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A RETROSPECTIVE STUDY ON MATERNAL MORTALITY AND ITS CAUSES AT TERTIARY CARE HOSPITAL

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Abstract:

Objective: *To assess the material mortality and its causes at tertiary care hospital.*

Material and methods: *This retrospective study was conducted at Department of Obstetrics & Gynceology, Sheikh Zaid Hospital, Rahim Yar Khan from July 2018 to June 2019 over the period of 1 years. Every maternal death was scrutinized from various aspects likely to be related to death, such as age, locality of residence, parity, literacy, antenatal care, admission-death interval, and the cause of death.*

Results: *During the 1 year study period, there were 6 maternal deaths out of 6311 live births giving an MMR of 95.07 per 100,000 live births. Five cases (83.33%) of these deaths were in the postnatal period. Out of 6 deaths, 2 (33.33%) were due to haemorrhage, 2 (33.33%) were due to hypertensive disorders and 1 (16.66%) were due to postpartum sepsis. Pulmonary embolism was suspected as cause of death in 1 woman (16.66%).*

Conclusions: *Results of present study showed that most of the maternal deaths was occurred in 3rd decade. Higher rate of maternal deaths was seen in multiparas. Most of the deaths occurred in patients belonged to rural area. Most of the deaths was occurred in first 24 hours of admission. Haemorrhage and hypertensive disorder was the most common cause of maternal death.*

Keywords: *Haemorrhage, Hypertensive disorders, Maternal mortality, Sepsis*

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INTRODUCTION:

Maternal mortality is defined as 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 the pregnancy or its management, but not from accidental causes.[1] Pregnancy is a normal healthy state that most women aspire to at some point in their lives. Yet this normal life-affirming process carries with it serious risks of death and disability.[2] Maternal mortality ratio of a country is indicative of its health and development status. Information on maternal mortality is required to determine this status and to set priorities for policy making and programmatic and operation research strategies. Data from around the world show that there is great disparity between the maternal mortality of the developing and developed countries.[3] More than half a million women die each year due to pregnancy related complications.[4] Globally and in Pakistan the major causes of maternal mortality are haemorrhage, hypertensive disorders, sepsis, obstructed labour, and un-safe abortions.[5,6] The World Health Organization (WHO) estimated that in 2005 there were 53,600 maternal deaths equivalent to one every minute of every day and that the global maternal mortality rate is now 400/1000,000 live births.[7] Over 99% of deaths are in developing countries, and slightly more than half occurred in the Sub-Saharan Africa region alone, followed by south Asia.[8] The life time risk of a woman dying of pregnancy related causes in developing countries is 1:40 compared to 1:3,600 in developed world.[9] The causes of maternal mortality are multiple, inter-related and complex and almost preventable.[10] The most common causes of maternal mortality are haemorrhage 21%, hypertensive disorder 18.6%, Sepsis 13.3%, abortion 11%, and other 36%.[11]

METHODS:

This retrospective study was conducted at Department of Obstetrics & Gynceology, Sheikh Zaid Hospital, Rahim Yar Khan from July 2018 to June 2019 over the period of 1 years. Records of maternal deaths over the mentioned period was reviewed. Inclusion criteria were only maternal deaths related to pregnancy and abortions as per standard WHO definition. Every maternal death was scrutinized from various aspects likely to be related to death, such as age, locality of residence, parity, literacy, antenatal care, admission-death interval, and the cause of death.

All the collected was entered in SPSS version 18 and analyzed. Mean and SD was calculated for age. Frequencies and percentages were calculated for locality of residence, parity, literacy, antenatal care, admission death interval and cause of death.

RESULTS:

During the 1 year study period, there were 6 maternal deaths out of 6311 live births giving an MMR of 95.07 per 100,000 live births. Five cases (83.33%) of these deaths were in the postnatal period. The epidemiological characteristics of maternal deaths. The maximum deaths were reported in multiparous women (83.33%) and in the age group 30-40 years (66.66%). Also majority of them were unbooked case (66.66%) and belonged to rural areas (66.66%). (Table 1)

As shown in Table 2, majority of the maternal deaths had occurred within the first 24 hours of admission to hospital (50%). Analysis of the causes of death revealed that obstetrical haemorrhage and hypertensive disorder were the leading cause of maternal deaths. Out of 6 deaths, 2 (33.33%) were due to haemorrhage, 2 (33.33%) were due to hypertensive disorders and 1 (16.66%) were due to postpartum sepsis. Pulmonary embolism was suspected as cause of death in 1 woman (16.66%). There was no maternal death due to indirect cause like anemia and other medical disorder in our study. (Table 3)

Table 1: Demography of maternal deaths and its characteristics (n=6).

