

“Risk Factor Analysis of Young Stemi Patients in A Tertiary Care Centre”

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Abstract:

Introduction:- Acute STEMI is one of the leading cause of death in the world. It is less common in younger individuals (less than 45 yrs). But it is of more clinical importance in younger patients, because it can cause premature death and long term disability in the form of heart failure . . Recently the incidence of STEMI is significantly increasing in younger population due to risk factors like obesity, diabetes, smoking etc. Prevention of these lethal heart condition requires a through understanding of their risk factors.

Aim :- To analyse the risk factors in young STEMI patients who are admitted in the intensive coronary care units

Materials And Methods:-

Study design-cross sectional study

Source of data: Study was done in young patients between the age 18 and 45 years, who were diagnosed to have STEMI based on ECG in ICCU of Coimbatore Medical College Hospital

RESULTS:- The statistical analysis concluded that the incidence was increasing with age. The more prevalent risk factors were smoking, male sex ,family history, dyslipidemia, and obesity (in that order). Smoking and alcoholism were more prevalent in younger population. Hypertension and diabetes failed to demonstrate any significant difference in age group

Keywords: STEMI ,young MI

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I. Introduction

Acute STEMI is one of the leading cause of death in the world. It is less common in younger individuals (less than 45 yrs). But it is of more clinical importance in younger patients, because it can cause premature death and long term disability in the form of heart failure. Recently the incidence of STEMI is significantly increasing in younger population due to risk factors like obesity, diabetes, smoking etc. Younger individuals often do not seek medical attention because of the presumption that coronary artery disease is less common in their age group. Early recognition is critical and can alter the course of the disease. One of the main reason behind the increasing incidence of STEMI in younger population can be attributed to the newer lifestyles which includes eating unhealthy junk foods, teenage smoking and drinking alcohol, high work stress , fast paced life etc. The incidence of STEMI is mainly in young males who are usually the bread winners of the family, this usually causes a socioeconomic strain on the family functioning. Prevention of these lethal heart condition requires a through understanding of their risk factors.

II. Aims & Objectives

- 1) To determine the prevalence of risk factors in young STEMI patients
- 2) To study the variation in the risk factors between age groups
- 3) To see if there is any correlation between the risk factors
- 4) To ascertain which individuals are at higher risk of developing MI

III. Materials And Methods

The study was conducted in the Tertiary care Hospital , during the period of July 2015 to June 2016.

1.1 Study Design:

Cross sectional study.

1.2 Source Of Data:

All young patients from 18 to 45 yrs of age who were diagnosed to have STEMI by ECG and were admitted in ICCU of Coimbatore Medical College Hospital between July 1st 2015 and June 30th 2016 were enrolled in the study.

1.3selection Criteria:

All patients between the age of 18 and 45 who were diagnosed to have STEMI by ECG

1.4 Exclusion Criteria:

- 1) Patients with acute pericarditis who also show ST elevations in ECG
- 2) Patients with transient ST elevations caused by coronary vasospasm
- 3) Patients who are not willing to take part in the study
- 4) Patients who have psychiatric diseases and thereby not able to understand the nature of the study.

1.5 Study Procedure

A detailed clinical history and physical examination was done in such patients. A special emphasis was given to assess the risk factors. Waist circumference was measured in all patients. Blood was analysed within 2 hrs of collection to avoid time delay artefactual changes in the results. The following parameters were measured :-

1. Complete blood count using SYSMEX 3 auto analyser in venous blood with EDTA as anticoagulant
2. Plasma for lipid (Total Cholesterol, Triglycerides), Serum Creatinine.
3. Fasting Blood Glucose (FBG)
4. Urine routine
5. Electrocardiogram (ECG)
6. ECHO Cardiogram

The prevalence of risk factors for STEMI was assessed and then their variation in different age groups were studied. The correlation and interaction between different risk factors were analysed. The statistical evaluation was performed using unpaired student T test and ANOVA with Software SPSS version 22.0.

