

ORIGINAL RESEARCH

Evaluation of different cardiovascular risk factors among patient visited to hospital: An observational study

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ABSTRACT

Background: The present study was conducted for analyzing various cardiovascular risk factors among patient visited to hospital. **Materials & methods:** A total of 500 subjects visiting the hospital OPD because of any medical reason were enrolled. Complete demographic and clinical details of all the patients was recorded separately. Inclusion criteria for the present study included patients more than eighteen years of age, patients being under care and patients who voluntarily gave consent for the study. In all patients, anthropometric measurements were made. Measurements of BP and fasting glucose and lipid profile were taken. All the results were recorded in Microsoft excel sheet followed by statistical analysis using SPSS software. **Results:** Cardiovascular diseases was present in 115 patients (23 percent). Smoking habit was significantly higher among CVD patients. Majority of the patients with CVD were obese. Also, incidence of dyslipidemia and diabetes were significantly higher among CVD patients. **Conclusion:** Smoking, diabetes and dyslipidemia are significant risk factors for CVD.

Key words: Cardiovascular diseases, Dyslipidemia, smoking

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INTRODUCTION

Cardiovascular disease (CVD) is the main cause of death and it imposes a burden across the world. Developed countries have already reduced the CVD mortality rate considerably through the identification and selection of high-risk groups, and the application of direct interventions, such as education and the prescription of medications. However, CVD has been gradually increasing in countries undergoing rapid economic development.¹⁻³

Well-known, modifiable cardiovascular (CV) risk factors include elevated blood pressure (BP), hypercholesterolaemia, diabetes mellitus, obesity, low activity levels, poor diet and smoking. The conventional risk factors such as hypertension, diabetes mellitus, dyslipidaemia, smoking, obesity are believed to be associated with increased prevalence of CAD in Indians. In previous study, , nine common risk factors (which also included physical inactivity, low fruits and vegetables intake and psychosocial stress) explained more than 90% of acute myocardial infarctions (AMIs) in South Asians. However, all these risk factors cannot still fully explain the increased prevalence or the younger age of onset of CAD in Indians. The overall burden of the conventional risk factors is in a rapid increase phase in the Indian population.⁴⁻⁶ Hence; the present study was conducted for analyzing various cardiovascular risk factors among patient visited to hospital.

MATERIALS & METHODS

The present study was conducted for analyzing various cardiovascular risk factors among patient visited to hospital. A total of 500 subjects visiting the hospital OPD because of any medical reason were enrolled. Complete demographic and clinical details of all the patients was recorded separately. Inclusion criteria for the present study included patients more than eighteen years of age, patients being under care and patients who voluntarily gave consent for the study. A questionnaire was made and was given to all the patients for collection of data in relation to chronic diseases and their treatment, lifestyle, and family history of CVD. In all patients, anthropometric measurements were made. Measurements of BP and fasting glucose and lipid profile were taken. All the results were recorded in Microsoft excel sheet followed by statistical analysis using SPSS software.

