ORIGINAL ARTICLE

Maternal Mortality Audit One Year Study in Gynae Unit 2 of Services Hospital Lahore

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ABSTRACT

Background: After analyzing the causes of maternal mortality, improvements in access to care and quality of care were ensured for the patients. The audit of maternal mortality requires complete record of all maternal deaths, good attribution of causes of deaths and knowledge of pregnancy status of women of reproductive age.

Methods: The study was carried out in Services Institute of Medical Sciences/Services Hospital Lahore from 01 January 2015 till 31 December2015.Deaths were due to direct causes during pregnancy, labour or within 42 days of puerpurium.

Results: Total number of births were 3503,out of them 1338 were SVDs and 2165 were c/section.Total number of mortalities were 8.Among causes of deaths, postpartum haemorrhage was in 4(50%)patients, including1 with percreta and previous c/section(12.5%) and due to uterine atony 3(37.5%).Due to antepartum haemorrhage 1(12.5%), cardiac patient with arythmias1(12.5%),due to hypertensive disorder 1(12.5%) and 1(12.5%) due to amniotic fluid embolism. In 5(62.5%) caesarean hysterectomy was carried out.In 2(25%) c/section was done and SVD in 1(12.5%).

Conclusion: Audit of maternal deaths help to identify where care was below standard and what action can be taken to avoid it in future .Audit requires complete record of deaths and causes of deaths.

Keywords: SVD- spontaneous vaginal delivery, c/section-caesarean section

INTRODUCTION

Pregnancy, although being considered a physiological state, carries risk of serious maternal morbidity and at times mortality. This is due to various complications that may occur during pregnancy, labour or inpuerpurium. Maternal death has serious implications on the family, the society and the nation. Maternal Mortality Ratio (MMR) is a very sensitive index that reflects the quality of health care provided by the country to the women population[1].

Fifth Millennium Development Goal is improving maternal health with a target of reducing the maternal mortality ratio (MMR) by three fourth between 1990 and 2015. For the audit of maternal mortality, knowledge of health status in antenatal period of these women, causes of death and events contributing to mortality is required[2].

A large proportion of maternal deaths may result from poorly managed deliveries and some of deaths may be avoided if suitable care was given[3]. A maternal death surveillance and response system that includes maternal death identification, reporting, review and response can provide the essential information to stimulate and guide actions to prevent future maternal deaths and improve the measurement of maternal mortality[4].

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Maternal Mortality measurement remains a challenge in low income countries.Methods used to collect retrospective data on maternal mortality include census[5].

Maternal death is the death of woman while pregnant or within 42 days of delivery irrespective of duration and site of the pregnancy from any cause related to pregnancy but not from the accidental or incidental causes[6].Pakistan ranks third highest in the entire world in account for the increased maternal mortalities. In Pakistan, this rate is very high 220 deaths/100,000 live births[7].

There are five approaches for reviewing maternal deaths.

- Facility based maternal health review(factors responsible for maternal health in health facilities).
- Community based maternal health review(factors responsible for maternal health outside health facilities).
- Confidential enquiries into maternal health(investigation carried out in confidential manner).
- Survey of severe morbidity(near miss event that survived a complication).
- Clinical audit(entails a systematic review or audit of obstetric care provided to pregnant woman against established protocol aimed at improving the quality of care[5].

Even in countries with adequate civil registration systems, special studies have revealed that about 50 percent of antenatal deaths go unreported due to misclassifications.The audit meetings are to be non-judgmental, fair and unbiased and should be private and confidential[8]. Family members who were with deceased prior to death or was present at the time of death could be interviewed to obtain more information[9].

Audits are one of the mechanisms that can help health professionals to maintain or improve quality of care and to provide the best possible services to patients. In 2004, the WHO recommended the introduction of medical audit in all maternity facilities[10].

Hence, the audit was conducted to review the maternal mortality ratio and the causes of maternal death at a Services hospital Lahore. The objective of the audit was to make recommendations helpful in preventing the maternal deaths.

