



ORIGINAL RESEARCH PAPER

General Medicine

STUDY OF CLINICAL PROFILE OF PATIENTS WITH ACUTE MYOCARDIAL INFARCTION AT A PRIVATE TERTIARY CARE HOSPITAL.

KEY WORDS: acute myocardial infarction, acute ST elevation myocardial infarction, anterior wall myocardial infarction, Hypertension, sedentary life style, diabetes

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ABSTRACT

Acute myocardial infarction (AMI) is one of the leading causes of death in the world. AMI can be divided into 2 categories: non-ST-segment elevation myocardial infarction (NSTEMI) and ST-segment elevation myocardial infarction (STEMI). Present study was aimed to study clinical profile of patients with acute myocardial infarction at a private tertiary care hospital. Present study was hospital based, prospective, observational study, conducted in patients aged >25 years, either gender, admitted with an initial diagnosis of myocardial infarction or acute coronary syndrome. During study period 128 patients were included in study as per study criteria. Majority were male (69.53 %) as compared to females (30.47 %) & male to female ratio was 2.3:1. Majority were from 51-60 years age group (38.28 %) & only 28 (21.88 %) patients were from age group less than 50 years. In present study, most common symptoms was chest pain (85.16 %) followed by difficulty in breathing (75.78 %), profuse sweating (74.22 %). In majority of patients duration of chest pain was 6-12 hours (50.78 %). Common risk factors noted in study population were hypertension (73.44 %) followed by type A personality (53.91 %), sedentary life style, no exercise (57.03 %), diabetes (47.66 %), dyslipidemia (40.63 %), smoking (25.78 %) & BMI>25 kg/m² (16.41 %). On ECG, majority had ST-segment elevation myocardial infarction (94.53 %) as compared to Non-ST-segment elevation myocardial infarction (5.47 %). Anterior wall myocardial infarction (88.28 %) was most common diagnosis followed by Anterior + inferior wall myocardial infarction (8.59 %) & Anterior + lateral wall myocardial infarction (3.13 %). This study concluded that acute myocardial infarction was common in male patients, age > 50 years had acute ST elevation myocardial infarction with anterior wall myocardial infarction.

INTRODUCTION

Acute myocardial infarction (AMI) is one of the leading causes of death in the world. AMI can be divided into 2 categories: non-ST-segment elevation myocardial infarction (NSTEMI) and ST-segment elevation myocardial infarction (STEMI). Unstable angina resembles an NSTEMI, but normal cardiac markers distinguish it.¹ Myocardial infarction (MI) causes permanent damage to the heart muscle due to inadequate oxygen supply.¹

Coronary heart disease prevalence rates in India have been estimated over the past several decades and have ranged from 1.6% to 7.4% in rural populations and from 1% to 13.2% in urban populations.² The INTERHEART study showed that CVD risk factors such as abdominal obesity, hypertension, and diabetes are higher among Indians, even at young ages than among other ethnic groups.³ Patients with myocardial infarction present with typical symptoms (usually include chest, arm, or jaw pain described as dull, heavy, tight or crushing)⁴ or atypical symptoms (include giddiness, dyspnea, vomiting, sweating, and epigastric pain in the absence of chest pain)⁵.

Hypertension is the leading risk factor for cardiovascular disease including ischemic heart disease, heart failure, peripheral arterial disease, hemorrhagic, and ischemic stroke.⁶ It leads to serious morbid events in the early post-acute MI periods and worsens the long-term course by left ventricular dysfunction and congestive heart failure.⁷ Present study was aimed to study clinical profile of patients with acute myocardial infarction at a private tertiary care hospital.

MATERIAL AND METHODS

Present study was hospital based, prospective, observational study, conducted at CSM Hospital, a multispecialty hospital at Chhatrapati Sambhajanagar, Maharashtra, India. Study duration was of 3 years (January 2022 to December 2024).

Inclusion Criteria

- Patients aged >25 years, either gender, admitted with an initial diagnosis of myocardial infarction or acute coronary syndrome, willing to participate in present study

Exclusion Criteria

- Patients with stable angina,
- Patients less than 25 years
- Patients not willing to participate in the study

Written informed consent was obtained from the participants prior to inclusion. The final diagnosis of acute myocardial infarction was done when two out of three of the following criteria were present:

- Electrocardiogram (ECG) evidence of acute myocardial infarction.
- Ischemic chest pain for at least 10 min.
- Rise/fall of the cardiac biomarker troponin.

