

Analysis of Maternal Death in a Tertiary Care Hospital

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Abstract

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Objectives: Maternal death was analyzed in Shaheed Suhrawardy Medical College hospital to improve the quality of maternal health care.

Methods: In this cross-sectional study, each case was reviewed individually and factors responsible for maternal death were identified and noted.

Results: During the study period January 2019 to December 2019 total 16 maternal death recorded among 3410 deliveries. 68% deceased mother were less than 30 years of age. Parity shows 37.50% multipara. 75% deceased mother was delivered by caesarean section, 6% was vaginal delivery and 12.5% mother died undelivered. Regarding time interval 25% of death occurred within 24 hours of admission to hospital. The main causes of death were severe pre-eclampsia-eclampsia (31.25%), PPH (12.5%), septicemia (12.5%), DIC (12.5%). Some factors were identified and among them lack of proper ANC, delayed admission to hospital, delayed blood transfusion were related.

Conclusion: Substantial number of maternal death occurred at or <30 years of age. Preeclampsia-eclampsia, hemorrhage, septicemia were identified as the major cause of maternal death.

Key Words:

Maternal death, Analysis

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Introduction

A maternal death audit is an in-depth systematic review of maternal deaths to delineate the underlying health social and other contributory factors, and the lessons learned from such an audit are used in making recommendations to prevent similar future deaths. It is not a process for apportioning blame or shame but exists to identify and learn lessons from the remediable factors that might save the lives of more mothers in future. Although this audit

process empowers local authorities to understand and take steps to improve maternal health, most of the countries with high maternal mortality have not fully instituted it.¹

Audit aims to improve the quality of medical care through the systematic assessment of practice against a defined standard, with a view to recommend & implement measures to address specific deficiencies in care.^{2,3} The high rates of maternal mortality in developing countries are key challenges faced by health professionals. One promising way to improve the quality of care is to conduct audits of care.⁴

In most countries with high maternal mortality, health facility records are usually deficient. The causes of some maternal deaths in obstetric registers are ill-defined, which makes it difficult to compile the causes of maternal deaths. Yet information on the underlying causes of maternal deaths, drawn from clinical records and from social and health systems, provides the evidence for local decision-making on the interventions needed to reduce maternal morbidity and mortality.¹

Maternal mortality is a key indicator of the quality of health services. It usually provides an insight to health care practices that are most effective in averting maternal deaths.⁵

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Maternal mortality in Bangladesh is high and yet not has been declined appreciably. National or regional enquiries into maternal deaths have now been put into place in many countries. The Govt. of Bangladesh give much emphasis on the reduction of maternal mortality.⁶

In order to reduce the relatively high rate of maternal mortality in Bangladesh, programmed like family planning, antenatal and postnatal care, TT immunization, identification of high risk pregnancies, SBA training and promotion of safe birth practices have been undertaken. While these interventions can influence maternal and neonatal mortality, it has been realized that without proper facilities for case management of major obstetric complications, lives of the mother cannot be saved.⁶

It is obvious that in order to be able to maximize saving lives and minimize morbidity, 24 hours EmOC service should be available at the most peripheral levels of health care facilities.⁶

Bangladesh has a comprehensive infrastructure for the delivery of health and related services.⁶

At present, most women in Bangladesh do not have timely access to EmOC. Because women with obstetric complications face a variety of barriers to obtain care. Three kinds of delays need to overcome if she is to receive timely care: delay in deciding to seek care; delay in reaching a medical facility; and delay in receiving care at that facility.⁷

Maternal death audit will improve the quality of maternal care. It will also improve staff morale and motivation. It will enhance the rational use of limited resources. Measurement of quality allows the conservation of resources by rejecting less effective and implementing more effective intervention.⁸

Although audit has become an integral part of medical care in industrialized countries, the experience in developing countries are yet very scanty⁹. However, a number of developing countries like Jamaica, Egypt, South Africa and Malaysia have established confidential enquiries of maternal deaths.^{10, 11} In Indonesia district level audits are in practice¹². Government of Bangladesh has taken initiatives to establish regular perinatal death audits in different hospitals since 2004.¹³

This maternal death analysis will improve the quality of obstetric care and can reduce maternal mortality.

