Original article

Presentation & Outcome of Patient with Acute MI in Patuakhali Medical College Hospital

FM Atiqur Rahman

ABSTRACT

Background: Myocardial Infarction is one of the most common causes of mortality and morbidity among the elderly patients. Myocardial Infarction (MI) patients who experiences cardiac arrest, dyspnea, or syncope in addition to typical chest pain, conduction or rhythm problems showed higher long-term mortality. This study is to evaluate patients with acute myocardial infarction (AMI) in terms of their clinical manifestations, complications, prognosis, and outcome.

Methods: In the cross-sectional observational study, 219 patients who presented with their first ST-elevation myocardial infarction (STEMI) within a week were included. It was carried out in the department of cardiology at Patuakhali Medical College Hospital between January 2020 and December 2020. In this investigation, patients with stable or unstable angina, AMI-related ECG abnormalities, and elevated enzyme levels who were transferred to a coronary care unit were excluded.

Results: The average age was 57.6±14.4 and the gender ratio was 1.8:1. Majority 175(79.9%) patients had chest pain followed by dyspnoea 58(26.5%), vomiting 25(11.4%), syncope 9(4.1%), sweating 43(19.6%), palpation 10(4.6%) and epigastric pain 18(8.2%). Atypical MI was found in 49(22.4%) and typical MI was 170(77.6%). Out of 219 patients, 168(76.7%) were discharge, 36(16.4%) were death, 5(2.3%) were referred and 10(4.6%) patients given STK.

Conclusion: Male patients made up the majority, and typical clinical symptoms included epigastric discomfort, dyspnea, vomiting, syncope, and chest pain. Patients 2.3% who had been referred had a mortality rate of 16.4%.

Keywords: Acute Myocardial Infarction, clinical presentation, STEMI and NSTEMI outcome.

INTRODUCTION

Myocardial infarction is one of the leading causes of death and morbidity in the elderly. It is also known for a wide spectrum of clinical manifestations other than chest discomfort.[1] Myocardial infarction (MI) is most frequent cause of heart failure (HF). Three clinical presentations that differ in pathophysiology, clinical traits, and outcomes can be distinguished based on the timing of MI occurrence and HF development: (i) HF onset at the time of MI presentation; (ii) HF developing during hospitalisation for MI; and (iii) HF onset following discharge from the index hospitalisation.[2] According to projections, there would be 8.9 million older persons in 2030 compared to 5.9 million in 2012.[3]

However, little is known about acute myocardial infarction in the elderly. Prior research either underrepresented them or did not give a thorough examination of the functional and quality-of-life variables that are crucial for describing these patients and their outcomes.[4-5] Acute myocardial infarction (AMI) patients frequently have a clinical presentation. According to registries, up to 30% of AMI patients experience unusual symptoms such nausea and vomiting, shortness of breath, exhaustion, palpitations, or syncope.[6] These symptoms are more frequently seen in elderly people, women, people with dementia, chronic kidney disease, and diabetes mellitus (DM). Patients with AMI displayed symptoms other

1. Dr. F. M Atiqur Rahman, Assistant professor, Department of Medicine, Patuakhali Medical College Hospital, Patuakhali, Bangladesh.

Correspondence: Dr. F. M Atiqur Rahman, Assistant professor, Department of Medicine, Patuakhali Medical College Hospital, Patuakhali, Bangladesh. Email: fmatiqur@gmail.com

than a single, isolated case of chest discomfort. Regardless of the primary symptom (alone atypical chest pain, syncope, cardiac arrest, or dyspnea), these individuals had a greater cardiovascular risk profile; and were less likely to obtain invasive therapy and prescribed drugs. Additionally, both in the STEMI and NSTEMI populations, patients with concomitant cardiac arrest, dyspnea, syncope, or syncope along with typical chest pain or conduction or rhythm disorders had higher long-term mortality after full adjustment on clinical presentation and management than patients with isolated typical chest pain.[7]