History focusing on possible risk factors was taken including history of tobacco smoking, diabetes mellitus, hypertension, positive family history of premature CAD, dyslipidemia and drug abuse. BMI of the patients was calculated. Complete history, clinical examination, investigations and other workup of acute MI patients was done on admission. Coronary angiography was planned in all the patients, but due to financial and technical issues, it was done in selected patients to assess the number and type of vessels which were involved. Further necessary management was done in all cases. Follow up was kept for 3 months from discharge. Collected data was entered in Microsoft excel sheet and analysed accordingly.

Data was collected and compiled using Microsoft Excel, analysed using SPSS 23.0 version. Statistical analysis was done using descriptive statistics.

RESULTS

During study period 128 patients were included in study as per study criteria. Majority were male (69.53 %) as compared to females (30.47 %) & male to female ratio was 2.3:1. Majority were from 51-60 years age group (38.28 %) & only 28 (21.88 %) patients were from age group less than 50 years.

Table 1- General Characteristics

Characteristics	No. of subjects	Percentage
Age group (in years)		

26-40	9	7.03
41-50	19	14.84
51-60	49	38.28
61-70	28	21.88
71-80	13	10.16
>80	10	7.81
Gender		
Male	89	69.53
Female	39	30.47

In present study, most common symptoms was chest pain (85.16 %) followed by difficulty in breathing (75.78 %), profuse sweating (74.22 %), other pain (epigastric, back, etc.) (63.28 %), shoulder pain (57.81 %), nausea and vomiting (46.88 %) & restlessness, palpitations (13.28 %).

Table 2: Symptom Wise Distribution Of Patients

Characteristics	No. of subjects	Percentage
Chest pain	109	85.16
Difficulty in breathing	97	75.78
Profuse sweating	95	74.22
Other pain (epigastric, back, etc.)	81	63.28
Shoulder pain	74	57.81
Nausea and vomiting	60	46.88
Restlessness, palpitations	17	13.28

In majority of patients duration of chest pain was 6-12 hours (50.78 %) followed by 0-6 hours of chest pain duration (25 %).

Table 3: Duration Of Chest Pain

Duration of chest pain	No. of subjects	Percentage
0-6 hours	32	25
6-12 hours	65	50.78
≥24 hours	14	10.94
Not known	17	13.28

Common risk factors noted in study population were hypertension (73.44 %) followed by type A personality (53.91 %), sedentary life style, no exercise (57.03 %), diabetes (47.66 %), dyslipidemia (40.63 %), smoking (25.78 %), BMI>25 kg/m² (16.41 %), Family history of ischemic heart disease (14.06 %) & past history of acute myocardial infarction (9.38 %).

Table 4: High Risk Factors

High risk factor	No. of subjects	Percentage
Hypertension	94	73.44
type A personality	69	53.91
sedentary life style, no exercise	73	57.03
Diabetes	61	47.66
Dyslipidemia	52	40.63
Smoking	33	25.78
BMI>25	21	16.41
Family history of IHD	18	14.06
past history of AMI	12	9.38

On ECG, majority had ST-segment elevation myocardial infarction (94.53 %) as compared to Non-ST-segment elevation myocardial infarction (5.47 %). Anterior wall myocardial infarction (88.28 %) was most common diagnosis followed by Anterior + inferior wall myocardial infarction (8.59 %) & Anterior + lateral wall myocardial infarction (3.13 %).

Table 5: ECG Characteristics

Characteristics	No. of subjects	Percentage
ST-segment elevation myocardial infarction	121	94.53
Non-ST-segment elevation myocardial infarction	7	5.47
Anterior wall myocardial infarction	113	88.28

Anterior + inferior wall myocardial infarction	11	8.59
Anterior + lateral wall myocardial infarction	4	3.13

Common post MI complications observed were cardiogenic shock (13.28 %), congestive heart failure (8.59 %), acute left ventricular failure (5.47 %), cerebrovascular stroke (4.69 %) & post-infarct angina (2.34 %).

Table 6: Complications

Complications	No. of subjects	Percentage
Cardiogenic shock	17	13.28
Congestive heart failure	11	8.59
Acute left ventricular failure	7	5.47
Cerebrovascular stroke	6	4.69
Post-infarct angina	3	2.34

Majority patients were managed by thrombolysis (69.53 %) followed by coronary angiography (57.03 %), PCI (33.59 %) & CABG (4.69 %). Mortality was observed in 7 cases (5.47 %).

