Original Article

Maternal Mortality and Morbidity due to Obstetric Haemorrhage: A One Year Review in a Tertiary Hospital

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Abstract

Bangladesh is a developing country where maternal death due to obstetric haemorrhage is very high. This study was carried out at Dhaka medical college hospital from January 2013 to December 2013. The aim of this study was to identify the different life threatening complications due to obstetric haemorrhage and also to identify the major causes of maternal death due to obstetric haemorrhage. From total 8500 obstetric admissions during 2013, 597 cases were of obstetric haemorrhage, giving the incidence of 7.02%. PPH was the most common cause of maternal death (75%). Those who survived among them (49.50%) women had PPH. The women who experienced several severe morbidities were in the age group between 20-24year (61.38%). Those who died their age group was 25-29 years (39.28%). Both in morbid cases and death cases most of the women belonged to lower middle class (62.37% and 60.71%). In both groups those who had life threatening complications and those who died most of them came from sub urban area (52.47% and 53.57%). About 42.85% in morbid cases had no regular antenatal check up and those who died among them 42.85% patient also did not take any antenatal checkup . 67.85 % of the death cases had circulatory failure and 59.40% of the severely morbid women also had circulating failure .

Next to circulatory failure other morbidities were pulmonary edema (29.70%), septicemia (4.95%) & DIC (1.98%). Hence the result of the study clearly indicated that low socioeconomic states, irregular antenatal cheek up influence the outcome of obstetric hemorrhage. All death from obstetric hemorrhage are not preventable but regular antenatal check up by well trained health personals can recognize the high risk group or any complications at an early stage and appropriate measures can be taken.

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Introduction

Maternal mortality is a serious public health concern in Bangladesh. Current level of maternal mortality ratio is estimated 194 per 100000 live birth[1]. But this still means that around 1200 women die from pregnancy related causes each year. A woman's estimated life time risk of dying from these causes in Bangladesh is hundred times higher than in developed countries[2]. Globally it has been estimated that about half a million women die each year due to pregnancy related causes with 99% of them in developing countries[2]. WHO listed three leading causes of maternal death; severe bleeding (24%), infection (15%), unsafe abortion (13%), eclampsia (12%), obstructed labour (8%) and other direct causes (8%)[3]. In the developing countries obstetric haemorrhage is still the primary cause of maternal mortality.

Obstetric haemorrhage is one of the most common causes of major maternal morbidity and mortality. Most recent triennial report raises the unhappy truth that these death have increased (from 7 in 1997 to 17 in 2000 to 2002) due to rise in post-partum haemorrhage[4]. Haemorrage is responsible for 28.37% of maternal death in Bangladesh among which PPH is the most common[5]. Each year 210 million women become pregnant and more than 20 million women experiences ill health as a result of pregnancy[6]. Because hemorrhage is difficult to predict and swift to kill, rate for this cause of death are slow to decline even when the overall rate of maternal mortality declines. Reducing death from hemorrhage requires sophisticated skill and facilities. All medical units involved in the care of a pregnant women must have a protocol for the management of severe obstetric haemorrhage.

Quick initial assessment of the cases, resuscitation and removal of the causes of bleeding are important measures to prevent death and severe morbidities and evaluation of response.

Materials and Methods

This is a retrospective case analysis study at the department of obstetrics and gynecology, Dhaka medical college hospital during January 2013 to December 2013. From all obstetric admitted patient only those who developed severe life threatening complications due to obstetric haemorrhage and death due to it were enrolled for the study. A written permission was taken from the hospital authority (director of the hospital). The patient who died due to obstetric haemorrhage and severely morbid patients who survived (near miss cases) were considered to be the study subject. Patient having mortality due to obstetric haemorrhage due to APH, PPH and ruptured uterus were included in the study. It is to be mentioned here that cases having circulatory failure, pulmonary edema, acute renal failure septicemia and DIC were taken as severe morbidities. Haemorrhage before twenty eighth weeks of pregnancy and patient with coagulation disorder before pregnancy and haemorrhage due to abortion, ectopic pregnancy and carcinoma cervix were excluded from the study. Collected data was compiled and analyzed using computer based software.

Result

The observation and results of this study are shown in the form of table.

Table-I shows the distribution of the cases according to type of haemorrhage. PPH was most common type of haemorrhage both in death cases and morbid cases (75% and 49.50%).Next to PPH second common cause for maternal death was APH. (17.85%) and it also leads to (43.56%) of the mother to severe morbidities. In both cases a small number of patients had haemorrhage due to ruptured uterus and it was (7.14% in death cases and 6.93% in morbid cases) respectively.

