

Clinical Profile of Acute Myocardial Infarction in Elderly Patients: A Cross-Sectional Study

Akshatha Savith

Assistant Professor, Department of Internal Medicine, Vydehi Institute of Medical Sciences & Research Centre, Bengaluru, Karnataka, India

Abstract

Introduction: 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, shoulder pain, and epigastric pain.

Aims: The aim of this study is to determine the clinical presentation, risk factors, and short-term complications in elderly patients with AMI.

Materials and Methods: This study is a descriptive cross-sectional study done over a period of 1 year including fifty elderly patients admitted to Father Muller Medical College Hospital with the diagnosis of AMI.

Results: Of the 50 patients, 42 patients (84%) complained of chest pain while 8 patients (16%) did not have chest pain at the time of presentation. Out of the 8 patients, atypical symptoms noted were dyspnea, giddiness, vomiting, sweating, and epigastric pain 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.

Key words: Acute myocardial infarction, Atypical presentations, Chest pain, Elderly patients, Epigastric pain

INTRODUCTION

Coronary heart disease is the leading cause of death among elderly patients.¹ Previous studies have found that in patients with acute myocardial infarction (AMI), old age was associated with a higher prevalence of comorbid conditions, atypical presentation, non-diagnostic electrocardiogram (ECG), complications, and mortality.^{2,3}

Although, chest pain is the most common presentation of AMI in elderly patients, they are also known to present with atypical symptoms such as giddiness, dyspnea, vomiting, sweating, and epigastric pain in the absence of chest pain.^{4,5} Some investigators have found that

up to 30% of patients with AMI may not experience any symptom,⁶ and many experience no pain.⁷ These patients often complain of shortness of breath, extreme fatigue, nausea, or fainting. While some epidemiological studies identified women and advanced age in men as factors associated with unrecognized AMI,^{1,4} other reports identified diabetes mellitus.⁷ A study comparing the clinical presentation of AMI in patients aged more than 65 years with that of young patients showed that although chest pain was the most common presentation in both age groups it was less frequent in elderly (66.3% vs. 89.3%). The atypical presentations were seen more common in the elderly with shortness of breath as the most common atypical presentation (20.8% vs. 5.4% $P < 0.001$).⁸

Similarly, another study showed that while the majority of elderly patients with AMI had typical substernal chest pain (62%), 38% of elderly patients as compared to 4% of younger persons had either atypical pain that would be difficult to characterize as related to MI or no pain at all. The dyspnea was reported the more frequently by the

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Corresponding author: Dr. Akshatha Savith, A-18, Vydehi Staff Quarters, Vydehi Institute of Medical Sciences & Research Centre, Whitefield, Bengaluru - 560 066, Phone: +91-9845244541. E-mail: dr_akshatha@yahoo.co.in

elderly when compared to younger MI patients (58% vs. 48%).⁹

The absence of chest pain at presentation was among the most significant risk factors predicting lower use of thrombolytic therapy among a subset of AMI patients.¹⁰ Lack of chest pain during AMI has been linked to higher mortality rates. The excess mortality rates seen in patients with painless AMI can be at least partly explained by higher rates of congestive heart failure at presentation, possibly in conjunction with a longer delay between time of onset of ischemia to hospital arrival and poor symptom recognition by both patient and physician.¹¹

The proportion of women among elderly MI patients is greater compared to young MI patients.^{2,5} The possible reason could be a loss of estrogen and its cardiovascular effects in the elderly females.¹² Cardiovascular complications including cardiogenic shock, atrial fibrillation, and heart failure were common in elderly patients.¹³ Ventricular premature contractions and AV blocks were more common in elderly MI patients when compared to young MI patients. In aging persons, the atrioventricular conduction system is subjected to spontaneous fibrosis, and are more vulnerable to ischemia and necrosis.¹⁴ Cardiac rupture was significantly higher in elderly individuals. It was observed in a study that the mean age of those with cardiac rupture was 69 years.¹⁵

The aim of this study is to determine the clinical presentation, risk factors, and short-term complications of AMI in elderly patients. Knowledge of the differences of the clinical profile of elderly AMI patients in our population will help identify aspects which may need further evaluation to formulate strategies to improve outcome in elderly AMI patients.

