

STUDY OF CORONARY ARTERY DISEASE IN PATIENTS OF YOUNGER AGE GROUP LESS THAN 40 YEARS OF AGE

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ABSTRACT

Objective: To consider the aetiological factors for causing myocardial infarction in younger age group and to include these perspectives for the diagnosis of coronary artery disease.

Study Design: A descriptive study.

Place and Duration of Study: Study was carried out at CCU in the Department of Medicine, Avicenna Medical College and Hospital Lahore, from Jun 2012 to May 2013.

Material and Methods: All patients within the age group of 26-35 years were admitted in CCU on the basis of multiple clinical symptoms by using approach of regular clinical investigations under the aspect of Ischemic heart disease. Clinical investigations were comprised upon cardiac monitoring, lipid profile, ECG and rate for cardiac enzyme included.

Results: A total of 18 patients completed the study with age group of 26-35 years. MI was diagnosed in all patients and maximum number of patients with acute MI varied from age 28-33 years. All patients were heavy smokers with high rate of physical stress. On gross clinical examination it was revealed that majority of the patients included in age of 28-33 years was professionally van drivers.

Conclusion: The essence of acute MI was observed and critically analyzed in younger age group of people with certain aetiological factors. This should be essentially important in redefining the criterion on clinical grounds for CAD and this should be recognized at International level. As the studies under clinical grounds with the aspect of CAD being reported at International level so, the amount of parameters in clinical diagnosis has to be considered in regular manners for the cure and prevention of CAD in patients especially of younger age groups less than 40.

Keywords: Aetiology, Coronary artery disease, Hypertension, Myocardial infarction, Younger age group.

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INTRODUCTION

Coronary artery disease (CAD) manifest in a young person may contain devastating consequences to the patient and family as well^{1,2} and it is known by the physicians since 500 BC. Coronary artery disease (CAD) manifest in the form of angina or myocardial infarction (MI). Valuable life becomes threatened when the person passes his progressive phase of life with the effect of facing high responsibilities of social and family matters. It is multifactorial disease and it was previously considered that acute MI is a manifestation of elderly people particularly after the age of 40 but in recent year's disease, involves the younger age group of people as well.

Patient subgroups less than 35 years are at times referred as very young³. Factors responsible for CAD are Hypertension, Hyperlipidemia, Hyperglycemia (Diabetes Mellitus) and use of tobacco. While it is evident in modern life that other factors are also gaining importance like sedentary lifestyle, Obesity, Prolong driving etc.

The current study has been focused on the factors of modern lifestyle that is playing the pivotal role in causing CAD to assess its significance in people of asia and specifically in the region of Pakistan. As the trend of CAD is considerably increasing in countries of South Asia and conventionally in Pakistan⁴, it is observed that etiological factors of MI which have been recorded in previous studies are overlapping risk factors in younger age group. It is further included that the etiology of heart failure has not been completely described in

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justified components¹⁶. In consideration of the observation found in this study, it is directed that the physical cause in leading CAD was smoking⁵ and its related aspects with etiological factors. However, the role of smoking not only affects the rate of hypertension it also played role in causing CAD at high frequency. As CAD is a devastating disease so a healthy person in his premium phase of life may die or become disabled without any warning⁶ as in clinical findings of our study there was not any sense of discomforts related to CAD exists in their near past history. Sudden drastic change in their physical body observed when CAD becomes persistence for a while. Infact the extent of CAD in young people mostly does not make clear the picture in the diagnosis and depending upon symptoms in the context of sub clinical findings.

In clinical concern manifestation of CAD among young patients relatively unusual and it is considered in atypical fashion or manner of the general population. In this study it is well defined that all patients have been selected are male and multiple coronary risk factors include with the reflection of evidence in early studies^{8,9} related to cause of CAD in the younger age group of patients. In sense of keen association with causing agents for CAD cigarette smoking is most concerned with young adults that come to intact with CAD. Kennel et al¹⁰ mentioned conventionally that the rate of relative risk for CAD considered as three times higher in patients of age 35 to 44 who were regular smokers as compared to the ratio in nonsmokers.

