

A Study of Clinical Profile of Acute Myocardial Infarction in 100 Elderly Patients Precisely Atypical MI, at Tertiary Care Center, Belagavi

Raju Talawar

Associate Professor, Department of General Medicine, Karwar Institute of Medical Sciences, Karwar, Karnataka, India.

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Corresponding author: Dr Raju Talawar

Conflict of interest: Nil

Abstract

Background: Cardiovascular diseases are major causes of mortality and morbidity in the Indian subcontinent, causing more than 25% of deaths. Acute myocardial infarction is a common medical emergency. It is consequent of atherosclerotic narrowing of coronary arteries. Among elderly patients with acute myocardial infarction (AMI) it is noted that although chest pain is the most common presenting symptom, they can also present with atypical symptoms such as giddiness, dyspnea, vomiting, sweating, and shoulder pain, epigastric pain and diarrhea.

Aims: This study aims to determine the clinical presentation, risk factors, and short-term complications in elderly patients with AMI.

Materials and Methods: This study is an observational cross-sectional study done over a period of 1 year including 100 elderly patients admitted to the tertiary care center, Belagavi with the diagnosis of Acute MI.

Results: Out of the 100 patients, 80 patients (80%) complained of chest pain while 20 patients (20%) did not have chest pain at the time of presentation. Among these 20 patients, atypical symptoms noted were dyspnea, giddiness, vomiting, sweating, epigastric pain and diarrhea in the absence of chest pain.

Conclusion: Knowledge of these atypical presentations will help us to consider an acute cardiac event when the elderly present atypically and if present within 12 hours of symptom onset had a better outcome.

Keywords: Acute myocardial infarction, Atypical presentations, Chest pain, Elderly patients.

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Introduction

Acute myocardial infarction is a common medical emergency among conditions grouped under ACS i.e. acute coronary syndromes. The elderly have the highest incidence of cardiovascular disease and frequently present with Acute Coronary Syndrome [1]. This number can be expected to increase over time because

society is ageing. Older adults often sustain unfavourable outcomes from Acute Coronary Syndrome because of atypical presentation and delay in recognition [2].

In addition, elderly patients commonly do not receive optimal guideline-directed Acute Coronary Syndrome treatment.

Owing to their high baseline risk of ischemic complications, the elderly also fare worse even with optimal Acute Coronary Syndrome treatment as they frequently have more complex coronary disease, more co-morbidities, less cardiovascular reserve, and a higher risk of treatment complications³. Guidelines exist for the management of acute myocardial infarction (AMI), yet despite these, significant inequalities exist in the care of these patients [3,4].

Acute myocardial infarction is a consequence of atherosclerotic narrowing of coronary atherosclerosis. The risk factors for coronary artery disease are hypertension, diabetes mellitus, smoking, low high-density cholesterol and high levels of low-density cholesterol [5,6]. Presenting symptoms of acute MI differ in the elderly from those in younger patients. They are more likely to be termed “atypical” because the description differs from the classical one of substernal pressure with exertion. When pain is the presenting complaint, it may be different in character or location, and sometimes appears as an upper abdomen pain rather than a crushing or squeezing substernal sensation. Elderly patients have changes in pain perception and altered ischemic thresholds, but the exact explanation for atypical pain syndromes is not known [7,8].

Cardiovascular complications including cardiogenic shock, atrial fibrillation, and heart failure were common in elderly patients [9]. In ageing persons, the atrioventricular conduction system is subjected to spontaneous fibrosis and is more vulnerable to ischemia and necrosis [10]. The cardiac rupture was significantly higher in elderly individuals, [11].

Aims and Objectives: To study the clinical presentation, risk factors, and short-term complications of Acute MI in elderly patients.

Materials and Methods:

This study is an observational cross-sectional study done over a period of 1 year from May 2018 to April 2019 and 100 elderly patients admitted to the Tertiary care centre (Teaching Hospital), Belagavi with the diagnosis of Acute MI satisfying the inclusion criteria were included in the study using a purposive sampling technique.

Inclusion Criteria:

1. Age 60 years or above of either sex
2. Typical ECG pattern (ST-segment elevation of 0.1 mV in at least 2 consecutive limb leads or 0.2 mV in at least 2 chest leads for ST elevation MI)
3. Elevated cardiac enzyme levels (CKMB or troponin T/I)

Exclusion criteria:

1. Age-less than 60 years of either sex
2. Patient with stable angina
3. Patient with unstable angina
4. Sudden cardiac arrest

Data of 100 elderly patients admitted to this hospital with the diagnosis of Acute MI were collected. History, examination and investigation findings were recorded in the performa. The complications that these patients developed in the hospital were recorded. The investigations done included fasting blood sugar, fasting lipid profile, ECG, chest X-ray, and 2D echocardiogram (ECHO).

Statistical Analysis

Data collected were entered in a Microsoft excel sheet & SPSS software version 22 was used for statistical analysis. Data were analysed using a chi-square test to determine the association between statistical variables. A P- the value of <0.05 was considered significant.

Results:

Among the 100 patients, the majority of the patients belonged to the age group 60-69 years. 72% of the patients were males.

Male to female ratio was 2.48:1. Of the 100 patients, 80 patients (80%) complained of chest pain while 20 patients (20%) did not have chest pain at the time of presentation (Table 1).

Only 58% of the patients presented to the hospital within 12 h of onset of symptoms. 16% presented in the next 12 h and the remaining presented 24 h after symptom onset.

