

Original Article

Mortality of Patients in the Coronary Care Unit of a Tertiary Level Hospital in a Rural Area of Bangladesh

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Abstract

There are limited data on mortality or predictors of survival for patients admitted to the Coronary Care Unit (CCU) in Bangladesh. The purpose of this study was to provide data on mortality in the modern-day CCU and to define factors influencing patient survival. This was a retrospective follow up study. The data of 346 admitted patients were collected from July 2018 to June 2019 from the hospital records of the CCU of Monno Medical College Hospital at Gilondo, Manikganj district, Bangladesh. The findings of the study reflected that among 346 patients, 235 (68%) males and 111 (32%) females were admitted to the CCU of Monno Medical College Hospital. The most common cause of admission was acute coronary syndrome (59%). The age of the majority patients 269 (77.7%) was more than 50 years. Among 346 patients, 29 (8.38%) patients died. This figure accounted for 8.38% of all the patients admitted to the CCU, majority of the patients 23 (6.65%) died with Acute Coronary Syndrome (ACS) whose average age was above 50 years. The mortality rate (8.38%) among CCU patients of this hospital is comparable to the reports elsewhere. The Primary reason for admission to CCU was ACS. Acute Coronary Syndrome (ACS) and age of the patients were the main predictors of death of the CCU patients.

Keywords: Coronary Care Unit (CCU), Mortality, Acute Coronary Syndrome (ACS).

Introduction

Cardiovascular disease is now recognized as the leading cause of death worldwide and as such a number of the patients with cardiovascular conditions will require acute coronary care.¹ Coronary care is increasingly

becoming a very vital part of management of critically ill patients even in rural areas where facilities are limited. The care of critically ill patients due to cardiovascular disease is undoubtedly one of the most burdensome and difficult aspects of medical science. Because coronary care attracts a huge cost on the part of the health facilities and patients' care givers. But prompt, timely and quick management can reverse the condition and have good chance of surviving the patients with coronary care support. Like in the other part of the world, the demographics or statistical data of Bangladeshi population is progressively changing due to rapid socioeconomic growth, so admission in CCU due to cardiovascular disease and recorded mortality is also progressively increasing.^{2,3}

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The rapid socioeconomic growth which generate a tremendous shift in life style such as sedentary life style and increased consumption of cardiac unfriendly, cholesterol laden foods, has resulted in increase rate of cardiovascular disease and associated risk factors including hypertension, diabetes mellitus and dyslipidaemias.⁴ Consequently the region witnessed a significant change in the cardiology work load for most of the secondary and tertiary health facilities necessitating incorporation with coronary care unit over the years. Coronary care unit of Monno Medical College Hospital was established in 2014 which is a six- bedded unit with continuous monitoring facilities, defibrillator support, well equipped CCU beds and well trained cardiac team that have access to key cardiac investigations and bed side procedures but the Percutaneous Coronary Intervention (PCI) is not available. This type of study will assist and help the health care planners and providers in establishing an efficient health care policies and delivery system even in rural areas of Bangladesh. Besides presence of such data will also help to improve the approach of management of acute cardiac conditions.

Methods

This retrospective follow up study was done having collected data of 346 admitted patients from July 2018 to June 2019 from the hospital records of the coronary care unit of Monno Medical College Hospital at Gilondo, Manikganj in Bangladesh. All the records of CCU admission, transfer out, discharge, Leave Against Medical Advice (LAMA) and deaths were utilized for the purpose of this study. Data extracted from records including diagnosis, age, gender

and outcome including death. Outcome was classified as discharges, referred, LAMA and death. Ethical approval was taken from the legal authority. As this is retrospective follow up study, confidentiality and anonymity was properly maintained.

Results

During the period of the study, a total of 346 patients comprising 235 (68%) males and 111 (32%) females were admitted into the CCU (Table I). The most common cause of admission was acute coronary syndrome (59%), majority, 269 (77.7%) of whom were above 50 years of age (Table II). Twenty nine (29) patients died accounting for 8.38% of all the patients admitted in CCU and 19 patients referred or LAMA for better management which accounting for 5.49% (Table III). Acute coronary syndrome ($p= 0.0198$) and age greater than 50 years ($p= 0.03156$) are associated with death in this study. Presence of co-morbidities on admission and during the illness were also associated with death. However after adjusting for cofounder like acute coronary syndrome and age greater than 50 years were independent predictors of death in the study patients (Table IV).

Table I Patient's demographics

Basal Characteristic	n= 346	%
Male	235	68%
Female	111	32%
Age> 50 years	269	77.7%
Age < 50 years	77	22.3%
ACS	204	59%
Non-ACS	142	41%

Table II Distribution of diagnosis of the patients by their age group

Age	ACS	Non-ACS	Total
>50 years	163	106	269
<50 years	41	36	77
Total	204	142	346

Table III Distribution of death by their diagnosis and age group

Outcome	Alive/Discharge	Referred/LAMA	Died	Total n=346
ACS	168	13	23	204
Non-ACS	130	6	6	142
Total	298	19 (5.49%)	29 (8.38%)	

Table IV Distribution of death by their diagnosis and age group

		Total	Died	p value
Age	>50 years	269	28	0.03156
	<50 years	77	2	
Diagnosis	ACS	204	23	0.0198
	Non-ACS	142	6	

Discussion

To the best of our knowledge, the current study is the first of its kind from rural area of Bangladesh to evaluate the mortality profile and outcome of the CCU admissions. In our study the overall mortality of CCU admission is 8.38%. This figure is comparable to what obtains elsewhere. In early 1990s Tesky et al reported a 13% mortality but in 2018 Mahbub A. Al Ghamdi in Saudi Arabia reported 7.7% mortality (p= 0.38974).⁵⁻⁷ Katz et al in USA reported 7-8% mortality rate in the USA from 1989 to 2006.⁸ This study also showed that ACS was the most common cause of admission into CCU (59%), this finding was consistent with BLITZ-3 registry study that enrolled 6986 patients in Italy and Dogan et al in Turkey

showed that ACS accounted for 65% of all CCU admission.^{4,5} However, ACS and age greater than 50 years independently predicts death in the study patients (Table IV). This finding is in keeping within Report of Chua et al.⁹ Overall, this study emphasizes the importance of a well-designed and well equipped CCU in every corner of this country. Appropriate facilities for key cardiac investigations are mandatory. In addition noninvasive and invasive cardiac monitoring, PCI and cardiac surgery will have to be ensured for an effective operation of CCU.

Limitations

This study represented the evaluation of a single CCU patients dealing with a small sample size. The result of this study did not represent the actual situation of our whole country.

Conclusion

The mortality rate (8.38%) among patients admitted to the CCU of Monno Medical College Hospital is comparable to reports elsewhere. The primary reason for admission to CCU was ACS and age of the patients were the important predictors of death among CCU patients.

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