Hyperlipidemias and hyperglycemias are also two main risk factors in the cause of CAD among young patients. While in this group of young patients these two factors have not been included in more detail although the rate of establishment for hyperlipidemia and hyperglycemia was also remarkable. However, the traditional approach in the diagnosis of CAD hypertension was included in high frequency. On clinical perspectives, lifestyle measures provide the base inset of prognosis for CAD. It is suggested that in a context of relative

independent risk factors elevated homocysteine and elevated Lipoprotein (a) also included in consideration for development of CAD in young men¹¹. A number of primary and secondary trials for prevention of CAD have been done through the modifiable extent in aggressive management of risk factors for MI and other cardiovascular diseases to reduce the rate of mortality¹² with radical revision in the traditional concept of diagnosis and prevention for CAD.

Long-term prognosis in young patients who have acute MI does not consider as benign¹³ under the clinical evidence. In relative concern of prevalence to traditional risk factors, the essence of smoking and family history moreover concerned on the usual basis^{14,15}. Subsequently, in the context of risk factors, it is described that emotional stress is one of the drastic cause for CAD in young patients due to the high psychosomatic disorders influenced by their environment. While in this study not any sort of psychological torsion was observed for induction of stress or depression among these patients. All patients were quite normal mentally and physically, not any history found related to trauma or any physical disability.

PATIENTS AND METHODS

It was the descriptive study, carried out in CCU Avicenna Medical College and Hospital Lahore over a period of around eleven months and all patients were admitted in CCU. In this period a total number of patients were about 3000 and the ratio for male and female patients was about 3:1. We included the patients with acute MI in the age of less than 35. Other groups of patients were excluded from this study, out of 3000 patients only 18 patients were selected for this study and all patients were male from 26-35 years of age. All patients were received in a state of sudden onset of chest pain, falling blood pressure and severe agony. The diagnosis was based on typical history, standard laboratory parameters like Cardiac enzyme (included Troponin-T and CK-MB), cardiac monitoring, blood sugar, lipid profile, ECG, echocardi-

graphy and x-ray chest. Different sets of inclusion and exclusion criterion were designed such as,

Normal patients before this episode with no previous history of hypertension, diabetes mellitus or hyperlipidemia. With no past history of (IHD) like angina pectoris, MI or pre-infarction angina or print metal angina were included in the study.

Patients with past history of MI or angina of any kind as mentioned in inclusion criteria, diabetes mellitus, hypertension, and hyperlipidemia and obesity or any other endocrine abnormality were excluded from the study.

Patients were admitted in CCU for the

Table-I: Detail of patients with age distribution.

Age of Patients (years)	Number of Patients per age
26	2
27	3
28-33	10
34	1
35	2

Table-II: Detail of patients with aetiological factors.

Profession of Patients	Number of Patients
Office workers	3
Professional van drivers	13
Medical doctor	1

Table-III: Mean median and standard deviation of the patient data.

	Age of Patients (years)	Number of Patients per age	Number of Patients by profession
Mean	30.5	3.6	5.6
Median	30.5	2	3
Standard deviation	4.65	3.64	6.42

duration of 7-14 days, all patients were provided cardiac monitoring, and central oxygen supply was available for 24hrs and SK (Streptokinase) was given to all patients as thrombotic therapy treatment of choice in most cardiac centers of Pakistan as well of the world. Intravenous nitrates were administered for an initial period of 48-72 hours then oral nitrates were given, Captopril was started in low dose from day one and continued for 2-6 weeks. Beta blockers were used in selected patients and a diabetic patient was given inject able insulin therapy and for the

initial period of 24-72 hours heparin was also given to all patients. Some patients were also in need of inotropic support too. No, any patient was referred for angiography, angioplasty or cardiac surgery (for bypass). No, any atypical trend was adopted for the treatment of medication and for the laboratory measures.

RESULTS

This descriptive study was performed at Avicenna Hospital, Lahore during the period of eleven months. A total of 18 patients were selected for this from out of 3000 patients and all patients were male. All patients responded well to clinical therapy, they improve rapidly with

symptomatic effects and allowed to move to concerned medical units were discharged from hospital after the duration of 7-14 days and no mortality was observed in this group of patients due to their positive response to the clinical therapy. Number of patients distributed according to their specific set of ages shown in table-I.

