causes and preventable factors. J Ayub Med Coll Abottabad 2003; 15: 49-52.
5. Park K. Park's Textbook of Preventive and Social Medicine. 19th ed. Jabalpur, India: M/s Banarsidas Bhanot Publishers; 2007.
6. Institute of Pop studies, (1990-1991). Demographic and health survey. Islamabad, Pak.
7. NIPS/IRD [National Institute of Population Studies and IRD/Macro International]. 1992. Pakistan Demographic and Health Survey 1990/1991. Islamabad: National Institute of Population Studies and Columbia, Maryland: IRD/Macro International Inc.
8. Jafarey SN. Maternal mortality in Pakistan — compilation of available data. J Pak Med Assoc, 2002; 52(12): 49-52.
9. Programming for Adolescent Health and Development. WHO Technical Report Series 886; 1999. p. 1-217.
10. Chahande MS, Jadhao AR, Wadhva SK,Ughade S. Study of Some Epidemiological Factors In Teenage Pregnancy – Hospital Based Case Comparison Study. Indian J Community Med 2002; 27: 3.
11. Center for disease control. (2001) preveinting pregnency related illness and death. Atlanta. Ga: US Center for disease control.
12. Danel I, Berg C, Johnson CH, Atrash H. "Magnitude of Maternal Morbidity during Labor and Delivery: United States, 1993-1997," Am J. Public Health. 2003 Apr, 93(4): 631-34.
13. Ronsmans C. Birth spacing and child survival in rural Senegal Int J. Epidemiology, 1996 Oct; 25(5): 989-97.