

Evaluation of risk factors of premature coronary artery disease

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Abstract

Background: To evaluate risk factors of premature coronary artery disease. **Methodology:** Ninety cases of coronary artery disease of both genders were selected. Parameters such as family history, history of smoking, diabetes, obesity, high body mass index (BMI), high cholesterol, substance abuse was recorded. Echocardiography, serum lipid profile, complete hemogram, urine analysis, etc. were determined. **Results:** Out of 90 patients, males were 52 (57.7%) and females were 38 (42.3%). BMI found to be normal in 25 and overweight/ obese in 65 patients. 60 had positive family history, 54 were hypertensive, dyslipidaemia was present in 55, 58 were smokers, 48 were alcoholics and 34 were diabetics. The difference was significant ($P < 0.05$). **Conclusion:** Common risk factors in patients with premature coronary artery disease found to be positive family history, smoking, obesity, alcoholism, diabetes, dyslipidaemia and hypertension.

Keywords: Coronary artery disease, hypertension, Dyslipidaemia.

INTRODUCTION

Coronary artery disease (CAD) is the most common type of heart disease and remains the leading cause of death worldwide, accounting for over 350,000 deaths each year.¹ The prevalence of CAD based on the global burden of disease (GBD) data is 154 million which translates into approximately one-third of the global burden of cardiovascular disease and 2% of the overall GBD.² In India, the estimated adult prevalence of coronary heart disease (CHD) is around 8-10 per cent in urban settings and 3-4 per cent in rural areas, reflecting a rise of six-fold and two-fold respectively between 1960 and 2000.³

The prevalence of CAD has progressively increased in India during latter half of the last century particularly among the urban population. Premature CAD is defined as cardiac events occurring before the age of 45 in men and 55 in women. In its severe form, it is defined as CAD occurring below the age of 40 years.⁴ Cardiovascular disease is the leading cause of death in India accounting for 28% of mortality. Risk of CAD in Indians is 3-4 times higher than White Americans, times higher than Chinese and 20 times higher than Japanese.⁵ It is widely believed that the association of these risk factors with CAD in other populations needs to be ascertained, and there is speculation that differences might range from the frequency of presence of classical risk factors to their total absence or irrelevance in these populations.⁶ In this study we assessed risk factors of premature coronary artery disease in adults.

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METHODS

In this prospective, observational study we enrolled ninety cases of coronary artery disease of both genders. Ethical approval for the study was taken from institutional ethical review board. All were enrolled after obtaining their written consent.

Demographic characteristics such as name, age, etc. was recorded. Parameters such as family history, history of smoking, diabetes, obesity, high body mass index (BMI), high cholesterol, substance abuse was recorded. Echocardiography, serum lipid profile, complete hemogram, urine analysis, etc. were determined. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table 1: Distribution of patients.

Total- 90		
Gender	Males	Females
Number	52 (57.7%)	38 (42.3%)

Out of 90 patients, males were 52 (57.7%) and females were 38 (42.3%) (Table 1).

Table 2: Assessment of parameters

Parameters	Variables	Number	P value
BMI	Normal	25	0.001
	Obese/ overweight	65	
Family history	Yes	60	0.02
	No	30	
Hypertension	Yes	54	0.04

	No	36	
Dyslipidaemia	Yes	55	0.03
	No	35	
Smoking	Yes	58	0.02
	No	32	
Alcohol	Yes	48	0.94
	No	42	
Diabetes mellitus	Yes	34	0.03
	No	56	

It was found that BMI found to be normal in 25 and overweight/ obese in 65 patients. 60 had positive family history, 54 were hypertensive, dyslipidaemia was present in 55, 58 were smokers, 48 were alcoholics and 34 were diabetics. The difference was significant ($P < 0.05$) (Table 2).