This evident from table-I that the maximum number of patients exists in age group varied from 28-33 years. So according to the managed data with the help of histogram representation,

this is cleared that the peak values for a number of patients with CAD lie within the range of 28-33 years, shown in fig-1.

Furthermore, it was considered that the role of etiological factors also being important in causing CAD thus in preferences it was recorded that most of the patients professionally drivers with the high rate of smoking. It is elaborated according to the data included in table-II.

that observed under certain conditions related to aetiological factors. This was observed that high percentage of patients In table-II. It also illustrated that how the number of patients distributed in the context of aetiological factors. Several other tests were also applied on data such as paired t-test, ANOVA etc. to determine the difference between several variables. The results of the tests are shown in table-III.

The t-test value obtained is 0.001621994,

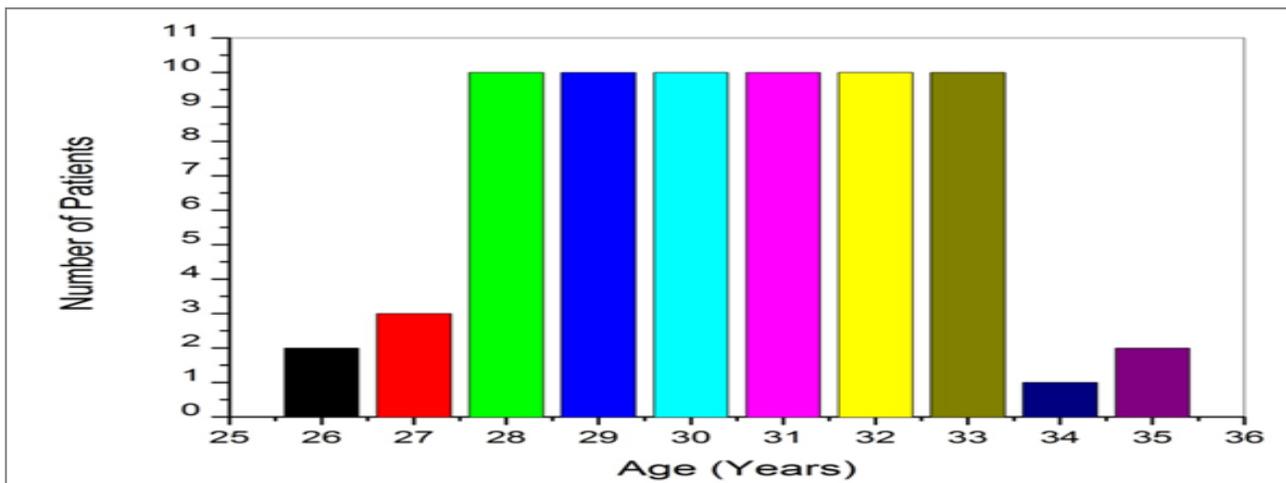


Figure-1: Histogram distribution with a number of patients and their ages.