Aims and Objectives

To study the clinical presentation, risk factors, and short-term complications of AMI in elderly patients.

MATERIALS AND METHODS

This study is a descriptive cross-sectional study done over a period of 1 year. Fifty elderly patients admitted to Father Muller Medical College Hospital with the diagnosis of AMI satisfying the inclusion criteria were included in the study using purposive sampling technique.

Inclusion Criteria

1. Age-60 years or above (ICMR guidelines)
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

Patients with stable or unstable angina

Data of fifty consecutive elderly patients admitted to this hospital with the diagnosis of AMI 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).

RESULTS

Among the fifty patients, the majority of the patients belonged to the age group 60-69 years. Mean age was 69.82 years. 72% of the patients were males. Male to female ratio was 2.57:1. Of the 50 patients, 42 patients (84%) complained of chest pain while 8 patients (16%) 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.

Commonest risk factor found in this study was smoking seen in 58% of the patients included in the study. Next common was hypertension (36%) followed by hypercholesterolemia (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 48% of the patients, anterolateral MI in 26% patients, and anteroseptal in 22% of the patients. Non-ST elevation MI was seen in 4% of the patients.

Out of the 50 patients, 2D ECHO showed left ventricular ejection fraction (LVEF) <45% in 44% of the patients. LVEF <25% was seen in 8% of patients. Mean LVEF was 38.11.

Table 1: Presenting symptoms of acute myocardial infarction noted in this study

Symptoms	Frequency	Percent
Chest pain	42	84.0
Giddiness	2	4.0
Dyspnea	3	6.0
Vomiting and sweating	2	4.0
Epigastric pain	1	2.0
Total	50	100.0

Only 50% patients were thrombolysed. The main reason for not thrombolysing 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% patients, respectively. Arrhythmias noted were varying degrees of heart block, atrial fibrillation, and ventricular tachycardia. Mortality rate in this study was 18%. The mortality rates among patients presenting with and without chest pain are as depicted in Table 2.

DISCUSSION

In the present study, 72% of the patients were males with a male to female ratio of 2.57:1. 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.¹⁴ Similar observations were made in several other studies. Females constituted a larger percentage of patients in the elderly and very elderly age groups compared with the younger group.^{4,9}

Various authors have previously emphasized the variability in the clinical presentation of AMI in the elderly. Similar findings were noted in our study. In the present study although chest pain was the 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%).⁸ 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%).⁹

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 thrombolysing the patients. Similar finding was noted in other studies.^{5,11,14}

In this study, among the risk factors, the commonest risk factor was smoking (58.8%). This was unlike the previous studies in which smoking was a less common risk factor in the elderly population. 36% of the patients were hypertensives, 30% had hypercholesterolemia, and 28% were diabetics. In one of the study done before, hypertension was commonly seen in elderly patients (39%). Smoking was seen in only 17.1% of the patients.¹⁴ 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%). However, there was no difference between the two age groups with regard to the presence of hypertension, diabetes mellitus, and history of prior myocardial infarction.⁸

In this study, 96% of patients had ST elevation MI and only 4% 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.¹⁵ Similar observation was made in another study in which approximately 40% of elderly and very elderly patients did not demonstrate typical ST elevation with development of Q waves.⁵

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%).⁹ The most common complications noted in the study were acute pulmonary edema, cardiogenic shock, and arrhythmias.

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 the elderly patients present with atypical symptoms.

