Original Article

Outcome of Acute Myocardial Infarction Patients Admitted in a Tertiary Care Hospital

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Abstract

Acute myocardial infarction (AMI) is a common non - communicable disease prevailing in developed as well as in developing countries like Bangladesh, causing a great number of mortality and morbidity and impart a huge economic burden to family as well as to society. This study was designed to see the various complications and outcome of the patients of AMI, admitted in a tertiary care hospital in Bangladesh. In this observational study, 100 patient of AMI admitted in Cardiology ward of CMCH were enrolled. Clinical diagnosis was made from history and clinical examination and confirmed by ECG and biochemical markers. Informed written consent was taken from the patient or from the patient's attendant. Among the 100 cases of AMI, 89% were suffering from STEMI and 11% were from NSTEMI. Most of the patients (39%) were in 50-59 years age group. Majority of patient had chest pain (52%), followed by dyspnoea (23%), palpitation 10%, syncopal attack 7% and cardiac arrest 8% respectively. Important risk factors were history of smoking (37%), Diabetes (33%), Hypertension (31%), Dyslipidaemia (21%) and family history of IHD (16%). ECG showed ST-elevation in 80% of patients. It has been revealed that the important complications were cardiogenic shock(31%) followed by acute LVF(21%), bradyarrythmia (12%), tachyarrhythmia (10%), cardiac arrest(8%) and 12% patients died within 24 hours of admission. Patients with AMI have a substantially increased risk of death after hospitalization when shock, LVF or arrhythmias occur during their hospital stay. These complications should have to be treated promptly to achieve a good outcome.

Introduction

Acute myocardial infarction (AMI) is one of the major health problem in the world. It is a common non-communicable disease prevailing in developed as well as in developing countries. The incidence of AMI is increasing day by day. Definitive diagnosis of acute myocardial infarction requires characteristic clinical features, ECG findings and significantly raised Troponin I level. In Bangladesh advanced treatment of AMI (different thrombolytic therapies and PCI) is not available in every health care facility, even in all tertiary care hospitals. So due to delay in diagnosis and lack of availability of appropriate treatment various complications develop and patients may die. Numerous studies done in our country as well as in abroad shows that various complications may arise after an acute MI such as left ventricular failure, carcinogenic shock, heard block arrhythmia, cardiac rupture and pericarditis[1,2,3]. This study was done to see the various complication and outcome of the patients of AMI admitted in a tertiary care hospital in Bangladesh and ultimate aim of which is to develop awareness among the care givers for the better management plan.

Materials & Methods

A Hospital based observational study, carried out in cardiology ward of CMCH, from 1st July, 2010 to 31st December, 2010. Hundred patients admitted in CMCH, with suspected IHD were enrolled in the study.

Inclusion Criteria

All myocardial infarction patients (Diagnosed on the basis of chest pain less than 72 hours, electrocardiographic changes and elevated plasma enzyme activity) were taken.[4]a) The ECG criteria for the diagnosis of STEMI are the presence of anyone of the following in the setting of chest pain:(1) New or presumably new Q waves (at least 30 ms wide and 0.20 mV deep) in at least two leads from any of the following:(a) Leads II, III or AVF, (b) Lead VI through V6 or,(c)Leads I and aVl [5]

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(2) New or presumable new ST-T segment elevation or depression (≥0.1 measured 0.02 sec after the J point in two contiguous leads of the previously mentioned lead combination). Or (3) complete left bundle branch block in the appropriate clinical setting.[5] b) The cardiac biomarker for diagnosis of acute MI is detection of rise and / or fall of cardiac biomarker (preferably Troponin I), with at least one value above the 99th percentile of the upper reference limit.[6] Exclusion criteria was patients or attendants of patient refusing to give consent to take part in the study and death of patients before recording the information.

Results

Total 110 patients were screened and they were diagnosed as a case of acute myocardial infarction. Among them 6 absconded and 4 were dead before satisfactory diagnosis. Total 100 cases were enrolled.

Table I shows 39% patients suffering from AMI were among 50-59 years age group. Among them 5% were suffering from NSTEMI,34% were suffering from STEMI and 89% of AMI patients were suffering from STEMI, 11% were from NSTEMI.