METHODS

The cross-sectional observational study comprised 219 patients who presented with their first ST-elevation myocardial infarction (STEMI) within a week and was carried out in the Department of Cardiology at Patuakhali Medical College Hospital between January 2020 and December 2020. In this investigation, patients with stable or unstable angina, AMI-related ECG abnormalities, and elevated enzyme levels who were transferred to a coronary care unit were excluded. Institutional Review Board (IRB) approval for this study's ethical conduct was obtained before it began. Before enrolment, each patient or their attendant provided written consent that was both clear and informed. Data information identifying any patient was rigorously kept private, anonymous, and secret. On a pre-made questionnaire, the event's specifics were documented. Detailed risk factor and medication history analysis was done on old information. Each patient's demographic information, time of symptom onset and time of arrival at the hospital, mode of transportation, pre-monitoring symptoms, if any, and their diagnosis, presenting symptom, door-to-diagnosis time, and reasons for delay in diagnosis, if any known risk factors and medication history, risk factors diagnosed for the first time after the event, and any prior history of known coronary artery disease (CHD) were all noted. Patients who arrived at our casualty with chest pain, giddiness, shortness of breath, and epigastric pain were assessed using a 12-lead resting electrocardiogram and cardiac enzymes (CK MB and Trop T). This study excluded participants who were sent to a coronary care unit with elevated enzymes and AMI-related ECG abnormalities. These patients' histories, physical examination results, and investigative findings were entered into the proforma. These patients' hospital-related problems were documented. The tests performed included a 2D echocardiogram, a chest X-ray, random and fasting blood sugar, a fasting lipid profile, blood urea, serum creatinine, and electrolytes.

The sample size is determined by time and resources. As the prevalence of myocardial infarction in hospital admitted patients in Bangladesh was 20.9%,[8] the estimated population was computed using the following statistical formula: $n=z^2p\ (1-p)/d^2$ hence the calculated sample size was 254, but we included 219 samples during the study period based on inclusion and exclusion criteria.

RESULTS

The bulk of the 219 patients (88.2%) belonged to the age range 51-60 years, with a mean age of 57.6±14 years. Male patients outnumbered females by 142 (64.8%) to 77 (35.2%). The male-to-female ratio was 1.8:1. (Tab.I).

Table I: Demographics of the participants

Variables	Frequency	Percentage
Age (years)		
<30	11	5.0
31-40	16	7.3
41-50	37	16.9
51-60	88	40.2
>60	67	30.6
Mean±SD	57.6±14.4	
Sex		
Male	142	64.8
Female	77	35.2

Majority 175(79.9%) patients had chest pain followed by dyspnoea 58(26.5%), vomiting 25(11.4%), syncope 9(4.1%), sweating 43(19.6%), palpation 10(4.6%) and epigastric pain 18(8.2%) (Tab.II).

Table II: Presenting symptoms of AMI patients

Presenting symptoms	Frequency	Percentage
Chest pain	175	79.9
Dyspnoea	58	26.5
Vomiting	25	11.4
Syncope	9	4.1
Sweating	43	19.6
Palpitation	10	4.6
Epigastric pain	18	8.2

Atypical MI was found in 49(22.4%) and typical MI was 170(77.6%) (Fig.1).

Majority 67(30.6%) patients both anterior and septal infarction, 51(23.3%) had inferior wall, 37(16.9%) had anterior and lateral wall, 31(14.2%) had only anterior wall, 15(6.8%) had anterior and inferior wall, 13(5.9%) had anterior, inferior and lateral wall, 5(2.3%) had only lateral wall (Tab.III).

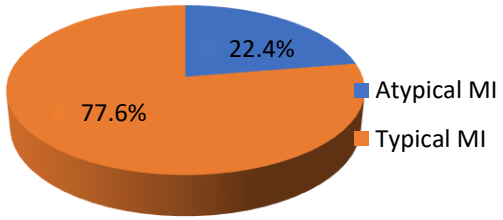

Fig. 1: Pie chart showing typical and atypical presentation of MI

Table III: Site of infarction of the study patients

Site of infarction	Frequency	Percentage
Anterior wall	31	14.2
Lateral wall	5	2.3
Inferior wall	51	23.3
Ant + Lat	37	16.9
Ant + Inf + Lat	13	5.9
Ant+ Inf	15	6.8
Ant+ Septal	67	30.6

Out of 219 patients, 168(76.7%) were discharge, 36(16.4%) were death, 5(2.3%)

Table IV: Distribution of research participants by outcome (n=219)

Outcome	**Frequency**	**Percentage**
Discharge	168	76.7
Death	36	16.4
Referred	5	2.3
STK given	10	4.6

were referred and 10(4.6%) patients given STK (Tab.IV).

