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Research Article

A study of clinical profile of acute ST elevation myocardial infarction patients from GMERS Medical College and Hospital, Gandhinagar, Gujarat

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ABSTRACT

Background: Acute myocardial infarction is the most common and potentially life-threatening cardiac emergency presenting to a hospital. Having significant mortality and morbidity, the emergency requires early recognition, efficient triage and prompt therapeutic, interventions for maximum benefit. The objective was to study the age & sex distribution, clinical features, risk factors, ECG findings, complications, outcome of pts admitted with acute ST elevation myocardial infarction pts admitted in GMERS medical college and hospital, Gandhinagar, Gujarat.
Methods: This is a retrospective study of all new patients managed for acute ST elevation myocardial infarction in the I.C.C.U. of GMERS medical college and hospital, Gandhinagar, Gujarat from January1 2012 to December 31, 2013.
Results: Acute ST elevation myocardial infarction was more common in males (71.7%). Male to female ratio was 3.6:1. Mean age was 55.72 years & most pts were in age group of 51-60. most common clinical feature was chest pain (96.9%). Most of the pts (22.8%) presented in the hospital after onset of chest pain in 0>6 hrs duration. Most pts were having anterior wall infarction (47.5%). Most common risk factor was smoking or any form of tobacco consumption (28.3%). Most common complication was congestive cardiac failure (42.9%). In hospital mortality was 13.2%.
Conclusion: Acute ST elevation myocardial infarction was having male predominance with anterior wall myocardial infarction most common and most common risk factor was smoking and most common complication was congestive cardiac failure.

Keywords: ST elevation myocardial infarction, Anterior wall infarction, Smoking, Chest pain

INTRODUCTION

Coronary Artery Disease (CAD) is the leading cause of mortality and morbidity in the world. CHD affects Indians with greater frequency. The mean age of ACS presentation in India was estimated to be 57.5 years[1] which is 7-11 years younger than reports from Western literature.[2] Coronary Heart Disease (CHD) is the leading cause of death in India thereby having a greater economic impact on low- and middle-income countries like us. Effective screening, evaluation, and management strategies for CHD are well established in high-income countries, but these strategies have not been fully implemented in India. CHD prevalence appears to be worsening in India. In developing countries, rates are predicted to increase by 120% in women and 137% in men from 1990 to 2020.[3] Commonest among all ACS pts is acute ST elevation myocardial infarction in India.[1] Major risk factors for acute ST elevation MI are smoking

or any form of tobacco consumption, HT, DM, dyslipidemia, obesity, psychosocial stress, alcohol intake.[4] We did this study to know the clinical profile of pts with acute ST elevation myocardial infarction in our hospital by which we can help young physicians to deal with this deadly disease.

METHODS

This is a retrospective study of 290 cases managed for acute ST elevation myocardial infarction in the I.C.C.U. of GMERS medical college and hospital, Gandhinagar, Gujarat from January 1, 2012 to December 31, 2013. The case notes of the pts were retrieved from the medical department of the hospital and relevant data extracted and analyzed. For further intervention we have to send pts to higher cardiac centers. All pts above age 18 years & having the following two criteria out of three were included in study.[5]

1) Typical symptoms (Chest discomfort).

2) Typical pattern of ECG (ST segment elevation of ≥0.1 mv in at least two consecutive leads.

3) Elevated enzyme levels (Serum CPKMB two times the upper limit of normal level).

The data obtained were analyzed using SPSS version 21.0 software. Results were expressed in frequencies and percentages.

RESULTS

Age & sex incidence

In our study total 290 pts were having acute ST elevation myocardial infarction, out of which 228 (71.7%) were males & 62 (19.5%) were females as shown in Table 1.

Table 1: Gender distribution.

Sex	Frequency	Percent
M	228	71.7%
F	62	19.5%

Table 2: Age group & gender distribution.