RESULTS

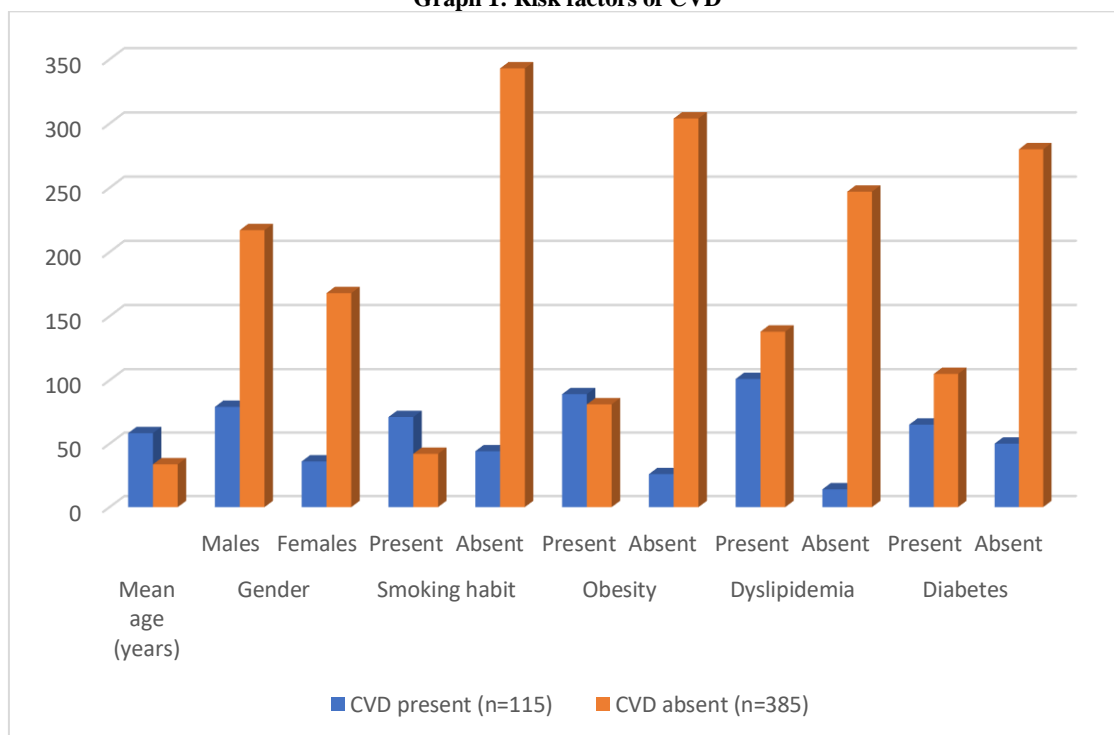
A total of 500 subjects were analyzed. Mean age of the patients was 48.3 years. Out of 500, 296 patients were males while the remaining were females. Smoking habit was seen in 113 patients. Cardiovascular diseases was present in 115 patients (23 percent). Among patients with and without CVD, mean age was 58.3 years and 33.7 years respectively. There were 79 males and 36 females among CVD group while there were 217 males and 168 females in CVD group.

Smoking habit was significantly higher among CVD patients. Majority of the patients with CVD were obese.

Table 1: Risk factors of CVD

Risk factors for CVDs		CVD present (n=115)	CVD absent (n=385)	p-value
Mean age (years)		58.3	33.7	0.001 (Significant)
Gender	Males	79	217	0.785
	Females	36	168	
Smoking habit	Present	71	42	0.000 (Significant)
	Absent	44	343	
Obesity	Present	89	81	0.001 (Significant)
	Absent	26	304	
Dyslipidemia	Present	101	138	0.001 (Significant)
	Absent	14	247	
Diabetes	Present	65	105	0.003 (Significant)
	Absent	50	280	

Graph 1: Risk factors of CVD



Also, incidence of dyslipidemia and diabetes were significantly higher among CVD patients.

DISCUSSION

Cardiovascular disease (CVD) remains a global major cause of death and represents a significant disease burden in populations around the world. Developing countries are facing a high burden of CVD whilst awareness of disease and associated risk factors is limited. Those living in poverty and especially those in low-income countries are significantly more impacted by CVD. Moreover, findings show that the prevalence of CVD is increasing and posing a public health challenge in developing countries. High blood pressure is of major influence in the increasing CVD burden in these countries. For most patients with hypertension, it is uncontrolled which causes further cardiovascular (CV) complications. Hypertension affects more than 1.3 billion people worldwide and one third of adults have the condition. The number of adults with hypertension in 2025 is predicted to increase by about 60%.⁶⁻⁹ Hence; the present

study was conducted for analyzing various cardiovascular risk factors among patient visited to hospital.

A total of 500 subjects were analyzed. Mean age of the patients was 48.3 years. Out of 500, 296 patients were males while the remaining were females. Smoking habit was seen in 113 patients. Cardiovascular diseases was present in 115 patients (23 percent). Among patients with and without CVD, mean age was 58.3 years and 33.7 years respectively. There were 79 males and 36 females among CVD group while there were 217 males and 168 females in CVD group. Ranya A. Ghamri et al described the prevalence of extrinsic risk factors for CVDs in a high-risk population attending general practice. Two hundred and fifty high-risk individuals (80.0% female) were interviewed. Overall, 72% of the patients had been diagnosed with hypertension, 61.2% of patients had dyslipidemia, and approximately two-thirds of patients had diabetes mellitus. Most of the patients (88%) were non-smokers. The mean waist circumference of patients was 101.6 ± 14.1 cm, which suggests most were clinically obese. About 54.8% of the patients followed an unhealthy diet and 52.0% were physically inactive. There