DISCUSSION

The bulk of the 88 patients in this study (40.2%), whose mean age was 57.6±14.4 years, belonged to the 51–60 age range. According to Chowtaet al. the patients' mean age was 59.5 years. [7] Age groups 65 to 74 had the highest frequency of AMI atypical symptoms (30.7%), followed by 55 to 64 years (25%). No patient younger than 30 years old displayed unusual symptoms. Patients with myocardial infarction MI who did not have chest pain tended to be older (mean age 61 vs 58 years) and more likely to be women (35% vs 12.5%). The average age was reported to be 63.1±14.0 years by Puymirate et al.[9] According to Goelet al. the average age was 56.3 years (range 19–98 years). [10]

The results of the current study indicated that there were 142 (64.8%) more male patients than female (35.2%). The male-to-female ratio was 1.8:1. Out of 60 patients, Chowta et al. reported that 40 were men (66.66%) and 20 were women (33.33%).[7] Puymirat et al. made a similar discovery, reporting that men made up 76.0% and women made up 24.0%.[9]

In this study, the majority of 175 patients (79.9%) had chest discomfort, followed by dyspnoea (58.5%), vomiting (25.4%), syncope (9.1%), sweating (43.6%), palpation (10.6%), and epigastric pain (18.2%). According to Puymirat et al. atypical chest discomfort (isolated), dyspnea, syncope, and cardiac arrest occurred at rates of 11%, 11%, 5%, and 1%, respectively. [9] Typical chest pain was observed in 61% of cardiac arrest patients, 64% of syncope patients, and 63.5% of dyspnea patients. Chest pain was the most prevalent presenting symptom, according to Goel et al. (n = 510, 83.7%), and other symptoms, such as syncope, were present in 99 cases (16.3%), including epigastric pain alone in 16 cases (2.6%), dyspnea alone in 53 cases (8.7%), arm, wrist, or jaw pain without chest pain in 15 cases (2.4%), nausea or vomiting without other symptoms in 11 cases (1.8%), and other symptoms. [10]

According to the current study, atypical MI was detected in 49 cases (22.4%), while typical MI was found in 170 cases (77.6%). In a different study, almost 30% of MI patients had unusual symptoms. According to findings from other population studies, unusual symptoms are found in 20–60% of all MI cases. Canto and Shlipak report that patients who reported with unusual symptoms were older women. **[11]** According to Chowtaet al. 12 (20%) out of 60 people experienced atypical symptoms.[7] In the study, 18% of AMI patients had an atypical presentation, and according to Puymirat et al. the incidence of atypical symptoms ranged from 8.4% in the GRACE study to 35.5% in the National Registry of Myocardial Infarction (NRMI) research. [9,12,13]

In this study, it was found that 67 patients (30.6%) had anterior and septal infarctions in the majority of cases, while 51 patients (23.3%) had inferior walls, 37 patients (16.9%) had anterior and lateral walls, 31 patients (14.2%) had only anterior walls, 15 patients (6.7%) had anterior and inferior walls, 13 patients (5.9%) had anterior, inferior, and lateral walls, and 5 patients (2.3%) had only lateral walls. According to Chowta et al. the death rate was high in anterior-wall MI, and the anteroseptal infarction was the most common (31.6%).[7] 50% of the individuals with inferior-wall MI had unusual symptoms at presentation. According to the Honolulu Hawai Heart Program Study a significant rise in painless infarction was seen in individuals with inferior-wall MI (51%).[14] Anterolateral wall MI was observed in 38% of patients in the study by Sandhya and Mohanraj, inferior

wall MI in 24% of patients, anteroseptal MI in 23% of patients, NSTEMI in 11% of patients, and LBBB in 4% of patients.[1]

Out of 219 patients, this study found that 168 (76.7%) had been discharged, 36 (16.4%) had passed away, 5 (2.3%) had been referred, and 10 (4.6%) had received STK. According to Chowta et al.7, the in-hospital mortality of MI patients who presented with typical and atypical symptoms was 16.6% and 33.3%, respectively. Age-adjusted long-term mortality for all cases was shown in the Morgolis and Kannel study to be marginally worse for instances of unrecognized MI than for cases of recognized MI. [15] Atypical symptoms may have been a predictor of unfavourable outcomes, according to earlier investigations. In the NRMI trial, patients with atypical symptoms had an in-hospital death rate of 20.0%, compared to 7.2% for patients with typical symptoms.[13] The GRACE study likewise found that atypical symptoms were linked to increase in-hospital mortality (13.0% vs. 4.3%).