Age groups	Sex		Total
	F	M	
20-30	0	4	4
31-40	5	21	26
41-50	8	73	81
51-60	22	77	99
61-70	15	37	52
71-80	11	13	24
81-90	1	3	4
Total	62	228	290

Male to female ratio was 3.6:1. Mean age of presentation was 55.72 years. Most pts were in age group between 51 to 60 years (Table 2). Youngest was 25 years old & oldest 90 years old.

Clinical features of pts with acute ST elevation myocardial infarction

In our study most common clinical feature was chest pain (96.9%), followed by sweating (38.3%), breathlessness (24.1%), vomiting or nausea (23.4%), palpitation (7.9%) & abdominal pain in 2.1% of pts as shown in (Table 3).

Table 3: Clinical features.

Clinical features	No.	Percent
Chest pain or discomfort	281	96.9%
Vomiting and/or nausea	68	23.4%
Sweating	111	38.3%
Palpitation	23	7.9%
Breathlessness	70	24.1%
Abdominal pain	6	2.1%

Table 4: Comparison of clinical features findings with other studies.

Clinical features	Present study	Holay et al.
Chest pain or discomfort	96.9%	86.6%
Vomiting and/or nausea	23.4%	34.16%
Sweating	38.3%	46%
Palpitation	7.9%	9.1%
Breathlessness	24.1%	29%
Abdominal pain	2.1%	4.6%

Duration of chest pain before arrival to hospital

In our study most of the pts (22.8%) presented in the hospital after onset of chest pain in 0>6 hours, 6.3% in ≥24 hours, 0.6% in 6>12 hours, because this was retrospective study in15.9% pts' record, we were not able to know exact time duration as shown in (Table 5).

Table 5: Duration of chest pain before arrival to hospital.

Duration of chest pain	Frequency	Percent
0>6 hours	145	22.8%
6>12 hours	4	0.6%
≥24 hours	40	6.3%
Not known	101	15.9%

Area of involvement as per ECG findings

In our study most common area of infarction was anterior wall (47.5%) followed by inferior (31.4%), anteroseptal (27%), 3 cases each of global & posterior wall, 2 cases of

anterolateral & lateral wall infarction & 1 case each of anteroinferior & inferolateral wall infarction as shown in (Table 6).

Table 6: ECG findings.

Area of infarction as per ECG interpretation	No.	Percent
Anterior	151	47.5%
Anteroinferior	1	0.3%
Anterolateral	2	0.6%
Anteroseptal	27	8.5%
Global	3	0.9%
Inferior	100	31.4%
Inferolateral	1	0.3%
Lateral	2	0.6%
Posterior	3	0.9%

Risk factors contributing to acute ST elevation myocardial infarction

In our study most common risk factor was smoking or any form of tobacco consumption (28.3%) followed by hypertension (27.3%), diabetes mellitus (19.2%), dyslipidemia (14.5%), previous h/o coronary artery disease (8.8%), and alcohol intake (2%) as shown in (Table 7).

Table 7: Risk factors of acute ST elevation myocardial infarction.

Risk factors	No. of pts	Percent
Hypertension	81	27.3%
Diabetes mellitus	57	19.2%
Dyslipidemia	43	14.5%
Smoking or any form of tobacco	84	28.3%
Alcohol	6	2%
Previous h/o coronary artery disease	26	8.8%

Complications in pts presented with acute ST elevation MI

In our study most common complication was congestive cardiac failure (43.1%) cardiogenic shock (26.7%), arrhythmias (16.4%), recurrent ischemia (12.3%), and stroke (1.5%) as shown in (Table 8).

Table 8: Complications of acute ST elevation myocardial infarction.

Complications	No of pts	Percent
Congestive cardiac failure	84	43.1%
Arrhythmias	32	16.4%
Recurrent ischemia	24	12.3%
Cardiogenic shock	52	26.7%
Stroke	3	1.5%

Thrombolysis of admitted pts

In our study 79.7% pts were thrombolysed with thrombolytic agent streptokinase which is available in hospital free of cost to the pts. 20.3% pts were not thrombolysed due to presenting outside the window period of thrombolysis as shown in (Table 9).

