ORIGINAL ARTICLE

Maternal Mortality Audit one year study in Gynae Unit 2 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 December 2015.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, including one patient with percreta and previous c/section(12.5%) and 3 patients due to uterine atony(37.5%).Due to antepartum haemorrhage (12.5%), cardiac patient with arythmias(12.5%),due to hypertensive disorder (12.5%) and (12.5%) due to amniotic fluid embolism. In 5 patients (62.5%) caesarean hysterectomy was carried out. In 2 (25%) c/section was done and SVD in one patient (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 of causes of deaths.

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

INTRODUCTION

Pregnancy is a physiological state but sometimes it is associated with serious maternal morbidity and mortality. There are number of factors responsible for complications that happen during pregnancy, labour or in puerpurium. Maternal death has great influence on whole family. 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].

The target of Fifth Millennium Development Goal is to reduce 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 percentage of maternal deaths may result from inexperienced midwives' and some of these deaths may be avoided if appropriate care was provided[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.[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].The maternal mortality ratio of Pakistan is 276/100,000 live births that is very high as compared to develop countries

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 developed countries audit reports have shown that about 50 percent of antenatal deaths go unreported due to improper diagnosis. The audit meetings are to be non-judgmental, fair and unbiased and should be private and confidential[8].It is important

to take information from the family members who were present at time of death [9].

With the help of audits health professionals can maintain or improve quality of health care so that best possible services can be provided to patients. The WHO, in 2004 suggested introducing the system of medical audit in all maternity facilities[10].

Hence, the audit was carried to review 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, postgraduate trainees 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 & 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 reducing maternal and child mortality, but many developing countries like Pakistan lags behind in achieving their Millennium Development Goals (MDGs).Even though, the government has started several projects on the healthcare and women rights, Pakistan has distressingly high maternal mortality rate and one Pakistani woman loses life every 30 minutes due to reproductive health complications[11].

Latest international estimates published in 2012, showed that 287,000 maternal deaths occur annually worldwide, which 47% declined from levels in 1990[10]. Ninety nine percent of these maternal deaths during this period were occurred in developing regions[12].More than 50% of these maternal deaths were in six developing countries (India, Nigeria, Pakistan, Afghanistan, Ethiopia, and the Democratic Republic of the Congo[13].

Maternal death is a catastrophic event causing a ruthless impact on the family and society. Without mother children faces challenges throughout life and even death. Reduction of maternal mortality is the fourth goal of MDGs, especially in developing countries, where one in 16 women die of pregnancy related complications[14].

In our study, there were 8 maternal deaths amongst 3503 deliveries, giving a MMR 228per 1,00,000 live births, which is comparable to national averages. Pakistan sustained high MMR of 276 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 is 239 per 100,000 live births versus 12 per 100,000 live births in developed countries[16].

In our study, greatest number of deaths 62.5% was 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. Low literacy rate in Pakistan is very important reason causing high maternal mortality especially in rural setting of Pakistan. A woman access to primary education is very low that keeps women ignorant and unaware of their reproductive health[18].

The peak mortality is seen among the marginalized and low income group, who normally live in remote and rural areas with inadequate 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, showing 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. It is important to strengthen both basic and emergency obstetrics care at primary health centre and first referral unit, this could perhaps save many mothers[17].

The causes of maternal mortality are multiple, complex, interrelated and preventable. Many complications develop during pregnancy and most are preventable or treatable. The complications that existed before pregnancy, if not managed become worsen during pregnancy. The major complications that causes nearly 75% of all maternal deaths are hemorrhage, sepsis and hypertensive 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. Experienced midwives are considered to be the most effective intervention for preventing maternal deaths. Hospital births alone are not sufficient enough to save maternal lives. The quality of care provided to the women is a key factor in maternal outcome[24].

The second important cause of maternal mortality in our study was Eclampsia and Amniotic fluid embolism. Deaths from hypertensive disorders

can be saved by vigilant monitoring during pregnancy and by the use of anticonvulsants like magnesium sulphate in cases of Eclampsia which 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%.

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. In order to achieve the motivated millennium development goals to reduce maternal mortality, we need wholehearted hard work and aggressive efforts.

CONCLUSION

Mother is most fundamental element so every effort should be done to save the lives of mothers. Improving the health care especially in rural and in far off areas, increasing the literacy rate, proper training of the birth attendant is required to decrease maternal mortality rate. Medical audit is an important way of reducing maternal morbidity and mortality. Competent authorities should make an effort to establish audit committees and regular audits should be carried out in all hospitals.

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