Methodology

Data was retrieved from hospital case records (admission registrar, case file, delivery registrar, death certificate). The questionnaire was designed to explore profile of the patient, time of admission, diagnosis at the time of admission, mode

of delivery, treatment received, time of death, and cause of death.

All deaths were evaluated individually according to whether there was departure from generally accepted standard. Operation was delayed when it was not performed within two hours after decision. Blood transfusion was regarded delayed when it could not be transfused within 2 hours of necessity.²¹ Unnecessary blood transfusion means when blood is transfused though patients hemoglobin level was more than 10 gm/dl.

A total of 16 deaths those occurred in Shaheed Suhrawardy Medical College Hospital from January 2019 to December 2019 were analyzed. However, the cases, which were brought dead, excluded from the study.

Results:

Table I

Obstetrics Statistics of ShSMCH 2019

Obs. Patients	Total Delivery (3410)		Maternal death
	Vaginal Delivery	LSCS	
1098 (U-1)	374	538	7
1095 (U-2)	324	601	4
1096 (U-3)	336	406	3
930 (U-4)	386	445	2
Total 4219	1420	1990	16

During the period of January 2019 to December 2019 there were total 4219 obstetrics patient admitted. Among them 3410 patients delivered. 1420 delivered vaginally and 1990 by LSCS (Table-I).

Table II

Age distribution of the deceased mother (n = 16)

Age	Frequency	Percent
15-19 years	2	12.5 %
20-24 yrs	1	6.25 %
25-29 yrs	8	50 %
30 yrs and above	5	31.25 %
Total	16	100.0 %

During that period 16 maternal death recorded. Categorical distribution of age shows, 12.5% mother died between 15-19 years and 6.25% between 20-24 years, 50% died between 25-29 years (Table-II)

Table III

<i>Parity status of the deceased mother (n = 16)</i>		
Parity	Number	Percent
Nullipara	5	31.25 %
Primipara	5	31.25 %
Multipara	6	37.50 %
Total	16	100.00 %

Parity of the deceased showed 31.25% nullipara, 31.25% primi para and 37.50% multipara (Table-III).

Table IV

<i>Delivery status of the deceased mother (n = 16)</i>		
Status	Frequency	Percent
Vaginal Delivery	1	6.25 %
Caesarean section	12	75 %
Undelivered	2	12.5 %
Others	1	6.25 %
Total	16	100 %

Regarding delivery status, 75% deceased mother was delivered by caesarean section, 6% were vaginal delivery and 12.5% mother died undelivered (Table-IV).

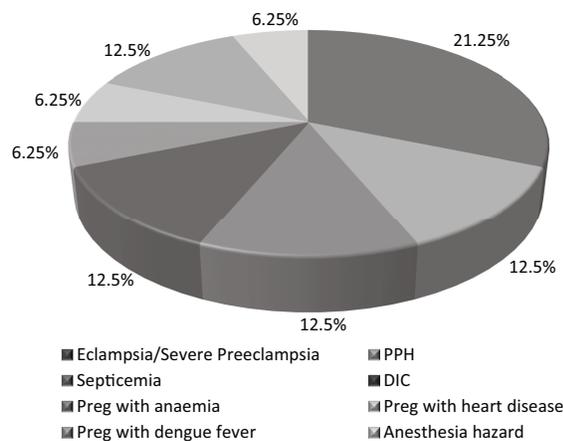


Figure 1: Causes of Maternal Death (n = 16)

The main causes of death were severe preeclampsia-eclampsia 31.25%, PPH 12.5%, Septicemia 12.5%, DIC 12.5%, pregnancy with anaemia 6.25%, Pregnancy with heart disease 6.25%, Pregnancy with dengue fever 12.5% and Anesthesia hazard 6.25% (Figure-1).

