



## RISK FACTORS OF ACUTE CORONARY SYNDROME IN YOUNG PATIENTS

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**ABSTRACT** Cardiovascular disease studies done in young patients are mainly dedicated on the prognosis, the cruelty of illness, the various ways of clinical presentation and its modifiable and non-modifiable risk factors. There is a significant difference in the risk factors for cardiovascular disease in the elderly and the young and it is a very well-known information.

**KEYWORDS :** ECG,DALY

### INTRODUCTION

The worst presentation of cardiovascular disease or coronary heart disease is acute myocardial infarction. It is most commonly seen in the age group of more than 45 years age, but the trend is changing now towards younger age group of less than 45 years affecting both males and females because of the rise in risk factors such as smoking, psychosocial stress, obesity and sedentary life style. This has increased the burden on the health of young people and the fortification offered by the young age is slowly fading because of the increased risk factors.<sup>1,2</sup>

### AIMS AND OBJECTIVES

To find the modifiable risk factors in acute coronary syndrome in young patients

### MATERIALS AND METHODS

#### Materials and methods:

#### Source of Data:

Mahatma Gandhi Memorial Govt. Hospital, Trichy

#### Study Design:

Unicentric Prospective Observational Study

**Period of Study:** 40 weeks.

#### Inclusion Criteria

- Age between 18 and 45 years of both sex, male and female.
- Patient fitting in acute coronary syndrome, diagnosed clinically along with the help of electrocardiograph and cardiac markers.

#### Exclusion Criteria

- Age > 45 years
- Patient not willing for study

#### Method

In this study, 70 participants aged 18 – 45 years with features of acute coronary syndrome admitted in Intensive Cardiac/Medical Care Unit between august 2014 and august 2015 were studied after getting their consent from patient and their relative. History taking, electrocardiograph and clinical examination was done and recorded in a form of a proforma.

#### Statistical Analysis:

Statistical analysis was done by using mean values, percentages, standard error, standard deviation, chi square tests. SPSS version 22 was used to analyse data.

### RESULTS AND ANALYSIS

**TABLE: 1**

Medications	Frequency (n=70)	Percentage (100%)
No medications	66	94.3
Diabetes mellitus	2	2.9
Hypertension	2	2.9

**TABLE: 2**

Addictions	Frequency (n=70)	Percentage (100%)
No addictions	11	15.7

Alcoholic	1	1.4
Smoker	46	65.7
Both smoker and alcoholic	11	15.7
Smoking and others	1	1.4

**TABLE: 3**

Stress	Frequency (n=70)	Percentage (100%)
Yes	67	95.7
No stress	3	4.3

**TABLE: 4**

BMI	Frequency (n=70)	Percentage (100%)
Below 24.99	54	77.1
25 to 29.99	15	21.4
30 & above	1	1.42

**TABLE: 5**

Travel	Frequency (n=70)	Percentage (100%)
frequent traveler	13	18.6
Not a frequent traveler	57	81.4

**TABLE: 6**

Eating habits	Frequency (n=70)	Percentage (100%)
Irregular and excess food	43	61.4
Not an irregular and excess food consumer	27	38.6

**TABLE: 7**

Sleep	Frequency (n=70)	Percentage (100%)
Altered sleep pattern	38	54.3
No sleep problems	32	45.7

**TABLE: 8**

Family history	Frequency (n=70)	Percentage (100%)
None	50	71.4
FATHER CAD(coronary artery disease)	2	2.9
FATHER DM	13	18.6
FATHER DM AND CAD(coronary artery disease)	2	2.9
MOTHER DM	3	4.3

**TABLE: 9**

Lifestyle	Frequency (n=70)	Percentage (100%)
Sedentary life style	48	68.6
No sedentary life style	22	31.4

**TABLE: 10**

Particulars	Frequency (n=70)	Percentage (100%)
Psychosocial factors	14	20.0
Denied psychosocial factors	56	80.0

**TABLE: 11**

Hyperlipidemia	Frequency (n=70)	Percentage (100%)
Yes	57	81.4
No	13	18.6

**TABLE: 12**

FBS	Frequency (n=70)	Percentage (100%)
Abnormal	26	37.1 %
Normal	30	42.8 %
Diabetes	12	17.2 %
k/c/o DM	2	2.8 %

**DISCUSSION**

This study was conducted to determine the various risk factors of acute coronary syndrome in young people with age less than 45 years.

