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Routine ANC can Save Thousands of Maternal Lives: A Study in Medical College Hospital

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Abstract	Original Research Article

Introduction: Antenatal care (ANC) is a routinely checkup service provided to a women during her pregnancy. Mainly, it aims to ensure the health of both the mother and the fetus and to reduce maternal mortality rate. It is evidenced that, ANC is one of the four pillars of Safe Motherhood Initiative; moreover, circulation of it begins from 18th century and was developed in the 19th century. Providing necessary information and advices to maintain maternal health, safe childbirth, postnatal recovery to a pregnant women and her family is the target of ANC. ***Aim of the study:*** This study aims to observe that routine ANC (Antenatal Care) can save thousands of maternal lives. ***Material & Methods:*** We carried out an observatory study in the department of Obstetrics and Gynaecology, SSMC & Mitford Hospital, Dhaka, Bangladesh during the period from July 2015 to June 2017. Our aim was to observe the association of maternal mortality with routine ANC. A total number of 48 cases were enrolled in this study using purposive sampling technique. Data were collected in a pre-designed data collection sheet from the records of maternal death cases of Mitford Hospital after taking permission from the authority. Necessary data were collected from admission register, case files and death certificates using a structured questionnaire. ***Results:*** Out of 48 patients, the mean age was 25.42 ± 3.89 years. Most of the patients (45.83%) belonged to lower middle class and only 6.25% were from upper class family. 33.33% patients had hypertension, 22.92% patients arrived in hospital with delay and both unsafe abortion and cardiac diseases were in 10.42% patients which were all statistically significant (p=<0.05). Among the 48 study patients 40.0% had caesarean section, 20.0% vaginal delivery and maternal deaths occurred as undelivered in 11.0%. 46.0% of deaths occurred within 24 hours of hospital admission and 42.0% patients died after 48 hours. ***Conclusion:*** ANC was observed only in 6.25% of the total cases which we conclude as the main factor of maternal mortality in this study. Severe anemia, cardiac diseases, unsafe abortion, delay in hospital arrival, delay in referral & diagnosis were found as the main factors in routine checkup in antenatal care (ANC). So, routine ANC could help to reduce maternal mortality.
Keywords: Antenatal Care (ANC), Maternal Mortality.

INTRODUCTION

Antenatal care (ANC) is a routinely checkup service provided to a women during her pregnancy. Mainly, it aims to ensure the health of both the mother and the fetus and to reduce maternal mortality rate. It is evidenced that, ANC is one of the four pillars of Safe Motherhood Initiative [1], moreover, circulation of it begins from 18th century [2] and was developed in the 19th century [3]. Providing necessary information and advices to maintain maternal health, safe childbirth, postnatal recovery to a pregnant women and her family is the target of ANC. It also helps to ensure the health of newborn by assisting pregnant mothers with the information about baby care, promotion of early,

exclusive breastfeeding, and guidance with deciding on future pregnancy outcomes. Statistics suggest that, about one million neonatal deaths occurs on the day of birth and approximately two million newborn survives only a week [4-6]. On the other hand, one mother dies in every minute with maternal complication in the developing countries [7], and not less than half a million mothers die in every year worldwide [8]. In South Africa, there is a difference in the maternal mortality ratio (MMR) between patients receiving antenatal care in tertiary hospitals (29.8 per 100,000 live births) and patients not receiving antenatal care in those facilities (304.7 per 100,000 live births) or not receiving antenatal care at all (348.5 per 100,000 live births)[9]. ANC is observed to be fully effective if

properly given and if the mother is prepared to deliver with the help of skilled health attendant.[10]Maternal Mortality Ratio (MMR) of Bangladesh was comparatively high but in recent times it has been reduced from one hundred and ninety-four to one hundred and seventy-six per one lakh livebirths between 2010 and 2015 [11,12]. This reduction might happen due to the improvement of ANC services and proper exclusive consultancy to the pregnant women by the healthcare providers. However, there is visible number of maternal death causing every year and deprived of proper healthcare-seeking actions of women and their families are often recommended as the most important encounters that must be addressed to further reduce the MMR in Bangladesh [13]. Therefore, aim of this study to observe that contribution of routine ANC in reducing maternal mortality.