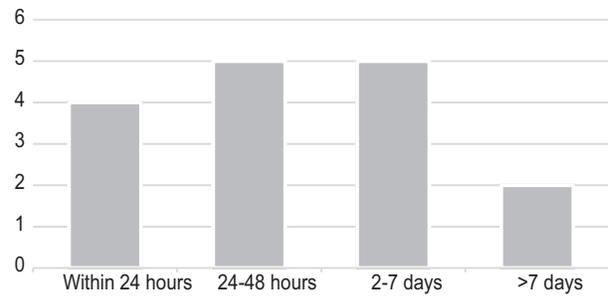


Figure 2: Time Interval between admission to hospital and death (n=16)

In this study 25% deaths happened within 24 hours of admission.

Other contributing factors were delayed admission to hospital, irregular or no ANC, low socioeconomic condition. Some institutional factors such as delay in blood transfusion in 12.5% cases, delay in starting operation in 6.25% cases, unnecessary blood transfusion in 6.25% cases were responsible (Figure-2).

Discussion

Total one year of maternal death cases from January 2019 to December 2019 were reviewed individually. There were total 16 maternal deaths recorded and 3410 delivery occurred. The age of the deceased mother indicated that collectively 68.75% belongs to <30 years. Other hospital based studies performed by Tasnim S et al (2006) and Begum N (1988) had shown that 50% belong to 20-29 years. However, Wildman K et al (2004) found that in European countries, more than half of maternal deaths are among women between 25 and 34 years.⁴

Regarding delivery status 12.5% were undelivered. Among the delivery group 6.25% delivered vaginally and 75% required caesarean section. Death occurred more during puerperium (81.25%) and that has also been found in national mortality survey^{9,14}. Gracia P et al showed that 8.3% of deaths occurred in undelivered women and 66.7% occurred within 30 days of postpartum.¹⁵ Tasnim N et al also found that 73% death occurred in postpartum period and 17.54% in the ante partum period.¹⁶

In this study 25% deaths happened within 24 hours of admission. Tasnim N et al found that 30% death occurs less than six hours of admission.¹⁶

The main causes of death were severe preeclampsia-eclampsia (31.25%), PPH (12.5%). This findings correlates with that of Tasnim N et al and H A Baby’s findings.¹⁶ Duley L in 1992 found that hypertensive disorders of pregnancy constitute a greater proportion of deaths in both developing as well as developed countries¹⁷. Supratikto G and Ronsmans C et al from Indonesia also found that

hypertensive disease accounted for 64% of hospital maternal deaths.^{18,13} Gracia P and Vigil-De in Panama, showed that 41.7% deaths were due to pre-eclampsia / eclampsia.¹⁵ Sayeba A reported causes of maternal death at a tertiary hospital in Bangladesh (DMCH) were eclampsia (32%), haemorrhage (25%), HELLP syndrome (6%) and septic shock (9%).¹⁹ Begum N also revealed, most common obstetric causes of death were eclampsia (47%), haemorrhage (25%), infection (17%) in MMCH.²⁰

In this study one or more contributing factors for maternal death were present. Delayed blood transfusion was responsible for 12.5% cases. Baby H A et al found similar causes in 40% of cases.²¹ Shah N et al and EJ Udoma et al also found similar causes.^{22,23} Blood transfusion related problem were due to patients party could not afford blood, insufficient manpower to run the blood bank, sometimes blood was not available in blood bank. Other factors were delayed operative treatment 6.25% cases. Baby H A et al found similar factors responsible in 37%.²¹

From the above discussion the maternal care in tertiary health center of our country was shown. Improving the maternal care is a critical component to reduce the maternal mortality.

Conclusion

Significant number of maternal deaths occurred <30 years of age. Severe preeclampsia-eclampsia, haemorrhage, and septicemia were common causes of death. In some maternal death cases substandard care, were identified in the facility.

Recommendations

Co-ordination of health care in the hospital will eliminate the institutional factors related to maternal death.

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