

**A CLINICAL PROFILE STUDY OF RISK FACTORS FOR ST ELEVATION MYOCARDIAL  
INFARCTION IN ELDERLY**

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**ABSTRACT**

**Objective:** the main aim of the study is to assess the clinical features and risk factors associated with ST Elevation Myocardial Infarction in a rural setting. **Design:** clinical descriptive study. **Material and methods:** patients aged 60 years and above who got admitted in RMMCH, Chidambaram during the period of February 2015 to July 2015 were included in the study after fulfilling the inclusion and exclusion criteria. **Results:** The maximum incidence of STEMI occurs in the age group of 60-65 years (47.05%) with incidence progressively decreases as the age increases. Males are more commonly affected (63%). The incidence was more in the lower class patients. chest pain was the main presenting complaints in 70.6% of the study patients. The common associated symptoms were dyspnea and pedal edema. Physical inactivity is the major risk factor present in 68.62% of the study population the diabetes and the hypertension (47% and 41%) along with smoking 29.4% were the other major contributors. **Conclusion:** The clinical profile study showed that the prevalence of STEMI is high in this rural setting. The clinical features are definitive in providing the diagnosis. The risk factors like smoking and physical inactivity are easily modifiable and regular follow up can decrease the prevalence of STEMI.

**Keywords:** STEMI, clinical features, risk factors, elderly.

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**1.INTRODUCTION**

Acute myocardial infarction is a clinical syndrome that results from sudden occlusion of a coronary artery with resultant necrosis and death of cardiac myocytes in the region supplied by that artery. STEMI is a medical emergency wherein patient is having symptoms of myocardial ischemia with electrocardiographic ST elevation followed by release of myocardial necrosis markers (Naved Aslam and Abhishek,2015).

With the eradication of infectious diseases, coronary artery disease is emerging as a major killer in developed as well as developing countries. According to largest ever study of deaths in India (MILLION DEATHS STUDY) done by ICMR, overall 42% of deaths in India is due to noncommunicable diseases, while communicable diseases accounts for 38%. Among noncommunicable diseases, cardiovascular deaths account for 24.8% deaths (Andrea et al., 2000; Senthil Kumar,2001).

Although many studies related to myocardial infarction are present only few studies were done on elderly people in India. Our country being in demographic transition phase with more number of people aged more than 60yrs cardiovascular burden on society increases (WHO,1999). In India CAD rates have increased over the last 30 years whereas declining trends is noticed in developed western countries. Reports on cardiovascular diseases among Indian showed that we were 3-4 times at higher risk than Americans, 6 times than Chinese and 20 times higher than Japanese (Ismail et al., 2004; Singh and Sen,2005).

With increased prevalence of diabetics, hypertension and more consumption of tobacco, high cholesterol diets and changing food habits this study on elderly with STEMI assumes greater significance.

This study was undertaken to evaluate the clinical presentation, the major risk factors, laboratory profiles and management strategies involved in the patients aged 60years and above with ST Elevation MI.

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## 2.MATERIALS AND METHODS

Patients aged 60 years and above who got admitted in RMMCH, Chidambaram during the period of February 2015 to July 2015 were included in the study after fulfilling the inclusion and exclusion criteria. The risk factor and clinical features for STEMI in age more than 60 years were assessed in the study.

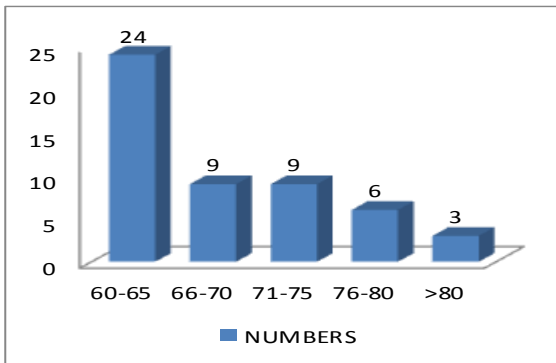
## 3.RESULTS

The present study was planned to study the clinical features of STEMI and its association with risk factors such as smoking, reduced physical activity, family history of coronary heart disease, dyslipidemia, hypertension and diabetes.