METHODOLOGY AND MATERIALS

We carried out an observatory study in the department of Obstetrics and Gynaecology, SSMC & Mitford Hospital, Dhaka, Bangladesh during the period from July 2015 to June 2017. Our aim was to observe the importance of ANC in reducing maternal mortality. A total number of 48 cases were enrolled in this study using purposive sampling technique. Data were collected in a pre-designed data collection sheet from the records of maternal death cases of Mitford Hospital after taking permission from the authority. Necessary data were collected from admission register, case files and death certificates using a structured questionnaire. At every step of data collection, processing and analysis, the procedure was followed strictly. Accuracy of data collection was ensured. For that purpose, at first work manual was made. Then a sample size and suitable study place were selected. A standard case record form was designed for data collection. The association between maternal mortality and antenatal care was observed by Chi-squared test where $p<0.05$ considered as significant.

RESULTS

Table I shows the age distribution of the study patients. Out of 48 patients, it was observed that majority (64.58%) patients belonged to the age group 20-29 years and only 10.40% were between 15-19 years. The mean age was 25.42 ± 3.89 years. Table II showing the different socio-economic status of the study patients where most of the patients (45.83%) belonged to lower middle class and only 6.25% were from upper class family. Table III shows the antenatal check-up status of the studied patients where only 6.25% had regular check-up, 20.83% had irregular check-up and 72.91% had never attended any antenatal check-up during pregnancy. Table IV shows the contributing factors of maternal death identifying by routine ANC. It was observed that 33.33% patients had hypertension, 22.92% patients arrived in hospital with delay and both unsafe abortion and cardiac diseases were in 10.42% patients which were all statistically significant ($p<0.05$). Figure I pie chart shows percentage distribution of the study patients on various modes of termination of pregnancy. It was observed that among the 48 study patients 40.0% had caesarean section, 20.0% vaginal delivery and maternal deaths occurred as undelivered in 11.0%. Figure II pie chart shows percentage distribution of the study patients based on duration between admission in hospital and death. It was observed that 46.0% of deaths occurred within 24 hours of hospital admission and 42.0% patients died after 48 hours.

Table-I: Distribution of the study patients by age. (n=48)

Age (years)	n=48	%
15-19	5	10.40
20-24	15	31.25
25-29	16	33.33
>30	12	25.02

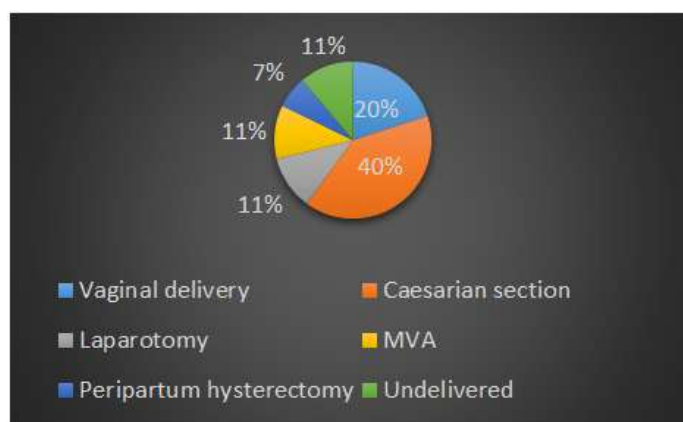Mean $\pm$ SD = (25.42 ± 3.89) years, Range (min, max) = 16 – 38 years.

