

Original Research

Risk factors of premature coronary artery disease

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ABSTRACT

Background: Coronary artery disease (CAD) is a condition that affects the coronary arteries, which supply oxygen-rich blood to the heart muscle. The present study evaluated risk factors of premature coronary artery disease.

Materials & Methods: 106 cases of coronary artery disease of both genders were subjected to estimation of echocardiography (ECG), serum lipid profile, complete hemogram, routine & microscopy urine. History of smoking, diabetes and family history etc. were also assessed.

Results: Out of 106 patients, males were 66 and females were 40. 70 were smokers, 65 were alcoholics, 80 were diabetics, 72 were hypertensive, 80 had dyslipidaemia, 40 were obese and 78 had positive family history. The difference was significant ($P < 0.05$).

Conclusion: Smoking, dyslipidaemia, hypertension, obesity, drinking, and diabetes were identified to be risk factors in patients with premature coronary artery disease.

Key words: Coronary artery disease, diabetes, hypertension.

Received: 4 November, 2019

Accepted: 27 December, 2019

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This article may be cited as: Shankar BG, Rao CS. Risk factors of premature coronary artery disease. *J Adv Med Dent Scie Res* 2020; 8(1): 242-244.

Introduction

Coronary artery disease (CAD) is a condition that affects the coronary arteries, which supply oxygen-rich blood to the heart muscle. In CAD, these arteries become narrowed or blocked due to a buildup of plaque, which consists of cholesterol, fat, calcium, and other substances. "Premature" in this context refers to the occurrence of CAD at a younger age than typically expected. Usually, CAD develops over time and becomes more common as people age, particularly in their 50s and 60s. However, when someone is diagnosed with CAD before the age of 55 for men and 65 for women, it is considered premature.¹

According to recent estimates, emerging nations account for 80% of CVD fatalities, with India having a significant contribution. This heavy weight is largely attributed to the advancement of industry and technology, as well as the resulting changes in the economy and society. According to estimates, coronary heart disease (CHD) affects 8–10% of adults in India's metropolitan areas and 3–4% of

adults in rural areas, respectively, representing a six-fold and a two-fold increase between 1960 and 2000.² It is commonly accepted that further research is necessary to determine whether these risk factors are linked to CAD in other communities.³ It has been hypothesized that these populations may differ from others in a variety of ways, from the frequency with which the conventional risk factors are present to their complete absence or irrelevance. In order to uncover CAD risk variables, both traditional and novel, large population-based prospective studies must be conducted in emerging nations like India.⁴ A more immediate CAD prevention strategy, however, may benefit from careful consideration of the available scientific evidence for modifiable CAD risk factors (elevated serum total and low-density lipoprotein cholesterol [LDL-C], low high-density lipoprotein cholesterol [HDL-C], smoking, diabetes, hypertension, low levels of physical activity, and obesity) in this population.⁵ The present study evaluated risk factors of premature coronary artery disease.

Materials & Methods

The present study comprised of 106 cases of coronary artery disease of both genders. All patients gave their written consent for participation in the study.

Data such as name, age, etc. was recorded. A thorough clinical examination was performed. All

were subjected to estimation of echocardiography (ECG), serum lipid profile, complete hemogram, routine & microscopy urine. History of smoking, diabetes and family history etc. were also assessed. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

Results

Table I : Distribution of patients

Total- 106		
Gender	Males	Females
Number	66	40

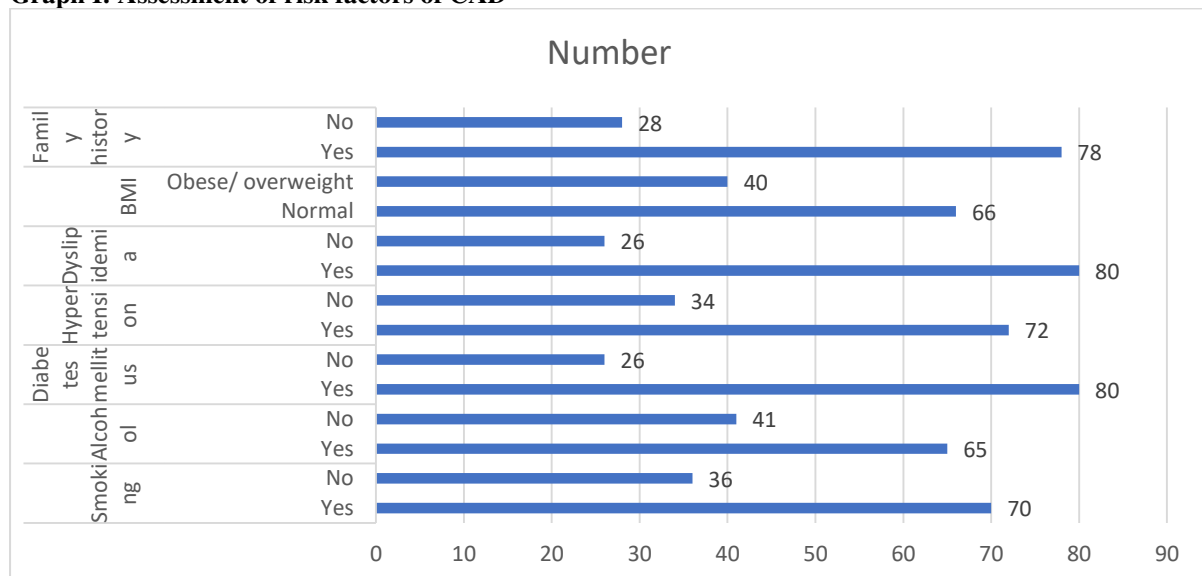
Table I shows that out of 106 patients, males were 66 and females were 40.