were significant differences between women and men in relation to dyslipidemia ($p=0.007$), unhealthy diet ($p=0.034$), being overweight ($p=0.018$), and high blood cholesterol ($p=0.002$). They observed significantly greater prevalence of hypertension ($p=0.073$), unhealthy diet ($p=0.015$), being overweight ($p=0.018$), and high blood cholesterol ($p=0.000$) in those patients with dyslipidemia.¹⁰

In the present study, smoking habit was significantly higher among CVD patients. Majority of the patients with CVD were obese. Also, incidence of dyslipidemia and diabetes were significantly higher among CVD patients. In another study conducted by Roman et al, authors assessing lifestyle risk factors and biomarkers associated with hypertension and coronary heart diseases among patients attending cardiac clinics. Of the 100 patients recruited to participate in the study, 65% had hypertension, 23% had coronary heart diseases and 12% had both disease conditions. The most prevalent risk factors for hypertension and coronary heart diseases were: alcohol intake (67%), high blood pressure (59%), physical inactivity (61%), obesity (39%), alanine aminotransferase (43%), high-density lipoprotein (79%), low-density lipoprotein (65%), C-reactive protein (78%), sodium (41%) and potassium (40%). Moreover, age, plasma glucose, alanine aminotransferase, and C-reactive protein were found to be independently and positively associated with hypertension and coronary heart diseases.¹¹

The overall adult prevalence of hypertension in the Jaipur Heart Watch increased from 20.4% to 41.4% in men and from 15.2% to 34.9% in women over 12 years of follow-up, an annual increase in prevalence of 1.8% in men and 1.6% in women.¹² If these increases continued at the same rate from 2005 to 2009 (end of follow-up for phase 6 of the New Delhi Birth Cohort), the hypertension prevalence rates in the Jaipur Heart Watch would be 48.6% for men and 41.5% for women (compared with 34% and 15% in the New Delhi Birth Cohort). In the Chennai Urban Population Study (1997 to 2005), the prevalence rate of diabetes increased from 12% to 18.3% over 8 years (0.8% annual incidence); however, this cohort had a 47% loss to follow-up.^{13, 14} If this increase continued at the same rate from 2005 to 2009 (end of follow-up for phase 6 of the New Delhi Birth Cohort), the diabetes prevalence rates in the Chennai Urban Population Study would be 20.7% (compared with 8.4% in the New Delhi Birth Cohort). Similar estimates have been reported through secular trends from another study in southern India, although our participants were 4 to 5 years younger.^{15- 18} Ramachandran et al. recently reported an overall increase in the prevalence of diabetes in urban India from 5% (1985) to 18.6% (2006). Another report by Chan et al. estimated an increase in diabetes prevalence from 3% (1979) to 7.3% (2005) throughout urban India; however, the 2005 estimates were based upon self-reporting.^{16- 18} Mean systolic BP of South Asian population, including India, showed an upward trend over the past decades, unlike high-income western countries. The rising trend is contrary to the goal of 25% relative reduction of raised BP by 2025.²⁰ There is ample evidence regarding the efficacy of BP control in reducing CVD mortality. A global perspective studies collaboration involving a million participants estimated a 50% reduction in coronary heart disease (CHD) mortality for 20 mm Hg decline in the systolic BP across 40–69 years of age. The treatment of raised BP with low-cost affordable drugs is one of the cost-effective intervention for low-resource settings and should be scaled up rapidly to reduce CVD mortality. A pooled analysis of 40 cohort studies from the Asia Pacific region concluded that smoking was a risk factor for CHD and stroke. The risk of CHD was 1.6-fold and haemorrhagic

stroke 1.2-fold among smokers as compared with non-smokers, risk being higher among the population from Australia/New Zealand as compared with Asians.^{19- 22}

CONCLUSION

Smoking, diabetes and dyslipidemia are significant risk factors for CVD.

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