Fig-I: Distribution of various modes of termination of pregnancy (n=48)

Table-II: Distribution of socioeconomic status of participants (n=48)

Socioeconomic status (taka/month)	n	%
Lower class (< 10,000)	15	31.25
Lower middle class (10-20,000)	22	45.83
Upper middle class (21-30,000)	8	16.67
Upper class (> 30,000)	3	6.25

Table III: Antenatal check-up status of participants (n=48)

Visits	n	%
Regular	3	6.25
Irregular	10	20.83
No check-up	35	72.91
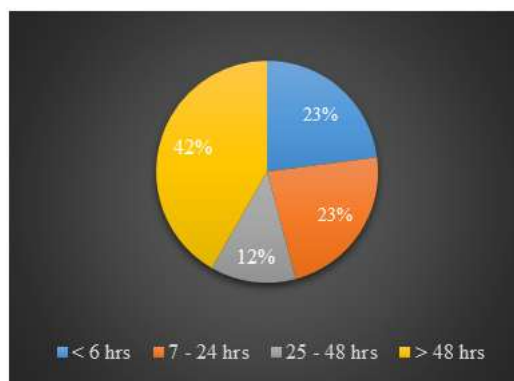
Fig-II: Duration between hospital admission and maternal death (n=48)

Table-IV: Distribution of the contributing factors of maternal death (n=48)

Contributing factor	n	%	P-value
Severe anemia	9	18.75	P<0.001
Hypertension	16	33.33	P<0.001
Cardiac diseases	5	10.42	P<0.001
Unsafe abortion	5	10.42	P<0.001
Delay in hospital arrival	11	22.92	P<0.001
Delay in referral & diagnosis	2	4.17	P<0.001
Others	3	6.25	P<0.003

DISCUSSION

In this study most (40%) of the patient had caesarian delivery, 20.0% had vaginal delivery and maternal deaths occurred as undelivered in 11.0%. It is specified that, antenatal care offers opportunity to a women and her family during her pregnancy to be aware of the danger and probable complications to come [14]. Some study findings have also recognized the superiority of ANC as a contributing factor for the improved utilization of health facilities as a place for delivery [15-17]. Although, some evidence showed that most women who accessed ANC did not deliver in a healthy facility [18-22]. In our study, only 6.25% had regular check-up, 20.83% had irregular check-up and 72.91% had never attended any antenatal check-up during pregnancy. Absence of regular ANC and failure to give birth in health facility are the main obstacles for detecting the pregnancy related complications. Few studies done in Sub Saharan Africa have shown that less number of ANC visit was another leading reason behind maternal mortality [23-25]. Other studies have also revealed about 10-17 fold increased maternal death amongst women with no antenatal care [26, 27]. In coverage of at least 4 visits antenatal care, the least achiever country was Ethiopia in Sub Saharan Africa. The proportion of health facility delivery and antenatal care between 1995 and 2011 were in the range of 5%-10% and 10%-19%, respectively [28]. Therefore, the low proportion of antenatal care compounded by the extremely low skilled person attended delivery might be some of the major reasons for the high maternal mortality persisting during the last decade (873 and 676 per 100,000 live births in 2000 and 2011, respectively) [28, 29]. Data based evidence are insufficient because there are a limited number of study done on the association of maternal mortality with ANC. Further study needs to be conducted to observe the association properly.

LIMITATION OF THE STUDY

It was an observational study with small sample size, which may not reflect the scenario of the whole country. To get more specific findings we would

like to recommend for conducting similar more studies with larger sized sample.

CONCLUSION

Antenatal Care (ANC) was observed only in 6.25% of the total cases. Lack of ANC concludes as a major cause of maternal mortality. Inadequate ANC can interrupt the continuum of care, affecting both women and babies. We have observed 40% cases of Caesarian Section that indicates the critical condition of the studied patients. So, severely ill conditions were another main reason of maternal mortality in this study. The factors of severe anemia, cardiac diseases, unsafe abortion, delay in hospital arrival, delay in referral & diagnosis were presented and were strongly associated with maternal mortality during antenatal care. So, routine ANC could help to reduce maternal mortality of this study.

RECOMMENDATIONS

Antenatal checkup is essential to reduce maternal death. Government along with NGOs and social workers should take necessary steps in this regards. Immediate attendance, evaluation and treatment on patient's arrival at the facility health center are recommended. Well coordination between the attending physician and the laboratory and blood bank staffs should be established. Maternal mortality surveillance system should be a routine practice in health care system. Gynecologists should also motivate patients to attend ANC regularly.

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