Table II: Assessment of risk factors of CAD

Parameters	Variables	Number	P value
Smoking	Yes	70	0.02
	No	36	
Alcohol	Yes	65	0.05
	No	41	
Diabetes mellitus	Yes	80	0.01
	No	26	
Hypertension	Yes	72	0.02
	No	34	
Dyslipidaemia	Yes	80	0.01
	No	26	
BMI	Normal	66	0.05
	Obese/ overweight	40	
Family history	Yes	78	0.01
	No	28	

Table II, graph I shows that 70 were smokers, 65 were alcoholics, 80 were diabetics, 72 were hypertensive, 80 had dyslipidaemia, 40 were obese and 78 had positive family history. The difference was significant ($P < 0.05$).

Graph I: Assessment of risk factors of CAD



Discussion

In India, the prevalence of CAD has steadily climbed over the past half-century, especially among urban residents. The term "premature CAD" refers to cardiac events that happen before age 45 for males and 55 for women.⁶ It is defined as severe CAD if it develops before the age of 40. In India, cardiovascular disease accounts for 28% of fatalities, making it the most common cause of death. Indians have a 3–4 times higher risk of developing CAD than White Americans.⁷

Indians as a group are more likely to develop CAD at a younger age. Additionally, compared to other ethnic groups, Indians have greater rates of hospitalization, morbidity, and mortality. Incidence of CAD in young people in the Western population is up to 5%, compared to 12–16% in Indians.⁸ According to some Indian research, the percentage of individuals under 45 years old who have acute MI ranges from 25 to 40%. In contrast to young patients from other communities, young Indians frequently have three vascular disease with a bad prognosis. Indians experience the post-infarction phase worse than whites do.⁹ A three times greater rate of re-infarction and a two times higher rate of mortality are indicators of this. Another unique risk factor for our people is migration, particularly migration from rural to urban areas and migration from India to industrialized nations. Migration is frequently accompanied by stress from finding and keeping a new career. Evaluation of risk factors must begin sooner.¹⁰ The present study evaluated risk factors of premature coronary artery disease.

We found that out of 106 patients, males were 66 and females were 40. In a young (55 years of age) Indian population, Panwar et al¹¹ evaluated the association between atherothrombotic risk variables and early CHD. One of the main conclusions is that both thrombotic (smoking, low fruit and vegetable intake, fibrinogen, and homocysteine) and atherosclerotic (hypertension, high fat diet, dyslipidaemia) risk factors are significant in causing premature CHD in the Indian population. This re-strengthens the existing evidence on CHD risk factors and should assist in the development of prevention strategies in India to reduce CVD burden. Current smokers had a markedly increased chance of developing premature CHD, which emphasizes the urgent need to lower India's high smoking rates by strict anti-smoking regulations in order to stop the spread of coronary artery disease. Smoking, low HDLC, high blood pressure, insufficient consumption of veggies.

We observed that 70 were smokers, 65 were alcoholics, 80 were diabetics, 72 were hypertensive, 80 had dyslipidaemia, 40 were obese and 78 had positive family history. Hasan et al¹² discovered that 29 patients (72.5%) with juvenile CAD smoked. 15 patients (37.5%) had low HDL levels, 33 patients (82.5%) had high LDL levels, 21 patients (52.5%) had hypertension, and 8 patients (20%) had impaired

fasting glucose or diabetes. 27 patients (67.5%) had a family history of CAD that was favourable. 20 patients (50%) developed STEMI and were overweight, with a BMI of >30. In that, only 2 patients (5%) had IWMI, while 18 patients (45%) had AWTMI. 2 (5%) people had LBBB with fresh onset. 7 (17.5%) patients had unstable angina, while 11 (27.5%) had NSTEMI. 29 patients (72.5%) exhibited LV dysfunction on echocardiography.

Ismail et al¹³ assessed risk factor in 193 subjects aged 15–45 years with a first acute myocardial infarct, and in 193 age, sex, and neighbourhood matched population based controls. The mean (SD) age of the subjects was 39 years and 326 (84.5%) were male. Current smoking, use of ghee (hydrogenated vegetable oil) in cooking, raised fasting blood glucose, raised serum cholesterol, low income, paternal history of cardiovascular disease and parental consanguinity were all independent risk factors for acute myocardial infarction in young adults. Formal education versus no education had an independently protective effect on acute myocardial infarction.

Sekri et al¹⁴ revealed that 4.6% of the study population had a family history of premature CAD. The overall prevalence of diabetes was 16% (5.6% diagnosed during the study and the remaining 10.4% already on medication). Hypertension was present in 21% of subjects. The prevalence of dyslipidaemia was significantly high, with 45.6% of study subjects having a high total cholesterol/high density lipoprotein ratio. Overall, 78.6% subjects had two or more risk factors for CAD. The present study demonstrates a high prevalence of CAD risk factors in the Indian urban population. Therefore, there is an immediate need to initiate measures to raise awareness of these risk factors so that individuals at high risk for future CAD can be managed.

Conclusion

Authors found that smoking, dyslipidaemia, hypertension, obesity, drinking, and diabetes were identified to be risk factors in patients with premature coronary artery disease.

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