The commonest risk factor found in this study was Hypertension seen in 48% of the patients included in the study. Next common was Diabetes mellitus (42%) followed by hypercholesterolemia (34%) and smoking(30%).

CKMB was elevated in 70% of the patients. Among these, the values were found to be >100 U/dL in 14 patients. Troponin I was positive in 48% of patients.

Inferior wall MI was seen in 40% of the patients, anterolateral MI in 24% of patients, and anteroseptal in 20% of the patients. Non-ST elevation MI was seen in 16% of the patients.

Out of the 100 patients, 2D ECHO showed left ventricular ejection fraction (LVEF) <45% in 44% of the patients. LVEF<25% was seen in 8% of patients. The mean LVEF was 38.11.

Table 1: Presenting symptoms of AMI noted in our study

Symptoms	frequency	Percentage
Chest pain	80	80
Dyspnea	8	8
Giddiness	4	4
Vomiting & sweating	4	4
Epigastric pain	2	2
Diarrhea	2	2
Total	100	100

Only 50% of patients were thrombolysed. The main reason for not thrombolytic the patients was delayed presentation to the hospital.

Among the complications noted during the hospital stay the commonest were acute pulmonary edema and arrhythmias seen in

14 and 16% of patients, respectively. Arrhythmias noted were varying degrees of heart block, atrial fibrillation, and ventricular tachycardia. The mortality rate in this study was 18%. The mortality rates among patients presenting with and without chest pain are depicted in Table 2.

Table2: Mortality with respect to presence or absence of chest pain

Chest pain	Mortality (%)		Total (%)
	Alive	died	
Absent	14(15)	6(30)	20
Present	68(85)	12(70)	80
Total	82(100)	18(100)	100

X²=1.133,P=0.287,NS:Non significant

Discussion:

Coronary heart disease is the leading cause of death among elderly patients. Previous studies have found that in patients with acute myocardial infarction (AMI), old age

was associated with a higher prevalence of co-morbid conditions, atypical presentation, non-diagnostic electrocardiogram (ECG), complications, and mortality [2,3].

In the present study, 72% of the patients were males and 28% of patients were female with a male to female ratio of 2.48:1. In a study which compared the clinical profile of elderly MI patients with that of young patients, it was seen that the male and female ratio was 3:1 in young MI patients while it was 1.37:1 in elderly MI patients [10]. Females constituted a larger percentage of patients in the elderly and very elderly age groups compared with the younger group [4,5].

In our study chest pain was the most commonest symptom, 16% of the patients did not have chest pain at the time of presentation. The atypical presentations noted in our study were shortness of breath, giddiness, vomiting, sweating, and epigastric pain. In a study which compared elderly and young MI patients, atypical presenting symptoms were more likely in the elderly than in young patients (33.7% vs. 10.7%) [12,13]. Similarly, another study showed that patients more than 65 years were more likely to have atypical pain (38.2%) when compared to younger patients (4%) [4]. In previous studies, various authors have emphasized the variability in the clinical presentation of AMI in the elderly. Similar findings were noted in our study [6,12].

In our study, only 58% of patients presented to the hospital within 12 h of onset of symptoms. This accounted for one of the major reasons for not thrombolytic the patients. In some previous studies, similar findings were noted [7,10,14].

In our study, the commonest risk factor was hypertension (48%). Diabetes mellitus in 42% of the patients, 34% had hypercholesterolemia, and smoking was noted in 30% of patients. In one of the studies done before, hypertension was commonly seen in elderly patients (39%) [15]. In our study smoking as a risk factor for MI is slightly higher compared to some previous studies [10,16]. A study which compared elderly and young MI patients observed that the young MI patients were

more likely to be smokers (68.8% vs. 31.7%) and have hyperlipidemia (75.9%) [9]. However, there was no difference between the two age groups with regard to the presence of hypertension, diabetes mellitus, and a history of prior myocardial infarction [12,15].

In our study, 84% of patients had ST elevation MI and only 16% of patients had non-ST elevation MI. Unlike this, a study comparing elderly and young MI patients found that more than half of the elderly patients with MI had a non-diagnostic ECG [11,17]. A similar observation was made in another study in which approximately 40% of elderly and very elderly patients did not demonstrate typical ST elevation with the development of Q waves [7,18].

A study conducted earlier showed that cardiac failure was a more common complication among elderly patients when compared to young MI patients. The older patients were also more likely to have some arrhythmias (23.6% vs. 8%) [4,19]. The most common complications noted in our study were arrhythmias, pulmonary edema and cardiogenic shock, and congestive cardiac failure. [20]

Conclusion:

This study shows that even though chest pain was the most common presentation in elderly AMI patients, they were also found to have atypical presentations such as shortness of breath, giddiness, vomiting, sweating, and epigastric pain. Knowledge of these atypical presentations will help us to consider an acute cardiac event when elderly patients present with atypical symptoms.

A number of elderly patients reported 12hrs after experiencing chest pain, compared to younger ones who appeared much earlier, atypical symptoms like breathlessness and nausea/vomiting were more common in the elderly.

Acute myocardial infarction attracts attention and scrutiny as it is a disease that causes significant mortality and morbidity. In this condition age is a risk factor and its clinical profile varies as displayed in our study of 100 patients. Better management of a co-morbid conditions like diabetes Mellitus, hypertension, obesity etc. and better access to treatment facilities for diagnosis and intervention thereof are needs of the hour.

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