Table 9: Thrombolysis status of admitted pts.

Status of thrombolysis	Frequency	Percent
Pts thrombolysed	231	79.7%
Pts not thrombolysed	59	20.3%

Outcome of pts

In our study 43.4% pts were discharged on medical management, our hospital is not having cardiac cath lab so 34% pts were transferred to cardiac center for further intervention & 13.2% pt died in hospital as shown in (Table 10).

Table 10: Outcome of admitted pts.

Outcome	No. of pts	Percent
Pt discharged	138	43.4%
Pt transferred to cardiac center	108	34%
Pt died in hospital	42	13.2%

DISCUSSION

In our study (71.7%) were males and 62 (19.5%) were females. Male to female ratio was 3.6:1.Mean age of presentation was 55.72 years. This findings correlates with study done by Sahid et al.[6] in which mean age was 58 & 78% were males, Abdul et al.[7] (mean age 56.6, males-88.5%, females-11.5%), CREATE registry[1] also showed that mean age of ACS in Indians is 57.5.

In our study most common clinical feature was chest pain (96.9%), followed by sweating (38.3%), breathlessness (24.1%), these correlates with the study done by Holay et al.[8] In study by Holay et al. most common clinical feature was chest pain in 86.6% and followed by sweating in 34.16%. Table 4 shows comparison of both studies.

In our study most of the pts (22.8%) presented in the hospital after onset of chest pain in 0>6 hours, 6.3% in ≥24 hrs. This observation correlates with Sahid et al.,[6] in which most (72%) pts reached in 0>6 hours & 6% reached after 24 hours.

In our study most common area of infarction was anterior wall (47.5%) followed by inferior (31.4%). This observation correlates with study done by Daniel et al.[9] in which most common was anterior wall (47.1%) followed by inferior wall (42.2%) & also study done by Yadav et al.[10] in which most common infraction site was anterior wall (54%).

In our study most common risk factor was smoking or any form of tobacco consumption (28.3%) followed by hypertension (27.3%), diabetes mellitus (19.2%), dyslipidemia (14.5%) (27.3%). These findings correlates with study done by Misiriya et al.[11] in which most pts were having smoking (46.6%), HT (29.02%), dyslipidemia (26.15%), DM (23.95%), It also correlates with study done by P. S. Singh et al.[12] In study by P. S. Singh et al., tobacco consumption was a major risk factor (65%), hypertension (33%), diabetes mellitus (16%) and dyslipidaemia (12%). In both studies most common risk factor was smoking followed by hypertension which is evident in our study.

In our study most common complication was congestive cardiac failure (43.1%). These correlates with study done by Holay et al.[8] in which most common complication was congestive cardiac failure (61.6%).

In our study 79.7% pts were thrombolysed with thrombolytic agent streptokinase which is available in hospital free of cost to the pts, this finding correlates with study done by Misiriya et al.[11] in which 68.97% pts received thrombolysis.

In our study 13.2% pts died in hospital, this mortality data correlates with study done by Abdul Hammed et al.[7] in which in hospital mortality was 13.2%. We are having the only ICCU in Gandhinagar city & in Gandhinagar district, so most of the critical pts are shifted here, this explains relatively high mortality.

CONCLUSION

Acute ST elevation MI is having male predominance. Male to female ratio was 3.6:1. Mean age of presentation was 55.72 years. Most pts were in age group between 51 to 60 years. Most pts presented with chest pain, most common risk factor was smoking or any form of tobacco use. HT, DM, dyslipidemia, alcohol were other major risk factors. Most of the pts arrived in less than 6 hours of onset of chest pain. Most pts were of anterior wall MI. Most common complication was congestive cardiac failure. 79.7% pts received thrombolysis. In hospital mortality was 13.2%. More studies will help young physicians to tackle this growing problem in a better way.

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