Characteristics	**Groups**	**Maternal deaths**	Percentage
Age (Years	20-30	2	33.33
	31-40	4	66.66
Parity	Primi	1	16.66
	Multi	5	83.33
Locality	Urban	2	33.33
	Rural	4	66.66
Gestational age	<20 weeks	1	16.66
	20-37 weeks	2	33.33
	>37 weeks	3	50

Table 2: Admission to death interval.

Admission to death interval (in hours)	No. of maternal deaths	Percentage
24	3	50
25-72	2	33.33
>72	1	16.66

Table 3: Causes of maternal deaths (n=6).

Causes	No. of deaths	%
Direct cause		
Haemorrhage	2	33.33
Hypertensive disorder	2	33.33
Sepsis	1	16.66
Pulmonary embolism	1	16.66

DISCUSSION:

Maternal mortality ratio of a country is indicative of its health and development status. Information on maternal mortality is required to determine this status and to set priorities for policy making and programmatic and operation research strategies. This study shows a maternal mortality rate of 772/100,000 live births. These statistics indicate a high MMR when compared to a study conducted by Fikree[12] in which MMR was 433/100,000 live births. In Indian Punjab MMR was reported to be 1,002/100,000 live births.[13] Siddiqui et al[14] considered 260–490/100,000 live births as the worst maternal mortality rate in Pakistan. But our local results indicate that the situation is even worse than they have reported. One study conducted in Abbottabad in 2001 by Begum et al[15] reported MMR to be 1,270/100,000 live births while another study conducted in Abbottabad in 2010 by Fawad et al[16] reported MMR as 1,057/100,000 live births.

The maternal deaths reported in our study is very low, only 6 out of 6311 live births over one year. Maternal deaths being a rare event require prohibitively large sample size to provide robust estimates. Most deaths were observed in 30-40 year age group in the present study, whereas deaths were higher in the 21-30 year age group in other studies.[17-18] Older age group deaths could have been more because of high prevalence of grand multigravidae in our region. Advanced age pregnancy, on the other hand, exposes women to higher risk of pregnancy induced hypertension while age related morbidities may also complicate the pregnancy.[19] Postpartum deaths accounted for about 83.33%, whereas in other studies it was only 49.5%.[17]

Rural background and unbooked status (66.66%) in our study was comparable with reports of Bedi et al, and Khumanthem et al.[17,20] WHO survey by Karlsen et al on maternal and perinatal health in 24 countries showed that women with no education and those between one to six years of education are twice at risk of maternal mortality as compared to women with higher education and the findings were obtained after adjusting for marital status, maternal age and parity.[21] Awasthi et al, also reported a significant disparity in the usage of maternal and child healthcare services and found that urban residents are way ahead of marginalized rural residents in the usage of healthcare services.[22]

Fifty percent of deaths occurred within the 24 hours of admission to the hospital which was comparable with other reports of 60%.[20] Haemorrhage and hypertensive disorder were the major direct cause of deaths and were comparable to other studies.[17,23] Hypertensive disorders and eclampsia in our study accounted for 33.33% which is comparable with Konar et al report of 29.54%.[23] Although the use of magnesium sulfate and early termination of pregnancy has led to improve the scenario of eclampsia still early diagnosis of pregnancy induced hypertension needs to be emphasized to prevent deaths due to eclampsia. Sepsis accounted for about 16.66% and is comparable with other studies of 18.03% by Soni et al.[24] One woman had died of pulmonary embolism and such similar cause were also reported by other studies.[17,20,25] In our study, there were no report of deaths by indirect cause like anemia and other medical disorder.

CONCLUSION:

Results of present study showed that most of the maternal deaths was occurred in 3rd decade. Higher rate of maternal deaths was seen in multiparas. Most of the deaths occurred in patients belonged to rural

area. Most of the deaths was occurred in first 24 hours of admission. Haemorrhage and hypertensive disorder was the most common cause of maternal death.

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