REFERENCES

1. Paul SD, O'Gara PT, Mahjoub ZA, DiSalvo TG, O'Donnell CJ, Newell JB, *et al.* Geriatric patients with acute myocardial infarction: Cardiac risk factor profiles, presentation, thrombolysis, coronary intervention and prognosis. *Am Heart J* 1996;131:710-5.
2. Marcus FI, Friday K, McCans J, Moon T, Hahn E, Cobb L, *et al.* Age-related prognosis after acute myocardial infarction (the multicenter diltiazem post-infarction trial). *Am J Cardiol* 1990;65:559-66.
3. Maggioni AP, Maseri A, Fresco C, Franzosi MG, Mauri F, Santoro E, *et al.* Age-related increase in mortality among patients with first myocardial infarctions treated with thrombolysis. The Investigators of the Gruppo Italiano per lo Studio della Sopravvivenza nell'Infarto Miocardico (GISSI-2). *N Engl J Med* 1993;329:1442-8.

Table 2: Mortality with respect to presence or absence of chest pain

Chest pain	Mortality (%)		Total (%)
	Alive	Died	
Chest pain			
Absent	5 (12.2)	3 (33.3)	8 (16.0)
Present	36 (87.8)	6 (66.7)	42 (84.0)
Total	41 (100.0)	9 (100.0)	50 (100.0)

$\chi^2=1.133$, $P=0.287$, NS: Non-significant

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4. Bayer AJ, Chadha JS, Farag RR, Pathy MS. Changing presentation of myocardial infarction with increasing old age. *J Am Geriatr Soc* 1986;34:263-6.
5. Tresch DD, Brady WJ, Aufderheide TP, Lawrence SW, Williams KJ. Comparison of elderly and younger patients with out-of-hospital chest pain. Clinical characteristics, acute myocardial infarction, therapy, and outcomes. *Arch Intern Med* 1996;156:1089-93.
6. Kannel WB, Abbott RD. Incidence and prognosis of unrecognized myocardial infarction. An update on the Framingham study. *N Engl J Med* 1984;311:1144-7.
7. Umachandran V, Ranjadayalan K, Ambepityia G, Marchant B, Kopelman PG, Timmis AD. The perception of angina in diabetes: Relation to somatic pain threshold and autonomic function. *Am Heart J* 1991;121:1649-54.
8. Woon VC, Lim KH. Acute myocardial infarction in the elderly – the differences compared with the young. *Singapore Med J* 2003;44:414-8.
9. Applegate WB, Graves S, Collins T, Vander Zwaag R, Akins D. Acute myocardial infarction in elderly patients. *South Med J* 1984;77:1127-9.
10. Medalie JH, Goldbourt U. Unrecognized myocardial infarction: Five-year incidence, mortality, and risk factors. *Ann Intern Med* 1976;84:526-31.
11. Ting HH, Bradley EH, Wang Y, Lichtman JH, Nallamothu BK, Sullivan MD, *et al.* Factors associated with longer time from symptom onset to hospital presentation for patients with ST-elevation myocardial infarction. *Arch Intern Med* 2008;168:959-68.
12. Bueno H, Vidán MT, Almazán A, López-Sendón JL, Delcán JL. Influence of sex on the short-term outcome of elderly patients with a first acute myocardial infarction. *Circulation* 1995;92:1133-40.
13. Mehta RH, Rathore SS, Radford MJ, Wang Y, Wang Y, Krumholz HM. Acute myocardial infarction in the elderly: Differences by age. *J Am Coll Cardiol* 2001;38:736-41.
14. Holay MP, Janbandhu A, Javahirani A, Pandharipande MS, Suryawanshi SD. Clinical profile of acute myocardial infarction in elderly (prospective study). *J Assoc Physicians India* 2007;55:188-92.
15. Goldberg RJ, Gore JM, Gurwitz JH, Alpert JS, Brady P, Strohsnitter W, *et al.* The impact of age on the incidence and prognosis of initial acute myocardial infarction: The Worcester heart attack study. *Am Heart J* 1989;117:543-9.

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