

CLINICAL PROFILE OF 150 ELDERLY PATIENTS WITH ACUTE MYOCARDIAL INFARCTIONAnand Premanand Ambali¹, Jairaj Vijaykumar Bomman²¹Professor, Department of Medicine, Shri B. M. Patil Medical College Hospital and Research Centre, Vijayapura,²Postgraduate, Department of Medicine, Shri B. M. Patil Medical College Hospital and Research Centre, Vijayapura,**ABSTRACT****BACKGROUND**

The longevity has increased in India and is further going to rise. The elderly are living with medical, social and psychological problems. Acute myocardial infarction in elderly often presents with atypical presentation and hence leads to delay in diagnosis and increased mortality. The presence of multiple comorbidities adds to increased morbidity and low quality of life. Acute myocardial infarction is leading cause of death in elderly in India.

MATERIALS AND METHODS

This study did a prospective analysis of 150 elderly patients (>60 years) irrespective of sex, admitted in cardiac care unit and diagnosed having first episode of acute myocardial infarction. The associated comorbidities, type of myocardial infarction, biochemical levels and outcome is studied over a period of two years.

RESULTS

The study group had 150 elderly participants among whom, males were 60% and 75% were in young old (60-74 years) age group. Atypical presentation was seen in 29% of participants and hyperlipidaemia was commonest comorbid condition noted among 73%. The biochemical marker Troponin T was not very effective in making diagnosis of Acute Myocardial Infarction in elderly. Anterior wall myocardial infarction was common in 37% while complication was noted in 17% of the study participants. The overall mortality rate was 6%.

CONCLUSION

Acute myocardial infarction leads to increased morbidity in elderly. The atypical presentation leads to delay in diagnosis while presence of multiple comorbidities leads to poor outcome, both of which pose challenges for the clinicians. The presence of hyperlipidaemia as comorbidity is emerging in elderly too. Arrhythmias as complication leads to increase in mortality. The holistic approach is need of hour to manage the person with multiple comorbidities.

KEYWORDS

Acute Myocardial Infarction, Elderly patients, Mortality.

HOW TO CITE THIS ARTICLE: Ambali AP, Bomman JV. Clinical profile of 150 elderly patients with acute myocardial infarction. J. Evid. Based Med. Healthc. 2018; 5(17), 1435-1438. DOI: 10.18410/jebmh/2018/300

BACKGROUND

Acute myocardial infarction continues to be the leading cause of mortality especially in elderly population. Indian Council of Medical Research reported the death due to ischemic heart diseases in India was 22.06% in 50 to 69 years age group and 21.97% in 70+ age group for the year 2016, inclusive of sexes (ICMR).¹

The possibility of suffering acute myocardial infarction in elderly (> 60 yrs.) age group is eight times higher than in people of a less advanced age.

More than 50% of in-hospital mortality from acute myocardial infarction occurs in subjects older than 60 years.²

Financial or Other, Competing Interest: None.

Submission 04-04-2018, Peer Review 05-04-2018,

Acceptance 21-04-2018, Published 23-04-2018.

Corresponding Author:

Dr. Anand Premanand Ambali,

Professor, Department of Medicine,

Specialization in Geriatric Medicine,

Geriatric Clinic, BLDE (Deemed to be University),

Shri B. M. Patil Medical College Hospital and Research Centre,

Vijayapura-586103.

E-mail: anandambali@yahoo.com

DOI: 10.18410/jebmh/2018/300

South Asians elderly have highest rate of coronary artery diseases around the globe.³ Studies have also found that elderly patients with acute myocardial infarction (AMI), have a higher prevalence of comorbid conditions, atypical presentation, non-diagnostic electrocardiogram (ECG), complications, and mortality.^{4,5}

MATERIALS AND METHODS

This study was conducted on 150 elderly patients admitted in ICCU at Shri B M Patil Medical College Hospital and Research Centre Vijayapura, between September 2015 to August 2017, prospectively, presenting within six hours of onset of symptoms, and fulfilling the inclusion criteria like acute myocardial infarction being diagnosed on the basis of history (typical / atypical presentation), electrocardiography changes (STEMI / Non STEMI according to ACCF/AHA guidelines) and raised biochemical markers for myocardial infarction (CPK MB / Troponin T).

ST elevation Myocardial Infarction (STEMI) is a clinical syndrome defined by characteristic symptoms of myocardial ischemia in association with persistent electrocardiographic ST elevation and subsequent release of biomarkers of myocardial necrosis. Universal definition of myocardial



infarction as new ST elevation at the J point in at least 2 contiguous leads of > 2 mm in men or > 1.5 mm in women in chest leads and /or > 1 mm in other contiguous chest leads or limb leads was applied for diagnosis.

The creatinine phosphokinase MB (CPK MB) levels were assessed by fully automated creatinine kinase method, Troponin T by rapid kit method. Thyroid profile by Electrochemiluminescence method creatinine by Jaffrey's reaction in fully automated autoanalyzer VITROS 250 in the hospital laboratory and the echocardiography was done by technician.