AGE DISTRIBUTION IN STEMI

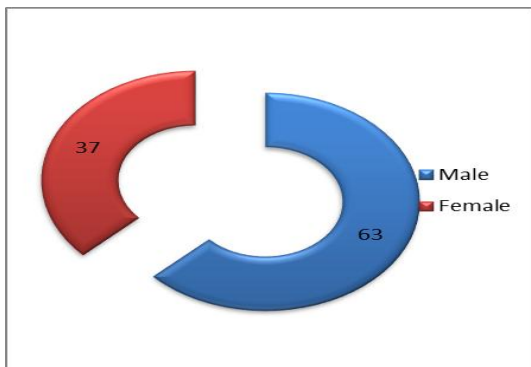
AGE	NUMBERS N=51	PERCENTAGE
60-65	24	47.05
66-70	09	17.64
71-75	09	17.64
76-80	06	11.76
>80	03	05.88

The above table shows the maximum incidence of STEMI occurs in the age group of 60-65 years with incidence progressively decrease as the age increase.



SEX DISTRIBUTION OF STEMI

SEX	TOTAL
MALE	32(63%)
FEMALE	19(37%)



The incidences of the STEMI among males were higher compared to females. This ratio was slightly higher compared to other studies where the male to female ratio stands at 56:44. Both men and women stand more chance of morbidity as the age increases.

PRESENTING COMPLAINTS

PRESENTING COMPLAINTS	AFFECTED N=51	Percentage
CHEST PAIN	36	70.6
BREATHLESSNESS	7	13.7
LOSS OF CONSCIOUS	4	7.8
SHOUDLER PAIN	2	3.9
SYNCOPE	1	2.0
FATIGUE	1	2.0

The chest pain was the most common presenting complaint which accounts for 70.6% of the study population. The next common presenting complaint was dyspnea which was present in 13.7% of the population.

MODIFIABLE AND NON MODIFIABLE RISK FACTORS:

Risk factors	Total numbers n=51	Percentage
<b>MODIFIABLE</b>		
DIABETES	24	47.05%
HYPERTENSION	21	41.11%
HYPERLIDEMIA	16	31.37%
PHYSICAL INACTIVTY	35	68.62%
OBESITY	15	29.4%
SMOKING	15	29.4%
<b>NON MODIFIABLE</b>		
FAMILY HISTORY	10	19.1%

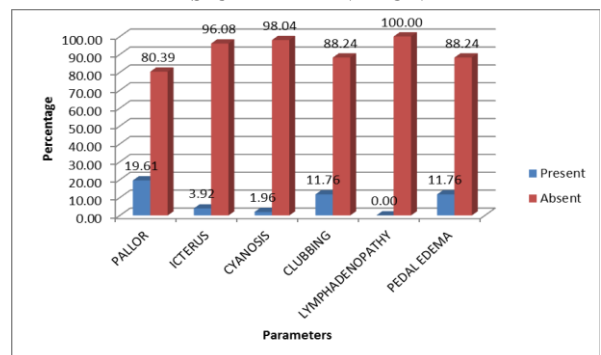
Among the modifiable risk factors physical inactivity predominate with 68.62% belongs to class II physical inactivity. The most important risk factor is diabetes which is 7% more than the state average. The hypertension and hyperlipidemia were found to be 41 and 31% respectively

VITAL PARAMETERS

VITAL PARAMETERS (N=51)	INCREASED	DECREASED	NORMAL
PULSE	11	03	37
B.P	14	04	33
RR	19	00	32
TEMP	14	02	35

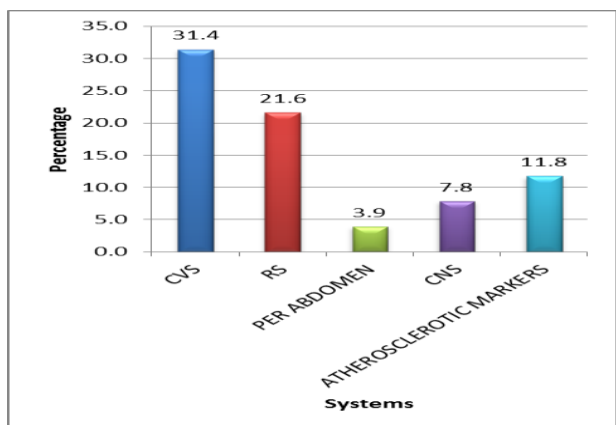
Among the study population 37.3% had tachypnea and correlates with the dyspnea symptom. The variation in B.P was present in 35.3% of which hypertension was present in 27.5%. Temperature was elevated in 31.4% and 1.96% population developed cold peripheries. Abnormalities in pulse were present in 27.5% of which 11.2% later developed arrhythmia as complication.