MATERIAL AND METHOD

The study was carried out in Services Institute of Medical Sciences/ Services Hospital Lahore from 01 January 2015 till 31 December 2015.Total number of births were 3503, out of them 1338 were spontaneous vaginal deliveries and 2165 were caesarean sections. Total number of mortalities was 8.The patients who were received dead were not included in the study. These deaths were due to direct and indirect causes that occurred during pregnancy, labour or within 42 days of puerpurium. Out of them 2 patients were booked patients and 6 were unbooked. All these patients were received in labour room in emergency. Immediate resuscitation was given.2 wide bore branulas were passed. In the patients presenting with antepartum haemorrhage or postpartum haemorrhage, whole blood and fresh frozen plasma were arranged. At least 4-6 whole bloods were required. Intravenous fluids were started and patients shifted to emergency operation theatre where surgery was carried out. After surgery the patients were shifted to intensive care unit.

In all cases team of consultant, senior registrar, postgraduates trainee and house officers in obstetrics as well as anesthesia department worked. Pediatrician was also informed where required. In medical problems like cardiac patients physician was involved.

RESULTS

Total births 3503
Total mortalities 8

Table 1 Geographical Distribution

Age in years	**n**	**%age**
<20	1	12.5
21-30	5	62.5
31-40	1	12.5
40	1	12.5

Parity	**n**	**%age**
P1	3	37.5
P2-P3	2	25
P4->P4	3	37.5

	n	**%age**
Booked	2	25
Unbooked	5	62.5
Referral	1	12.5

Socio economic Status	**n**	**%age**
Upper Class	0	0
Middle Class	2	25
Lower Class	6	75

Education Status	**n**	**%age**
Illiterate	5	62.5
Primary	2	25
Secondary	1	12.5
Higher	0	0

Area of Residence	**n**	**%age**
Urban	5	62.5
Rural	3	37.5

This table shows that maximum mortalities occur in lower social economic group and illiterate patient.

Table 2: Cause of death

Cause of Death	**n**	**%age**
Arythmias	1	12.5
Amniotic Fluid Embolism	1	12.5
Antepartum Hemorrhage	1	12.5
Pre-Eclampsia	1	12.5
Post-Partum Hemorrhage	4	50

This table shows that maximum deaths were due to postpartum hemorrhage. One patient was due to percreta and others were due to atony.

Table 3(Risk Factors)

Risk Factor	**n**	**%age**
Abruption	1	12.5
Anaemia	4	50
Percretain previous C/Section	1	12.5
Grand Multipara	3	37.5
Traditional birth attendant handling	1	12.5
Cardiac patient	1	12.5

Table 4: Procedures

Procedure	**n**	**%age**
SVD	1	12.5
C/Hysterectomy+Internal Iliac ligation	1	12.5
PostPartum Hysterectomy	4	50
C/Section + B-Lynch Suture	2	25

Table 5: Interval between admission and death

Interval between admission and death	n	%age
<6 hours	2	25
24 hours	3	25
2 days	1	12.5
3 days	2	37.5

This table shows that maximum deaths occurred within 24 hours.

Table 6: Baby notes

Baby Notes	n	%age
Alive	4	50
Admitted to Neonatal Unit	1	12.5
Macerated Still Birth	2	25

DISCUSSION

The world has made significant progress in reducingmaternaland childmortality, but many developing countries like Pakistan lags behind in achieving their Millennium Development Goals (MDGs).Despite,the government is signing several projects and international commitments regarding the health and rights of women and girls, Pakistan has an alarmingly high maternal mortality rate,as one Pakistani woman loses life every 30 minutes due to reproductive health complications[11].

According to the latest international estimates published in 2012, 287,000 maternaldeaths occur annually worldwide, which represents a 47% decline from levels in 1990[10]. Ninety nine percent of all maternal deaths in the above period were occurred in developing regions[12].

More than 50% of these maternal deaths were met in six developing countries (India, Nigeria, Pakistan, Afghanistan, Ethiopia, and the Democratic Republic of the Congo[13].Maternal death is a catastrophic event resulting a severe impact on the family, society and ultimately on the nation. The young surviving children left motherless, are unable to cope with daily living and are at an increased risk of death. Reduction of maternal mortality is the objective of MDGs, especially in low income countries, where one in 16 women die of pregnancy related complications[14].

In our study, there were 8 maternal deaths amongst 3503deliveries, giving a MMR 228per 1,00,000 live births, which is comparable to national averages. Pakistan sustained high MMR of 220 per 100,000 live births[7].Nevertheless, there is a wide variation between Provinces – Punjab 227, Khyber PakhtunKhwa 275, Sindh 314, and Baluchistan 785[15]. According to WHO, The maternal mortality ratio in developing countries in 2015 are 239 per 100,000 live births versus 12 per 100,000 live births in developed countries[16].