The patients were followed up for 5 days in ICCU for the outcome. The patients were then classified into groups based on age as, young old (60-74 years), the old (75-84 years) and the very old (>85 years). They were further studied to know the type of presentation as typical (classical chest pain) or atypical symptoms (breathlessness, abdominal pain, syncope, weakness), electrocardiographic changes (ST Elevation MI or Non ST Elevation MI), and region of heart involved as evidence on echocardiography as Anterior wall, Anterolateral wall, Inferior wall, Inferolateral wall and Global. Treatment was carried out in all the participants according to ACCF/AHA guidelines 2013.⁶ The study was approved by the Ethical and Research Committee of BLDE University. All the patients fulfilling selection criteria were explained about the nature and purpose of the study and a written consent was obtained before enrolment.

RESULTS

The study group had 150 elderly participants and were grouped according to age as young old, who were 114, of which 70(46.7%) were males and 44(29.4%) were females. The patients in the old category were 26, of which 11(7.3%) were males and 15(10%) were females, and very old patients were 10, of which 8(5.3%) were males and 2(1.3%) were females (Table -1).

Age (Years)	Male		Female		Total
	N	%	N	%	
60-74	70	46.7	44	29.4	114
75-84	11	7.3	15	10	26
≥85	08	5.3	02	1.3	10
Total	89	59.3	61	40.7	150

Table 1. Age and Sex Relation

The study group admitted in intensive cardiac care unit with typical presentation were 106 (70.7%) patients and remaining 44 (29.3%) patients had atypical presentation. (Table -2).

Typical/Atypical	No.	%
Typical	106	70.7
Atypical	044	29.3
Total	150	100.0

Table 2. Symptom Presentation

The comorbidities were studied in all the participants and was found that 110 (73.3%) patients had dyslipidaemia, which marks the highest percentage, followed by hypothyroidism, which was seen in 52 (34.7%),

hypertension in 36 (24%) patients, whereas 28(18.7%) had diabetes mellitus and 23 (15.3%) patients had both diabetes and hypertension. (Table -3).

Comorbidities	No.	%
Diabetes Mellitus	28	18.7
Hypertension	36	24.0
Diabetes and Hypertension	23	15.3
Dyslipidaemia	110	73.3
Hypothyroidism	52	34.7

Table 3. Comorbidities

A total of 60(40%) patients had addictive habits, the most common habit noted was smoking and was present in 29(19.3%) patients, followed by tobacco chewing in 18(12%) patients.

The Electrocardiography changes noted were STEMI in 109 (72.6%) and NSTEMI in 41 (27.4%) participants.

The cardiac enzyme Creatinine Phosphokinase MB was found to be elevated in 126(84%) patients, while Troponin -T was positive in 90(60%) of the patients. The cardiac enzymes, both CPK MB and TROP T elevation with respect to region of heart involved based on bedside echocardiography was maximally elevated in patients with anterior wall involvement 41(27.3%) followed by anterolateral wall 32 (21.3%) and least with global myocardial infarction. (Table -4).

CPK MB				TROP T			
Normal		Elevated		Positive		Negative	
N	%	N	%	N	%	N	%
24	16	126	84	90	60	60	40

Table 4. Biochemical Values

The region of the heart involved was made out by bedside Echocardiography, and the findings were grouped as anterior wall, anterolateral wall, inferior wall, inferolateral wall, and global. Among them the anterior wall involvement was more common and was found in 56(37.3%) patients, anterolateral wall involvement was seen in 37(24.7%) patients, Inferolateral 30 (20%), inferior wall in 19 (12.7%) and global in 8 (5.3%).

Complications	No.	%
Bradyarrhythmia	9	6.0
Tachyarrhythmia	9	6.0
Sinus Bradycardia	4	2.7
CCF	3	2.0
Ventricular Ectopics	1	0.7
Total	26	17.4

Table 5. Complications

Complications were noted in 26(17.4%) patients over five days of hospital stay, among which bradyarrhythmia and tachyarrhythmia were found in 9(6%) participants each, followed by sinus bradycardia in 4(2.7%), congestive cardiac failure in 3(2%) and ventricular ectopics in 01(0.7%) participants. (Table -5)

During the hospital stay 141(94%) patients recovered while 9 of the patients succumbed, with mortality rate of 6%.

DISCUSSION

Age and Sex Relation

A study by Savith.A,⁷ which was a cross sectional study in elderly patients with acute myocardial infarction, have found majority of patients aged between 60- 69 years, with mean age of 69.82 years. Mehta et al,⁸ showed age frequency predominance between the age group of 70-75 years which was higher than 60-69 year age group, where as our study showed majority of participants aged between 60-74 years i.e, young old.

Habits

L.H. Bhatia and R.H.Naik,⁹ assessed the risk factors for acute myocardial infarction in elderly patients and found that smoking was most common addictive habit and was present in 18(16.82%) elderly patients. A study by Savit.A.⁷ also showed smoking as most common addictive habit and was present in 58% of their study group. In our study the most common addictive habit noted was also smoking.