Table- I: Distribution of cases according to type of haemorrhage (N=129)

Type of haemorrhage	Total no morbid patient n_1=101	Percentage	Total no of death cases n_2 =28	Percentage
APH	44	43.56%	5	17.85%
PPH	50	49.50%	21	75%
Ruptured uterus	7	6.93%	2	7.14%

Table-II shows the distribution of age. In death cases mean age was (25.464) years. The age group between (25-29) years were in highest frequency (39.28%). In morbid cases mean age was (23.04) years. The age range between (20-24) years suffered from various complications and it was (61.38%).

Table-II: Age distribution of the study group (N=129)

Age group in years	Severely morbid cases (n_1=101)	Percentage	Death cases (n_2 =28)	Percentage
16-19	10	99%	4	14.28%
20-24	62	61.38%	7	25%
25-29	15	14.85%	11	39.28%
30-34	12	11.88%	6	21.42%

Table-III shows in the study of socio demographic characteristics of the patient it is observed that most patient (62.37%) in morbid cases and (60.71%) in death cases belonged to lower middle class. They came from suburban area (52.47%) in morbid cases and (53.57%) in death cases respectively.

Table-III: Socio demographic characteristics of the study group (N=129)

Parameters	Severely morbid cases n_1 =101	Death cases n_2 =28
Socioeconomic status		
• Poor	25 (24.75%)	7 (25%)
• Lower middle class	63 (62.37%)	17 (60.7%)
• Upper middle class	13 (12.87%)	4 (14.28%)
Residence		
• Rural	33 (32.67%)	5 (17.85%)
• Suburban	53 (52.47%)	15 (53.57%)
• Urban	15 (14.85%)	8 (28.57%)

Table-1V shows that among all patients who died due to obstetric haemorrhage, (42.85%) of the patients had no antenatal check up, only (17.85%) had regular antenatal check up. No records were available for (17.85%) patients. The results were same in morbid cases also.

Table-IV: Antenatal check up among the study population (N=129)

ANC	Severely morbid cases n_1=101	Death cases n_2=28
Routinely	8 (6.6%)	5 (17.85%)
Irregular	30 (29.6%)	6 (21.42%)
Nil	10 (8.2%)	12 (42.85%)
Record not available	53 (52.47%)	5 (17.85%)

Table-V shows that parity had also significant influence on the outcome of obstetric haemorrhage. About (71.42%) of the obstetric haemorrhage related death occurred in multipara followed by primi Para (17.85%) and grand multipara (10.71%). It was also similar in morbid cases. About (60.39%) patients were multipara, (29.79 %) were primi-para and (18.81%) were grand multi-para accordingly in severely morbid patient.

Table-V: Parity of the study cases (n=28)

Parity	Severely morbid cases n_1=101	Death cases n_2=28
Primipara	21 (20.79%)	5 (17.85%)
Multipara (1 -4)	61 (60.39%)	20 (71.42%)
Grand multipara (>4)	19 (18.81%)	3 (10.71%)

Table-VI shows the analysis of causes of death and types of morbidities. It was shown that circulatory failure was highest about (67.85%) in death cases and (59.40%) in morbid cases. Pulmonary edema was found next to circulatory failure (3.57%) in death cases and (29.70%) in morbid cases. Septicemia also lead to (7.14%) patient to die and (3.96%) patient to suffer many life threatening complications. ARF also developed in similar number of patient (7.14%) as that of septicemia in death cases and those who survived among them ARF occurred in (4.95%) patient. About (3.57%) patient died due to ARDS. DIC was similar in both cases (7.14% in death cases and 1.98% in morbid cases) respectively. (3.57%) patient died due to pulmonary embolism.

Table-VI: Analysis of the cause of death and severe morbidities of the study population (N=129)

Cause	Death case (N=28)	Severely morbid case (N=101)
Circulatory failure due to cardiac arrest, Anaemic heart failure/ hypovolemia	19 (67.85%)	60 (59.40%)
Pulmonary edema	1 (3.57%)	30 (29.70%)
Acute renal failure	2 (7.14%)	5 (4.95%)
Septecaemia	2 (7.14%)	4 (3.96%)
ARDS	1 (3.57%)	0
DIC	2 (7.14%)	2 (1.98%)
Pulmonary embolism	1 (3.57%)	0

