



## A Study of Clinical Profile of Acute ST Elevation Myocardial Infarction in A Tertiary Care Institute of Western India (A Study of 100 Cases)

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### ABSTRACT

Coronary heart disease (CHD) is the major cause of death in developing countries like India. It continues to be the leading cause of death in developing countries like India, despite spectacular progress in their prevention, detection and treatment over the last three decades [1]. Coronary heart disease is the greatest cause of death among women [2, 3]. This study was aimed to study the clinical-epidemiological profile of patients with ST Elevation Acute Myocardial Infarction in adults with special reference to Risk factors, Presenting features, Complications, Management and Outcome.

**KEYWORDS :** Coronary heart disease, Acute ST elevation myocardial infarction.

### INTRODUCTION

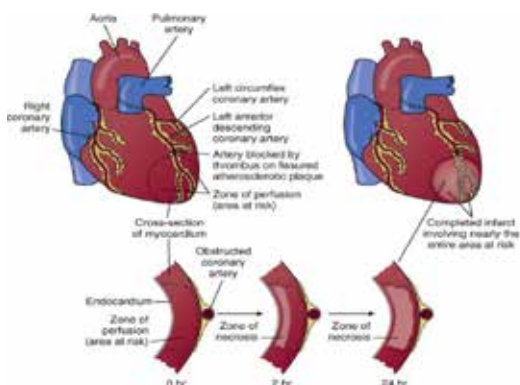
Ischemic heart disease causes more deaths and disability and increase greater economic costs than any other illness in the developed world [4]. In India CVD accounts for 24% of total deaths of which 50% by coronary artery disease [5].

### Revised Definition of Myocardial Infarction[6]

Criteria for Acute, Evolving, or Recent MI

Either of the following criteria satisfies the diagnosis for acute, evolving, or recent MI: Typical rise and/or fall of biochemical markers of myocardial necrosis with at least one of the following:

- Ischemic symptoms
- Development of pathologic Q waves in the ECG
- Electrocardiographic changes indicative of ischemia (ST-segment elevation or depression)
- Imaging evidence of new loss of viable myocardium or new regional wall motion abnormality
- Pathologic findings of an acute myocardial infarction



Schematic representation of the progression of myocardial necrosis after coronary artery occlusion. Necrosis begins in a small zone of the myocardium beneath the endocardial surface in the center of the ischemic zone.

### MATERIAL AND METHODS

A prospective longitudinal study was carried out in Medicine Department

of Shri M.P. Shah Medical College and Guru Gobind Singh Hospital, Jamnagar from August 2014 to August 2015. Total 100 cases of Acute ST Elevation Acute Myocardial Infarction getting admitted to ICU fulfilling the inclusion and exclusion criteria's were studied. Written consent for participating in this study was taken of all patients. Detailed history & clinical findings of all patients were collected. ST Elevation Myocardial Infarction was defined according to the European Society of cardiology/ACCF/AHA/World Heart Federation Task Force for the Universal Definition of Myocardial Infarction.

### Inclusion criteria:

- Age > 18 years.
- ECG Evidence of ST elevation MI.
- Any sex-Male or female
- Any duration of MI.
- Patients who have received thrombolysis or not.
- Patients with or without prior history of myocardial infarction.
- Patients with prior history of PTCA or CABG.

### Exclusion Criteria:

- Patients presenting with non-ST Elevation Myocardial Infarction.

### Statistical Analysis:

Data are expressed as Mean and SD when normally distributed and as median (range) for non-Gaussian variables. Data entry will be done in MS-EXCEL Spreadsheet.

### RESULTS

In the present study of myocardial infarction, 100 patients presented with ST elevation Myocardial infarction admitted at Guru Gobind Singh Govt. Hospital, Jamnagar during the period of August 2014 to August 2015 were studied and observed for outcome during their hospital stay.

### Incidence of Age in present study.

AGE (in years)	Number	Percentage
< 40 years	2	2 %
40 – 49 years	15	15 %
50 – 59 years	28	28 %
>60 years	55	55 %
Total	100	100 %

In present study there is linear increase in incidence of MI with increasing age. Only 2 % were below 40 years of age, while 55 % were above 60 years of age, 15 % were between 40 to 49 years of age and 28 % between 50 to 59 years of age. The incidence rises with age but there is sharp rise after the age of 60 years.

**Incidence of Mean Time Delay in present study.**

Time in hours	Number	Percentage
< 12 hours	80	80 %
12 – 24 hours	18	18 %
>24 hours	2	2 %
Total	100	100 %

Above table shows majority of patients i.e. 80% presented within 12 hours from onset of chest pain while 18% presented between 12 to 24 hours and 2 % presented after 24 hours of onset of chest pain.