In this study out of 70 people 10 were newly detected to be having diabetes while surprisingly 26 people had impaired fasting glucose level. While 2 were known case of diabetes. People with impaired fasting glucose are at lower risk of developing diabetic nephropathy and diabetic retinopathy but the risk of developing DM is very large in them.<sup>3</sup> BMI 77 % (54 patients) were normal, 21 % (15 patients) were overweight, 1.42 % (1 patient) were obese. Waist circumference was above normal level for 20 patients. (waist circumference for male < 102 cm and female < 88cm was considered normal in this study). The ill effects of obesity are only evident after decades are spent in obesity. Type 2 DM is the most significant risk outcome of obesity. If the BMI>35m<sup>2</sup> the 10 year risk of developing DM2 increases by 20 times.<sup>4,5</sup> Obesity is also linked with increased incidence of coronary disease. When it comes to percentage in men it is 46% and women 83% when there is weight gain of 15 kg after the age of 21 years.<sup>6</sup> An average age lost in a 40 year old non-smoker obese compared to a non-smoker non-obese is 6-7 years. The final outcome is loss of life expectancy in years.<sup>7</sup>

Stress was present in 95.7% patients. Patients were asked leading questions of any type of stress they feel at home or workplace. There are quite a few studies done on stress and psychological factors which suggests that these factors also play a role in the cardiovascular studies. All these studies have a lot of deficiencies as all the data is collected by secondary analyses done for various other purposes. Also there is a lot of publication bias in this field which cannot be evaluated systematically. These studies have been done in different era and doesn't takes in today's urbanization and other factors into consideration, besides these studies have been conducted in Western and Caucasian populations. There is a desperate need for studies in this field from non-Western/developing nations and from middle and low-income nations.<sup>8</sup>

Of the 70 patients 58 were chronic smokers i.e., 82.9 % which is correlating with Yusuf *et al.* study. A number of studies have been done on smoking and its relation with cardiovascular disease. To put these studies in better use, a few of the studies were compared with each other to find the relative risk between fatal myocardial infarction and non-fatal myocardial infarction.

Fatal CVD	Non-fatal CVD
ACS CPS - II 2 cited in Peto <i>et al</i> , 1992 USA; prospective study: 1 million Participants	Parish <i>et al</i> , 1995 UK; case – control study: 46 315 participants
Liu <i>et al</i> , 1998 China; case – control study: 0.9 million deaths	Rastogi <i>et al</i> , 2005 India; case – control study: 927 participants
Jha <i>et al</i> , 2008 India; case – control study: 152 000 Participants	Teo <i>et al</i> , 2006 52 countries; case – control study: 27 089 participants

The above comparisons helped in concluding that the relative risk of fatal myocardial infarction is lower than the non-fatal myocardial infarction, and the risks for males and at a younger age is greater.

In this study out of 70 patients 57 (81%) had hyperlipidemia. Total cholesterol and fasting triglycerides levels were above the normal level.

In coronary artery disease, reducing serum cholesterol levels play an important role. The problem is serum cholesterol cannot be used for screening as they are poor population screening tests for coronary artery disease. It all depends on the deviations in gradation across different individuals in a community, just relationship between risk factor and disease is not sufficient all variables need to be taken into account. The high average values put by the western nations have put everyone at risk, hence serum cholesterol is not a good screening test for different set of people in different communities.<sup>9</sup>

Serum cholesterol levels in families where hypercholesterolemia is evident there is an increased absolute risk for developing coronary artery disease particularly at a very young age even if this community is of small group.

Sleep disturbance and frequent travelers both of which add to stress it was present in 54.3 and 18.6 % of patients respectively.

Decreased physical activity and sedentary lifestyle increased the risk of coronary artery disease. According to British Regional Heart Study(Wannamethee *et al*<sup>10</sup>) – cardiovascular mortality by activity level.

Fitness level	Coronary death rate per 10000 persons-years	
	Male	Female
Low	24.6	7.4
Moderate	7.8	2.9
High	3.1	0.8

Psychosocial factors, as of 20% patients accepted to daily stress due to household quarrel, anxiety, depression. etc., To tell about psychosocial factors there is very little or no evidence that any measures to reduce psychosocial factors can reduce cardiovascular disease. Reason being the variations and heterogeneity, many a times because of non-optimal methodology and doubtful designs.<sup>8</sup>

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