Symptoms

Wegner et al,¹⁰ conducted a study and categorized patients based on the presenting complaints with which they presented to hospital as typical and atypical presentation and found to have atypical presentation more common ranging from 38-60% in elderly with acute myocardial infarction. A study by Savith.A,⁷ showed typical presentation to be more common in 66.3% and atypical presentation being in 20.8%. The clinical presentation of patients, in our study with typical symptoms is 70.7%.

Echocardiography

The study done by Savith A,⁷ showed to have higher incidence of inferior wall myocardial infarction and was present in 48% of patients, followed by anterolateral wall MI in 26% patients and anteroseptal wall MI was in 22% of patients.

ECG Changes

L.H. Bhatia and R.K.Naik,⁹ found that ST elevation myocardial infarction was present in 56(52.34%) of elderly patients, and Non ST elevation myocardial infarction was present in 39 (36.45%) and new onset LBBB in 12(11.21%). The study by Savith.A,⁷ found to have ST elevation myocardial infarction more commoner making it 96% than Non ST elevation myocardial infarction which was seen in only 4% of elderly patients presenting with acute myocardial infarction. In our study, the ECG changes on admission was ST elevation myocardial infarction making it to 72.6%.

CPK MB

The study by Savith.A,⁷ showed CPK MB elevated in 70% patients of their study. In our study it was elevated in 84%

patients. It was maximally elevated in anterior wall MI (27.3%) and least in global involvement (4.7%).

Comorbidities

In the study conducted by Savith.A,⁷ the comorbidities associated were hypertension, hypercholesterolemia and diabetes mellitus, in 36%, 30% and 28% patients respectively. In our study, the association of dyslipidaemia was found to be maximum (73%), followed by hypothyroidism (34.7%), hypertension (24%) and diabetes (18.7%).

Mortality

All case mortality was 20% in the study conducted by Ambali A.P in our study the all case mortality was 6%.

Complications

L.H. Bhatia and R.K.Naik.⁹ study showed 53(49.3%) elderly patients had arrhythmias and 32(29.9%) patients had congestive cardiac failure and our study had bradyarrhythmia and tachyarrhythmia in 9(6%) patients each, and CCF in 3(2%) patients.

CONCLUSION

Acute myocardial infarction continues to be among top ten diseases that leads to increased mortality in elderly. The presentation with atypical symptoms, few changes on ECG and nonsignificant levels of biochemical markers are the challenges for the clinician in making diagnosis of acute myocardial infarction in elderly. The hyperlipidaemia as risk factor is emerging in elderly and need further studies to substantiate. The complication rates are high in first few days of event and complications like Congestive cardiac failure leads to low quality of life in elderly. The presence of multiple comorbidities and polypharmacy add to complications. A holistic approach to a person with acute myocardial infarction, identification of comorbidities and complications in early stage will improve overall outcome. The life expectancy at age of 60 years in India is 17 years and such events in their life at this age of their life leads to reduced quality, restricted activity and high morbidity. Regular screening for dyslipidaemia, hypertension, hypothyroidism and diabetes in elderly and treating them effectively will prevent cardiac events.

REFERENCES

- [1] <http://vizhub.healthdata.org/gbd-compare/india>. Last accessed on 30/03/2018.
- [2] Suarez G, Herrera M, Vera A, et al. Prediction on admission of in hospital mortality in patients older than 70 years with acute myocardial infarction. *Chest* 1995;108(1):83-88.
- [3] Dang A, Dias A. Differences in risk factors and mortality, in young and old individuals with acute myocardial infarction in Goa. *Journal of Clinical and Diagnostic Research* 2008;2:715-719.
- [4] Marcus FI, Friday K, McCans J, et al. Age-related prognosis after acute myocardial infarction (the

- multicenter diltiazem post infarction trial). *Am J Cardiol* 1990;65(9):559-566.
- [5] Maggioni AP, Maseri A, Fresco C, 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(20):1442-1448.
- [6] O'Gara PT, Kushner FG, Ascheim DD, et al. 2013 ACCF/AHA guideline for the management of ST-elevation myocardial infarction. *JACC* 2013;61(4):e78-e140.
- [7] Savith A. Clinical profile of acute myocardial infarction in elderly patients: a cross sectional study. *Int J Sci Study* 2015;3(6):65-68.
- [8] Mehta RH, Rathore SS, Radford MJ, et al. Acute myocardial infarction in the elderly: differences by age. *Journal of the American College of Cardiology* 2001;38(3):736-741.
- [9] Bhatia LC, Naik RH. Clinical profile of acute myocardial infarction in elderly patients. *J Cardiovasc Dis Res* 2013;4(2):107-111.
- [10] Wegner NK, Furberg CD, Pitt E. *Coronary heart disease in the elderly: working conference on the recognition and management of coronary heart disease in the elderly*. New York, NY: Elsevier 1986.