**Incidence of symptoms in present study**

Symptoms	Number	Percentage
Chest pain	95	95 %
Perspiration	90	90 %
Breathlessness	27	27 %
Nausea / Vomiting	24	24 %
Giddiness	14	14 %
Palpitation	12	12 %
Others	7	7 %

The above table shows that in present study majority of patients i.e 95% presented with typical chest pain of acute myocardial infarction, while 90% were having perspiration, 27% presented with breathlessness, 24% presented with nausea/ vomiting, 14% presented with giddiness, 12% presented with palpitation while 7% presented with other symptoms (drowsiness, unconsciousness, etc.)

**Incidence of risk factors in present study**

Risk factors	Number	percentage
>55years	76	76 %
Hypertension	57	57 %
Tobacco	39	39%
Family history	31	31 %
Obesity	28	28 %
Smoking	26	26%
Past h/o IHD	26	26 %
Hypercholesterolemia	23	23 %
Diabetes	18	18 %
Alcohol	10	10%
O.C.pills	2	2 %

In the present study, major risk factor was hypertension (57%) followed by tobacco chewing (39%), obesity (28%) and hypercholesterolemia (23%). 31% were having positive family history and 26% with past history of IHD. Only 2% were consuming O.C. Pills.

**Incidence of Myocardial Wall involved in present study**

Myocardial wall	Number	Percentage
Anterior wall	63	63 %
Extensive ant.wall	11	11 %
Anteroseptal wall	9	9 %
Anterolateral wall	12	12 %
Inferior wall	37	37 %
Posterior wall	17	17 %
Right ventricular wall	13	13 %

In present study majority of patients presented with anterior wall MI (63%), in which 11% were extensive anterior wall, 9 % were antero-septal wall and 12% anterolateral wall. While 37 % presented with inferior wall MI, 17 % presented with posterior wall MI, 13 % presented with right ventricular wall MI.

**Incidence of complications in present study**

Complications	Number	Percentage
Cardiac arrhythmia	19	19 %
Cardiac arrest	15	15 %
Cardiogenic shock	15	15 %
LVF	11	11 %
Heart block	5	5 %

In present study majority of patients i.e 19% were having cardiac arrhythmia in form of VPCs, Ventricular Bigeminy, Accelerated Idioventricular Rhythm and heart block. While 15% had cardiogenic shock, 11% presented with left ventricular failure, and 5 % heart block.

**Incidence of mortality**

Outcome	Number	Percentage
Expired	15	15 %

In present study 15 % patients expired.

**Incidence of complications leading to mortality**

Complications	Number	Mortality	Percentage
Cardiogenic shock	15	12	80 %
Cardiac arrhythmia	19	2	10.5 %
LVF	11	1	9.5 %
CHB	4	0	0 %

In present study 80% of mortality is attributed to cardiogenic shock, 10.5 % mortality is attributed to cardiac arrhythmia while 9.5% mortality is attributed to LVF.

**CONCLUSION**

The present study is clinical profile of acute myocardial infarction in which 100 such cases were studied. 55% of patients were more than 60 years of age. Incidence of AMI in young age group (<40yrs) is nearly 2%. The MTD has been significantly reduced to 6.52 hrs. This explains increase awareness among patients and earlier arrival in enhanced ICCU facilities. In the present study, major risk factor was hypertension (57%) followed by tobacco chewing (39%), obesity (28%) and hypercholesterolemia (23%). 31% were having positive family history and 26% past history of IHD. Only 2% were consuming O.C. Pills. In present study majority of patients presented with anterior wall MI (63%), in which 11% were extensive anterior wall, 9 % were antero-septal wall and 12% anterolateral wall. While 37 % presented with inferior wall MI, 17 % presented with posterior wall MI, 13 % presented with right ventricular wall MI. In present study, the incidence of anterior wall MI was highest followed by inferior wall MI. Incidence of mortality in present study was 15%. Majority of deaths in present study was attributed to cardiogenic shock while few percent to ventricular tachycardia and cardiac failure. Mortality rates has decreased owing to better diagnostic facility, increasing awareness of people, early and timely thrombolysis and better control of cardiac arrhythmias and heart block.

Its concluded that increasing awareness of conditions, alertness and enhanced ICCU facilities resulted in earlier reporting of patients in hospitals as compared to past years.

Majority of patients have multiple risk factors like DM, HT, obesity and hypercholesterolemia.

Incidence of DM and HT has significantly increased owing to sedentary lifestyle as compared to past. Incidence of anterior wall MI is same as before.

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