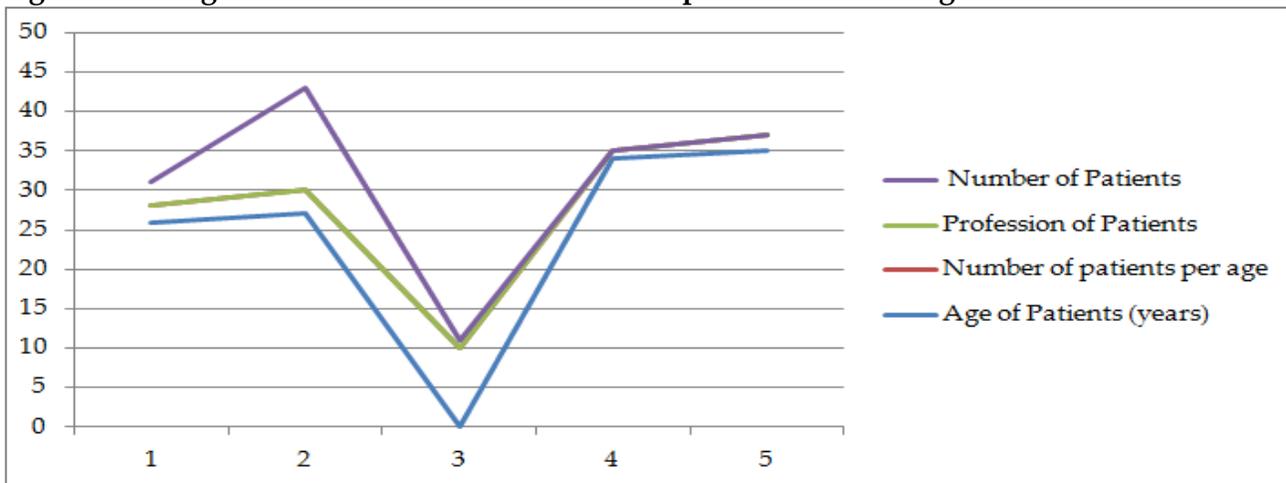


Figure 2: Analysis of effects of variables on each other.

Most of the patients existed in higher values, affected by the etiological factors. It was analyzed by concluding high physical and clinical data under this descriptive study that the participation of elementary objectives was significantly included in the keen aspect of stress

determined the minor difference between both variables. The most common significance level is 0.005 which tells that the variables are different from each other, whereas in this work the value is less than 0.005 means the results are acceptable. The graph for the four variables is shown in fig-2.

From fig-2 it is observed that all the variables are strongly correlated to each other, it is confirmed that all these variables are equally responsible for producing CAD.

DISCUSSION

CAD is usually considered as the most common disease included in Cardiovascular diseases (CVD) however, its significance is highly reflecting in high incidence ratio throughout the world as this study was localized for the small region of Pakistan in Lahore and total number of patients for this case study was 18 with the sex distribution of all male patients and their age varied from 26-35 years. Most of them were professional van drivers and all of them were heavy smokers, among one of those patients was diabetic as well and there was no history of hypertension was recorded in this age group. All patients were previously healthy, with normal body weight and no previously record found in their history for angina or hospital admission.

The combination of ominous risk factors in our study was smoking, hypertension and hyperlipidemia. Hypertension is one of the most critical risk factors with related impact of coronary artery disease, furthermore it is responsible for metabolic disorders like resistance of insulin to hyperinsulinaemia and dyslipidaemia that are also included in risk factors for CAD, in observational data it is estimated around 1 million people show relation in a continuous manner with increasing effect in systolic as well as diastolic blood pressure values that become significant cause of stroke and MI^{17,18}. Conventionally other risk factors included in physical aspects like sedentary habit and prolong driving. Regarding the factor of sedentary habit those persons who sit less in a whole day have the low risk of early death specifically from cardiovascular disease^{19,20}. It is recommended in studies that create more probabilities for limitation the act of sitting time and should avoid the prolonged periods of sitting²¹. In recent studies, it has been covered that driving also causes of sudden cardiac death

as a result of an arrhythmia that is the most formidable complication amongst drivers. However, the intensity of causing CAD by typical and remaining risk factors that have been mentioned in other studies also considered on preference for diagnosis of CAD. In past decades CAD was mostly estimated under the backgrounds of clinical investigations and the risk factors established on the interplay of genetic disorders and other environmental factors, in this study the major cause of CAD was smoking that based on typical well-established risk factors that may also involve in pulmonary hypertension leading towards CAD. Critically in this study, the focused points were the sedentary lifestyle (lack of exercise) and prolong driving also included to develop an approach for the further validation on clinical trials to reduce the rate of death in patients especially of young age due to the manifestation of CAD.

Evolution in the pathophysiology of CAD has been started in past studies¹² and in current study due to the unusual behavior of CAD found in the group of these young patients pathophysiological characters were not observed seriously on the basis of clinical history.

CONCLUSION

It was evident from this study that the incidence of acute MI is raising in younger age group moreover, constant driving is appreciated as a stress which may be an aggravating factor for acute MI or it may also observe through aetiological factors and this requires further evaluation in clinical and molecular aspects of diagnosis.

CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

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