Discussion

A well designed retrospective study was done in the department of Obs and gynae at Dhaka Medical college hospital from Jan 2013 to Dec 2013. The aim of this study was to identify a group of women who had life threatening complications due to obstetric hemorrhage. During the study period total number of obstetric patient was 8500. Out of these 597 cases were due to obstetric haemorrhage giving the incidence of of 7.02%. This study was conducted to see the trends and examine the risk factors for pregnancy related mortality due to obstetric hemorrhage and along with it to evaluate the sociodemographic characteristics of study population. Total maternal death during the study period was 104. Obstetric haemorrhage related mortality was 28. Therefore the percentage of obstetrics haemorrhage related mortality was 26.92%. It is quite high in the beginning of 21st century. It is similar to the other study that shows bleeding in the late pregnancy is common and requires medical evaluation in 5-10% pregnancies[7]. It shows that total number of maternal deaths attributable to ante partum haemorrhage (APH) is 5 (17.85%) and post-partum haemorrhage (PPH) is responsible for 21 (75%) death. Rajaram and Agarwal[8] in a 5 year study in India found the percentage to be 17.4%. Berg et al[9] and Chang et al[10] in USA found the same to be 18% and 17% respectively. Wagaarachchi and Fernando in an 11 year study in Srilanka show haemorrhage related maternal mortality of 20% at a tertiary care hospital[11]. Another 3 year study in Saudi Arabia by Al-Mashary et al[12] found obstetric haemorrhage related death to be about 25%. In this study showed that majority of the cases belonged to higher age group. Most (39.28%) belonged to age 25-29 years followed by 20-29 year (25%). The mean age of the patient is 25.464 years. According to BMMS. 2001[1] the pregnancy related mortality has found to be highest among 25-29 year age group. Though the risk is in the higher age group, the number is decreasing in recent years because of increased acceptance of family planning measures and natural decline of fertility. The results are also comparable to other international studies by Anandalakshmy and Buckshee (India)[13]. Gyam (Ethiopia)[14] Kestler and Ramirez (Guatemala)[15]. Socio demographic characters of the present study showed that most the patient who died due to obstetric haemorrhage belonged to low income group. Among them 17 (60.71%) patients belonged to lower middle class and 7 (25%) patient was very poor. Only 4 (14.28%) patients were relatively well off. This influence was also noticed by Rajaram and Agarwal (98.4%)[8], Al-Meshraryet et al[12] (38%) in Saudi Arabia and Anandalakshmy and Buckshee[13] (75%) in India. People of higher socioeconomic group are usually educated, take appropriate and early health advice and care whenever needed and can reach the best available health care centre in case of grave emergency. They can be offered the cost of traveling and treatment. So it is likely that the number of maternal death is less among them. Inadequate antenatal care is an important factor responsible for 82.12% death. About 12 (42.85%) of the patient had no antenatal checkup. Another 6 (21.85%) had irregular checkup only 5 (17.85%) had regular ante natal care. These findings are similar to that of Chowdhury SF[16].

According to BMMS 2001[1] only half of the Pregnant women make one or more antenatal visit and only 20% make 3 or more visit as recommended. Rajaram and Agarwal[8] (94.2%) in Southern India, Al- Meshary et al [12] (95.2%) in Saudi Arabia, Anadalakshmy and Buckshee[13] (93%) in northern India, Gaym [14] (80%) in South western Ethiopia also cite lack of antenatal care is one of the contributing factor. In some cases cause of death is not always avoidable but regular antenatal checkup by well trained health personals can recognize

the high risk groups or a complications at an early stage and appropriate measures can be taken.

In the analysis of causes of death it is shown that leading cause was circulatory failure due to massive obstetric haemorrhage. About 19(67.85%) patients died of the complication. ARF was seen in 2(7.14%) patients. Septicemia claimed 2 (7.14%) patients and ARDS claimed 1 (3.57%) case of placenta Previa.

DIC was final cause of death in 2(7.14%); those who developed DIC among them; one had PPH with history of IUD, another had abruption placenta with mismatched blood transfusion. Only one single patient of placenta praevia developed pulmonary edema and pulmonary embolism and ultimately died due to it. These findings are similar to those of Khatoon K.[17]

Those who suffered from several severe morbidities it was seen that most patient 60 (59.40%) had circulatory failure. Morbidity due to pulmonary edema was found in 30 (29.70%) patient. Acute renal failure occurred in 5 patient (4.99%) and septicaemia in 4 patient (3.96%). DIC was seen in 2 patients (1.98%). Among all complications circulatory failure occupied the top of the list in many other studies[18, 19]. Bangladesh is one of the developing country where the maternal mortality is still unacceptably high. Obstetric hemorrhage related mortality contributes to a large number of maternal deaths. All deaths from obstetric haemorrhage are not preventable, but regular antenatal checkup by well trained health personals can recognize the high risk groups or a complications at an early stage and appropriate measures can be taken. The factors mostly influencing death were found to be low socio economic condition (85.71%), multiparity (71.42%) and no antenatal check up (42.85%). Late arrival at hospital is primarily responsible for the deaths attributed to haemorrhage.

The improvement of accessibility of the maternity facilities is very important. As the deaths due to obstetric haemorrhage are catastrophic, so attention should be focused on preventing the occurrence rather than treating a patient when she becomes moribund. Preventing measures like treating pre existing anemia and recognition of the high risk group during antenatal period and ensuring equitable access to high quality safe motherhood services will be more cost-effective. Other preventive interventions include active management of third stage of labour (AMTSL), prevention of prolonged labour through the use of partograph and timely intervention and minimizing the trauma associated with instrumental delivery.

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