DISCUSSION

The risk factors associated with cardiovascular diseases include obesity, alcohol consumption, sedentary lifestyle, arterial hypertension (AH), diabetes mellitus (DM), age, and genetic factors. Indians are more prone as a community to CAD at a much younger age.⁷ Indians also show higher incidence of hospitalization, morbidity and mortality than another ethnic group.^{8,9} In the Western population, incidence of CAD in the young is up to 5 % as compared to 12-16% in Indians. In some studies, from India, percentage of patients below the age of 45 years suffering from acute MI is reported as high as 25-40%.^{10,11} In this study we assessed risk factors of premature coronary artery disease in adults.

In our study, out of 90 patients, males were 52 (57.7%) and females were 38 (42.3%). Diniz et al¹² aimed to describe the sociodemographic characteristics of aged individuals and to identify the prevalence of cardiovascular risk factors and to compare them between genders and age ranges. Among the aged individuals, 50% were between 60 and 70 years, 57.5% were female, 58.2% were married. The most prevalent risk factors were: increased abdominal circumference (77.6%), hypertension (67.2%) and sedentary lifestyle (59.7%). Sedentary lifestyle ($p=0.012$) and increased abdominal circumference ($p < 0.001$) presented a higher proportion among older women.

Our results revealed that BMI found to be normal in 25 and overweight/ obese in 65 patients. 60 had positive family history, 54 were hypertensive, dyslipidaemia was present in 55, 58 were smokers, 48 were alcoholics and 34 were diabetics. Panwar et al¹³ assessed the relationship between atherothrombotic risk factors and premature CHD in young Indian population. The study suggests that smoking, low HDLC, hypertension, low intake of vegetables and fruits, are the most important modifiable risk factors for premature CVD. Further, the findings that low intake of vegetables and fruits as an important risk factor of premature CHD could be contributing to the excess risk through the thrombotic pathway as rightly pointed out by the authors. A major limitation of this study is the lower proportion of women (7.9 % cases and 12.1 % controls), which limits generalizability.

Hasan et al¹⁴ found that in patients with young CAD

smoking was seen 29 patients (72.5%). Low HDL was found in 15 patients (37.5%), raised LDL was seen in 33 patients (82.5%), hypertension in 21 patients (52.5%), impaired fasting glucose / DM in 8 patients (20%). 27 patients (67.5%) had a positive family history of CAD. 20 patients (50%) were overweight, had BMI > 30 , 20 patients (50%) had STEMI. In that, 18 patients had AWMI (45%) and only 2 (5%) had IWMI. 2 (5%) had new onset LBBB. 11 (27.5%) had NSTEMI and 7 (17.5%) had Unstable angina. On echocardiography, 29 patients (72.5%) had LV dysfunction. Rao et al¹⁵ found that the prevalence of CAD in urban areas was 2.5%-12.6% and in rural areas, 1.4%-4.6%. The prevalence of risk factors was: smoking (8.9-40.5%), hypertension (13.1-36.9%) and diabetes mellitus (0.2-24.0%). The median time to reach hospital after an MI was 360 min. In hospital rates of drug use were: antiplatelets 68%-97.9%, beta blockers 47.3%-65.8% and ACEIs 27.8-56.8%. Hatmi et al¹⁶ assessed the prevalence of different CAD risk factors in an Iranian population. The average age was 36.23 \pm 15.26. There was 1381 female (46%) and 1619 male (54%) out of which 6.3% were diabetic, 21.6% were smoker, and 15% had positive familial heart disease history. 61% had total cholesterol level > 200 mg/dL, 32% triglyceride > 200 mg/dl, 47.5% LDL-c > 130 mg/dl, 5.4% HDL-c < 35 mg/dl, 13.7% systolic blood pressure > 140 mmHg, 9.1% diastolic blood pressure > 90 mmHg and 87% of them were physically inactive.

CONCLUSION

Common risk factors in patients with premature coronary artery disease found to be positive family history, smoking, obesity, alcoholism, diabetes, dyslipidaemia and hypertension.

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