PHYSICAL EXAMINATION



In the study population, pallor was present in 19.61% and pedal edema was in 11.76%. The incidence of clubbing was higher and in par with pedal edema. The icterus was present in 3.9%.

**SYSTEM EXAMINATION**



The system examination revealed predominant findings in the cardiorespiratory system as expected. The striking feature was four patients who had CNS findings developed CVA on arrival at the hospital. CAD markers were present in 11.8% of the patients.

**4.DISCUSSION**

Total number of patients who came with complaints of chest pain to RMMCH during the study period was 311. Aged more than 60 years was 147. Those presented with STEMI was 51. All the other causes of noncardiac pain and NSTEMI were ruled out.

The average age group in our study was 67.4 years while the average age in other was around 70 years. Most number of patients in this age group was males. In our study the males were more affected in about 63% while in other studies it was around 50%. The increase in male percentage was predominantly due increased incidence of smoking. Chest pain was the major complaints as in the other studies. But the incidences of angina equivalents were slightly higher at 29% when compared to 17% on other studies.

The physical inactivity was major risk factor for the STEMI followed closely by silent killers, diabetes and hypertension. Smoking was the most easily avoidable risk factor.

Dyslipidemia contributes significantly in our study compared to other studies. The major contributors were triglycerides and reduced HDL. In the whole study population only 2 patients were without any risk factors (Waters,2004).

The vital parameters were found to be abnormal in 21 patients and most of them found to have increased respiratory rate. Six of them developed pulmonary edema as complications. Similarly patients who had tachycardia, also developed arrhythmias. Hypertension was recorded in 27.4% and the low incidence was probably due to drug intake. About 27.5% of the patients developed fever while admitted for STEMI.

The rise in temperature was attributed to STEMI disease pathology rather than infection. Incidence of anemia was higher compared to the other studies as the study population mainly belongs to poor socioeconomic status. The clubbing incidence (11.7%) was slightly higher probable reason being increased incidence of smoking (Durrington,2000; Burton,2004). The atherosclerotic markers were present in 11.7% patients. The interesting finding in the systemic examination was the CNS involvement in which 8.9% of the study group presented as cerebrovascular accident.

**5.CONCLUSION**

STEMI among elderly were more common in age group of 60-65 years. Males were more affected than females. Lower socioeconomic classes were more affected. Most patients present with chest pain, dyspnea was the predominant associated symptom. Physical inactivity was the most common risk factor followed closely by diabetes and hypertension in elderly. Smoking and hypertriglyceridemia were the important risk factors whose modification can decrease the overall mortality. Increased anemia found in the elderly contributes to morbidity. STEMI has a very good prognosis in the elderly people if timely therapeutic intervention and modification of risk factors are made meticulously.

**6.REFERENCES**

Andrea G, Elvis B, Serena B, 2000. Indian Council of Medical Research, Million Dollar Study. 139(6): 279-284.

Burton ES.2004. ST-elevation Myocardial Infarction. In Cecil's textbook Of Medicine 22<sup>nd</sup> eds Philadelphia, WB Saunders; 410-17.

Durrington,P.2000. Hyperlipidemias-Diagnosis and Management:232-236

Ismail, J, Jafar, T H and Jafary, F H, 2004. Risk factors for non fatal myocardial infarction in South Asian Adults. Heart 90(3): 259-263.

Naved Aslam and Abhishek, 2015.Goyal. 2015.Acute Myocardial infarction-STEMI.API Textbook of Medicine, 10<sup>th</sup> ed . 18: 904-916.

Senthil Kumar, E.A.2001. Coronary artery disease in Asian Indians: An update and review, , Internet journal of cardiology.15 Feb 2005.

Singh, SP and Sen, P. 2005.Coronary heart disease. The changing scenario. Indian J Prev Soc Med 34: 71-81.4.

Waters DD. 2004.Acute coronary syndrome: Unstable angina and non-ST elevation myocardial infarction. In Cecil's' textbook Of Medicine 22<sup>nd</sup> eds. Philadelphia, WB Saunders; 400-409.

WHO,1999. Disease statistics. World health report 1999.Mortality by sex, cause and WHO regions, estimates for 1998.

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