In our study, Maximum deaths 62.5%were in the age group between 21 to 30 years. 37.5% patients were Primigravida, 25% were multigravida and 37.5% were grand multipara. Similar data shown by study carried out by Das et al in study done in 2014[17].

In our study majority of deaths 62.5% were seen in unbooked cases. Proper antenatal care and booking significantly reduces maternal morbidity and mortality. In our study 62.5% of females were illiterate and 25% with primary education. Another very important reason contributing to high maternal mortality is the poor educational status of women especially in rural setting of Pakistan. A woman access to primary education is very low .The literacy rate of Pakistan is one of the lowest in the world that keeps women ignorant and unaware of their reproductive health[18].

Much of the load of maternal mortality and ill health is among the poorest countries of words In many of these countries, the highest mortality is observed among the marginalized and poor, who frequently reside in remote and rural areas with limited access to health care services[19].Our study also supported these researches as 75% female belong to lower middle and poor class.

In the study we conducted, 25% women died within 6-12hours of admission and 37.5% died between 12-24 hours of admission, suggesting majority patients reach the tertiary care hospital quite late. A delay in accessing care can occur at three time points. This has been described as the three-delay model: the first delay refers to a woman or her family delaying the decision to seek care; the second is the delay in reaching that care; and the third is the delay in receiving care once a healthcare provider is reached. Strengthening of both basic and comprehensive emergency obstetrics care at primary health centre level and first referral unit could possibly save many mothers[17].

The causes of maternal mortality are multiple, complex, interrelated and preventable. Women die as a result of complications during and following pregnancy and childbirth. Most of these complications develop during pregnancy and most are preventable or treatable. Other complications may exist before pregnancy but are worsened during pregnancy, especially if not managed as part of the woman's care. The major complications that account for nearly 75% of all maternal deaths are hemorrhage, sepsis andhypertensive disorder[20]. In our study 87.5% deaths were due to direct causes and 12.5% were due to indirect causes, which is similar to the study conducted in Rahim Yar khan and Ayub teaching hospital Abbottabad[11,21].Postpartum Hemorrhage (PPH) is the leading cause of maternal death in Pakistan. It is estimated that more than 8000 women are dying every year because of PPH in our country and about 150,000 women suffering from

complications related to PPH[22].Among obstetrical hemorrhage uterine atony is leading cause accounting 37.5% in our study and this is comparable to different studies results[11,21,23]. Patients with obstetrical hemorrhage were presented late and in critical condition mostly mismanaged in private sector. Death due to hemorrhage are preventable. Successful treatment requires immediate, effective resuscitative measures. Skilled birth attendant is considered as the single most effective intervention for preventing maternal deaths.Hospital births alone are not enough to save mothers lives. The quality of care provided to the women is a key determinant in maternal outcome[24].

The second leading cause of maternal mortality in our study was Eclampsia and Ammnotic fluid embolism. Deaths from hypertensive disorders can be prevented by careful monitoring during pregnancy and by the use of anticonvulsants like magnesium sulphate in cases of Eclampsia. Eclampsia was reported as the leading cause of maternal deaths in many studies conducted on maternal mortality across the country[9,24,25]. Among the indirect causes cardiac problem was the major killer accounting for 12.5%.A variety of medical factors could lead to maternal mortality. Various studies have been done and show statistical features of medical problems associated with maternal mortality.

Maternal mortality is a major public health issue in Pakistan and this problem is much larger than we assumed. Poor socio-economic conditions, un-educated status, and lack of antenatal and health facilities are important reasons for maternal mortality.From our study we can see the major causes were obstetric hemorrhage and Eclampsia. Both are easily treated through simple interventions. If these women have proper antenatal care from the beginning and appropriate health facilities are available at primary, tehsil and district level, precious lives could have been saved. We need enthusiastic efforts and aggressive working in order to achieve the motivated millennium development goals to reduce maternal mortality.

CONCLUSION

Mother is most vital component of family and society so every effort should be done to save the lives of mothers. Improving the health care in rural and in far off areas in Pakistan, increasing the educational status of women, training of the birth attendant is required to save mothers lives.The importance of establishing health facility based maternal death audit cannot be over looked. Competent authorities of government should make an effort to establish audit committees to find out the causes of maternal deaths and ways to reduce maternal morbidity and mortality.

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