IV. Results

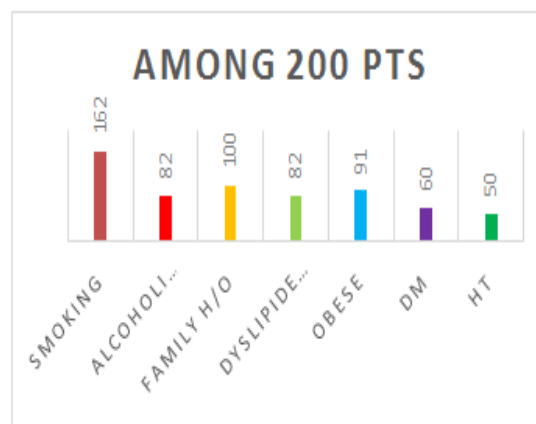
In this study, most of the patients were between the age of 35 and 45. So risk factors were analysed in 2 different age groups of more than and less than 40 years age. The study shows a increased incidence in age group more than 40 yrs. **71%** of the patients were older than 40 yrs

AGE		PERCENTAGE
MORE THAN 40	143	71.50%
LESS THAN 40	57	28.50%

SEX		PERCENTAGE
MALE	196	98
FEMALE	4	2

Male sex was more vulnerable . **98%** of the study group were males which clearly emphasises the protective role of estrogens.

	AMONG 200 PATIENTS	PERCENTAGE
SMOKING	162	81
ALCOHOLISM	82	41
FAMILY H/O	100	50
DYSLIPIDEMIA	82	41
OBESE	91	45.50
DM	60	30
HT	50	25%



Overall analysis of the risk factors revealed that, male sex(98%), smoking(81%), family history(50%), obesity(45%) and dyslipidemia(41%) in the order, were the most prevalent risk factors in the study group. Smoking, alcoholism & dyslipidemia were more prevalent in the patients younger than 40 yrs. The p value was lower than 0.05 thus indicating a statistically significant difference. Obesity was found to be more prevalent in age group more than 40 yrs

SMOKING	>40 YRS	<40 YRS	ALCOHOLISM	>40 YRS	<40 YRS
YES	106	56	YES	45	37
NO	37	1	NO	98	20
P VALUE	0.001		P VALUE	0.001	
SIGNIFICANCE	SIGNIFICANT		SIGNIFICANCE	SIGNIFICANT	

DYSLIPIDEMIA	>40 YEARS	<40 YEARS	OBESE	>40 YRS	<40 YRS
PRESENT	47	35	YES	71	20
ABSENT	96	22	NO	72	37
P VALUE	0.001		P VALUE	0.043	
SIGNIFICANCE	SIGNIFICANT		SIGNIFICANCE	SIGNIFICANT	

Whereas diabetes and hypertension failed to show any statistical difference in age group affected

V. Discussion

. STEMI is one of the major cause of mortality and its incidence is currently increasing in younger patients. Many patients may have sudden death because of ventricular arrhythmias. Some others have prolonged morbidity due to heart failure. Understanding the risk factors behind MI, helps us in forming a preventive strategy. There appears to be a difference in the prevalence of risk factors in younger and older age groups. The analysis will help us to target the high risk individuals in the society and thereby persuade them to modify their lifestyles.

Previous studies (1)Yunyun et al – did a similar study in assessing the risk factor profile of younger patients with STEMI in China. The study concluded that Male Sex, Smoking and Family History of early CAD were more prevalent among younger patients. In addition fibrinogen was also elevated in the younger study subjects²**Jamil et al** – did a similar study in the middle east. The study compared the risk factor profile in South East Asians and Arabs. There was no racial difference in the risk factor profile. They found that Smoking, Diabetes and high Cholesterol to be more significantly higher in younger population.³**SK chua et al** – did a similar study in Taiwan and reported that Cigarette Smoking, Obesity and Dyslipidemia to be significantly associated in younger population.

A special emphasis was given in this study to identify the risk factors in young myocardial infarction patients . Necessary blood investigations were done to assess the risk. The statistical analysis concluded that the incidence was increasing with age. The more prevalent risk factors were smoking, male sex ,family history, dyslipidemia, and obesity (in that order). Smoking and alcoholism were more prevalent in younger population. Hypertension and diabetes failed to demonstrate any significant difference in age group

VI. Conclusion

This study was conducted to analyse the various risk factors in younger STEMI patients. 200 Young patients who were diagnosed as STEMI and admitted in the ICCU were studied. Detailed clinical history and careful clinical examination was done. Following conclusions were derived Incidence of MI increases with age .Male sex is more affected in younger age group. The more prevalent risk factors were smoking, male sex ,family history, dyslipidemia, and obesity (in the order).Smoking and alcoholism were more prevalent in younger age group .Smoking cessation by preventive health education together with smoking cessation clinics should be the main priority in preventing MI. Individuals with the above risk factor profile should be screened and persuaded to embrace a healthy lifestyle Diabetes and hypertension seems to exert same effect in both younger and older age group

Limitations

Study does not include other unconventional and newer risk factors like HsCRP, fibrinogen, plasminogen inhibitor, homocysteine etc...which could have influenced the disease

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