Table 7: Management And Outcomes

Management and outcomes	Number of subjects	Percentage
Management		
Thrombolysis	89	69.53
Coronary angiography	73	57.03
PCI	43	33.59
CABG	6	4.69
Outcome		
Discharged	121	94.53
Mortality	7	5.47

DISCUSSION

Driving this steep rise in CVD risk factor burden is the rapid increase in the proportion of urban inhabitants.⁵ Urbanization is characterized by a marked increase in the intake of energy-dense foods, a decrease in physical activity, and a heightened level of psychosocial stress, all of which promote the development of hyperglycaemia, hypertension, and dyslipidaemia.⁹ The burden of CVD and its risk factors in India calls for a sound public health approach to stem the epidemic. Efforts to put in place an intervention programme should be complemented with a robust surveillance mechanism so as to monitor, evaluate and guide policies and programmes although much of the current enthusiasm in management of acute MI is related to revascularization strategies.¹⁰

Maresh Joshi et al.,¹¹ studied 104 patients diagnosed with ST-Elevation MI (STEMI) or Non-ST-Elevation MI (NSTEMI). The study population included 78.8% males and 21.2% females, with a mean age of 60.18 years. Most patients presented with typical anginal pain (92.3%), while dyslipidemia (62.5%) and tobacco use (52.88%) were the most common risk factors. STEMI accounted for 71.15% of cases, with anterior-lateral wall MI as the predominant subtype. Similar findings were noted in present study. Alarming, 57.6% of patients arrived at the hospital beyond the critical 12-hour window for thrombolysis.

In study by Viswanathan R¹², out of 42 patients, 31 were male, and 11 were female; 78.6% were more than 51 years age group. Hypertension, diabetes, and both were more common comorbid in the patients. Chest pain was the most common symptoms, 71.4% were had ST-elevation myocardial infarction (MI) and the majority had single-vessel CADs. About 64.3% of patients underwent percutaneous transluminal coronary angioplasty. Similar findings were noted in present study.

This study concluded that older people were most probably,

and hypertension and diabetes are the significant risk factors for CADs. Urgent steps are needed to modify lifestyle by increasing physical activity, changing diet, and perhaps making aggressive use of statins as part of the preventive strategy to reduce risk factors and, thus, the burden of CAD.¹²

Medo M Kuotsu et al.,¹³ noted that mean age of the study population was 63.13±10.47 years, with an age range from 41 to 90 years. The study population had 75% males and 25% females. The most common presenting symptom was chest pain in 96% of patients. Hypertension in 75% of patients was the most common risk factor studied. About 97% of patients had at least one cardinal risk factor for MI. Inferior wall MI in 47% of patients was the most common site of MI. The highest mortality was seen in those who presented with Killip Class IV. In study by Seetharama N et al.,¹⁴ mean age 52.91 ± 13.19 years. Out of 100 cases, 82 were males and 18 were female. The male to female ratio was 4.5:1. Among the 100 patients studied, 92 patients (92%) had at least one of the risk factors mentioned above and 46 patients (46%) had more than one risk factors. 45 of the 96 patients (46.88%) percentage to the hospital within 6 hours of onset of chest pain. The pulse rate was within normal limits in 65 patients (65%). 26 patients (26%) had tachycardia at time of presentation and 9 patients (9%) had bradycardia. In 29 patients (29%) blood pressure was more than 140/90 mmHg and 15 patients (15%) had hypotension at time of presentation. In remaining 56 patients (56%) blood pressure was within normal limits. JVP was elevated in 6 patients (6%). 4 patients (4%) were in cardiogenic shock at the time of presentation and 13 patients (13%) were in left ventricular failure. Similar findings were noted in present study.

There is need for early detection of risk factor to prevent the progression of coronary heart disease, need for creating awareness in the community regarding risk factors, symptoms and signs of acute myocardial infarction so that early referral can be done to coronary care unit to prevent morbidity and mortality in the community.

CONCLUSION

This study concluded that acute myocardial infarction was common in male patients, age > 50 years had acute ST elevation myocardial infarction with anterior wall myocardial infarction. Hypertension, sedentary life style, no exercise, diabetes, dyslipidemia, smoking & BMI>25 kg/m² and diabetes were the significant risk factors for CADs.

Urgent steps are needed to modify lifestyle by increasing physical activity, changing diet, and perhaps making aggressive use of statins as part of the preventive strategy to reduce risk factors and, thus, the burden of coronary artery disease prevalence.

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