Table-I: Distribution of MI among the study patients according to age group (n=100)

Age group	NSTEMI	Percent	STEMI	Percent
30-39	00	0%	2	2%
40-49	2	2%	19	19%
50-59	5	5%	34	34%
60-69	2	2%	27	27%
>70	2	2%	27	7%
Total	11 (NSTEMI)	11%	89(STEMI)	89%

Table-II: Distribution of AMI according to the occupational status (n=100)

Occupational status	Total MI patients	Percent
Service	22	22%
Farmer	23	23%
Business	21	21%
Housewife	21	21%
Others	13	13%

Table III Shows most important risk factor of MI patients were smoking which was 37% followed by diabetes, hypertension (33% and 31% respectively).

Table-III: Cardiovascular risk factors of study patients (n=100)

Risk factors	Total number	Percent
Smoking	37	37%
HTN	31	31%
Diabetes	33	33%
Dyslipidemia	21	21%
F/H of IHD	16	16%

Table-IV: Clinical diagnosis after ECG and biomarker (n=100)

Clinical diagnosis	Total number	Percent
STEMI(Inferior)	45	45%
STEMI(Anterior)	30	30%
STEMI(Extensive anterior)	11	11%
STEMI(High lateral)	4	4%
NSTEMI	11	11%

Table V shows 31% of acute MI patients suffered from cardiogenic shock after MI, 21% suffered from acute LVF.23% have no complications during their hospital stay and 12% died within 24 hours of admission.

Table-V: In hospital events and outcome of acute MI patients (n=100)

Outcome	Total number	Percent
Well	23	23%
Cardiogenic shock	31	31%
LVF/Pulmonary edema	21	21%
Mechanical complication	1	1%
Tachyarrythmias	10	10%
Bradiarythmias	12	12%
Cardiac arrest	8	8%
Died within 24 hours of admission	12	12%

Discussion

A series of 100 cases of acute MI collected from Chittagong Medical College Hospital have been analyzed to see the outcome of acute MI and its correlation with demographic pattern, clinical presentation, investigation finding and complication profile. The highest number of patients was in the age group 50 to 59 years and great majority of patients were in their productive period of life incurring great financial loss to their families and to the country. Few patients (2%) developed MI in less than 40 years age that denoted to the emergence of MI in relatively younger age. Among the studied patients about two-thirds came from rural area and one-thirds came from

urban areas. Mojumder et al. (1996) showed in their study that 58% of acute MI patient came from rural area and 42% came from urban area which was consistent with our study.[7] The reason behind this may be lack of the availability of appropriate treatment of acute MI. Analysis of educational status showed that 31% received primary education, 18% were SSC passed, 17% were HSC passed and 19% were illiterate. John Daly et al (July 25,2002) demonstrated in their study that 48% of acute MI patients were literate and 52% were literate which was not consistent with our study.[8] In our study the total number of illiterate people were less because of their lack of awareness about the symptoms of acute MI and their delay to come to hospital. Regarding job status 58% were sedentary worker and 42% were strenuous workers. This demonstrates that AMI is more common in people with less activity. The important risk factors in studied patients were history of smoking (37%) followed by diabetes (33%), Hypertension (31%), Dyslipidaemia(21%) and family history of IHD(16%). This data are almost similar to other study done in Bangladesh. In that study the highest percentage of patient had history of smoking (49.1%) followed by Hypertension (43.6%), diabetes mellitus (36.4%), dyslipidaemia (16.4%) and family history of CDA (12.7%). Studies done by Rahman et al.(1983),and Haque (2001) also reported similar data.[9]52% of acute MI patients were treated with thrombolytic agents which were not consistent with our study.[10] This is due to increase availability of modern treatment facilities in our country. Analysis of in hospital events and outcome of acute MI patients revealed that 23% of patients were well, 12% died within 24 hours of admission, 31% suffered from cardiogenic shock, 21% from acute LVF, 1% from mechanical complication, 10% from tachyarrhythmia, 12% from bradyarrhythmia and 8% from cardiac arrest. Goldstein et al. (2002) documented that cardiogenic shock and braycardia were more common.[11] Acute myocardial infarctions have a substantially increased risk of death after hospitalization, when shock, LVF or arrhythmias occur during their hospital stay. So cardiogenic shock, LVF and arrhythmias should be treated properly. Knowledge of potential complications will help in proper management of acute MI with good outcome.

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