Limitation: It is not always easy to calculate the time it takes to go from house to hospital. Furthermore, due to the medical college situated in a district level has limited communication and ambulance services.

CONCLUSION:

Male patients made up the majority, and typical clinical symptoms included epigastric discomfort, dyspnea, vomiting, syncope, and chest pain. Patients 2.3% who had been referred had a mortality rate of 16.4%.

Recommendation: In order to diagnose acute myocardial infarction in the elderly and continue rapid treatment utilizing specific tests such cardiac myonecrosis markers, physicians must undergo rigorous examinations.

REFERENCE

1. Sandhya S, Mohanraj P. Clinical presentation, risk factors, complications and outcome of acute myocardial infarction in elderly patients. Int J Res Med Sci 2017;5:4765-9.

2. Jenča D, Melenovský V, Stehlik J, Staněk V, Kettner J, Kautzner J, Adámková V, Wohlfahrt P. Heart failure after myocardial infarction: Incidence and predictors. ESC heart failure. 2021 (1):222-37.

3. Gupta A, Tsang S, Hajduk A, Krumholz HM, Nanna MG, Green P, Dodson JA, Chaudhry SI. Presentation, Treatment, and Outcomes of the Oldest-Old Patients with Acute Myocardial Infarction: The SILVER-AMI Study. The American Journal of Medicine. 2021 Jan 1;134(1):95-103.

4. Forman DE, Chen AY, Wiviott SD, Wang TY, Magid DJ, Alexander KP. Comparison of outcomes in patients aged < 75, 75 to 84, and≥ 85 years with ST-elevation myocardial infarction (from the ACTION Registry-GWTG). Am J Cardiol 2010;106(10):1382–8.

5. Khera S, Kolte D, Palaniswamy C, et al. ST-elevation myocardial infarction in the elderly—temporal trends in incidence, utilization of percutaneous coronary intervention and outcomes in the United States. Int J Cardiol 2013;168(4):3683–90.

6. Brieger D, Eagle KA, Goodman SG, et al; GRACE Investigators. Acute coronary syndromes without chest pain, an underdiagnosed and undertreated high-risk group: insights from the Global Registry of Acute Coronary Events. Chest. 2004;126:461–469.

7. Chowta KN, Prijith PD, Chowta MN. Modes of presentation of acute myocardial infarction. Indian J Crit Care Med July-September 2005 Vol 9 Issue 3, 151-153.

8. Rahman A, Raka SC, Ahmed SM. Prevalence of cardiovascular diseases and prescription patterns in a randomly selected

population in Bangladesh. Biomed Pharmacol J. 2017;10(2):607-13.

9. Puymirat E, Aissaoui N, Bonello L, et al. Clinical outcomes according to symptom presentation in patients with acute myocardial infarction: Results from the FAST-MI 2010 registry. ClinCardiol. 2017;1–8.

10. Goel PK, Srivastava SK, Ashfaq F, Gupta PR, Saxena PC, Agarwal R, Kumar S, Garg N, Tewari S, Kapoor A . A study of clinical presentation and delays in management of acute myocardial infarction in community. Indian Heart Journal 6403 (2012) 295–301

11. Canto JG, Shlipak MG. Prevalence, clinical characteristics and mortality among patients with myocardial infarction presenting without chestpain. JAMA 2000;283:3223–9

12. Sigurdsson E, Thorgeirsson G, Sigvaldason H, Sigfusson N, et al. Unrecognised myocardial infarction: epidemiology clinical characteristics and prognostic role of angina pectoris. Ann Intern Med 1995;122:96–102

13. Canto AJ, Kiefe CI, Goldberg RJ, et al. Differences in symptom presentation and hospital mortality according to type of acute myocardial infarction. Am Heart J. 2012;163:572–579.

14. Katsuhiko Y, Mac Lean CJ. The incidence and prognosis of unrecognized myocardial infarction in the Honolulu, Hawai heart program. Ann Intern Med 1989;149:1528–32.

15. Morgolis JR, Kannel WB. Clinical features of unrecognisedmyocardial infarction. Silent and symptomatic (the Framingham study). Am J Cadiol 1973;32:1–7.