

FREQUENCY OF CARDIOVASCULAR DISEASE RISK FACTORS AMONG DOCTORS

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Contribution

All the authors contributed significantly to the research that resulted in the submitted manuscript.

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ABSTRACT

Objectives: To find out frequency of risk factors for cardiovascular disease amongst doctors.

Methodology: This was a cross-sectional study involving doctors (working at Lady Reading Hospital) recruited in Peshawar Heart Study (PHS). All participants were interviewed in detail including present and past medical history, family history, smoking, drug and dietary history. Pulse, blood pressure, body mass index (BMI) and waist/hip ratio were measured. Random blood sugar and total cholesterol was checked. A supine resting ECG was recorded. Data was analyzed for frequency of cardiovascular risk factors using SPSS Version 16.

Results: A total of 208 doctors were interviewed. Mean age was 30.33 ± 7.0 years. Mean BMI was 24.69 ± 4.73 . Mean waist size was 84.68 ± 10.571 cm. Mean waist/hip ratio was 0.86 ± 0.068 . Mean systolic BP was 121.82 ± 13.70 mm Hg while mean diastolic BP was 78.89 ± 09.36 mm Hg. Mean random blood cholesterol was 163.97 ± 27.93 mg / dl. Mean random blood sugar was 95.79 ± 24.57 mg /dl. Most (98.55%) of doctors had random blood sugar of less than 180 mg /dl. The big majority of the doctors was not performing any regular exercise ($n=157, 75.5\%$). Mean duty hours per day were 8.98 ± 2.073 . Active smokers were 39 (18.8%), while 9 (4.3%) were using Naswar. None of the doctors enrolled in study was drinking alcohol.

Conclusion: Among modifiable risk factors hypercholesterolemia, diabetes, and hypertension were less frequent amongst doctors while physical inactivity, obesity, unhealthy eating, and smoking were relatively more frequent.

Key Words: Doctors, Peshawar Heart Study, CVD risk factors, BMI, waist/hip ratio, smoking, exercise

INTRODUCTION

Cardiovascular disease (CVD) is a growing public health concern accounting for nearly half of all deaths in the developed world and 25 % in the developing world. By 2020, it is predicted that CVD will claim 25 million lives annually and that will surpass infectious diseases as the world's number one cause of death and disability.^{1,2} South Asia (India, Pakistan, Bangladesh, Sri Lanka, and Nepal) comprises 25% of the global population yet contributes nearly 60% of the global cardiovascular disease burden.^{3,4}

Much of the burden of CVD morbidity and mortality is linked to the modifiable CVD risk factors and the differences in the incidence and prevalence of these risk factors by race/ethnicity are substantial.⁵ INTERHEART study demonstrated that over 90% of global MI risk can be attributed to 9 modifiable risk factors i.e smoking, diabetes mellitus, dyslipidemia, central obesity, hypertension, imbalanced diet, physical inactivity, excessive alcohol consumption, and psychosocial factors.⁶

The adoption of an urbanized life style appears to be among the major determinant of coronary artery disease morbidity and mortality in Pakistan. The control of CVD risk factors in Pakistan has been attempted, but with limited success.^{6,7} Large scale population campaigns have led to decrease in the prevalence of smoking, hypertension, and cholesterol levels.⁸ Countries with restricted resources need a cost effective cardiovascular preventive strategy, so that candidates for preventive interventions can be stratified by absolute level of cardiovascular risk and priority should be given to those at higher risk of complications.^{9,10} Although Western data has identified relationship of various occupational groups and cardiovascular diseases risk factors, local data is scarce in this field.⁵

Aim of Peshawar Heart Study was to study the pattern of cardiovascular disease risk factors among various occupational groups serving in Peshawar. This present study focuses on the risk factors for CVD amongst doctors.

METHODOLOGY

This was a cross-sectional study involving doctors (working at Lady Reading Hospital Peshawar) recruited in Peshawar Heart Study (PHS). All participants gave informed consent and were interviewed in detail including a medical history, family history, past medical history, smoking history and history of medications.

Dietary habits and working conditions were also explored. All participants' had their pulse, blood pressure, BMI and waist/hip ratio measured. Family history of CAD was considered to be positive if first

degree relative had CAD at the age (for men < 50 years and for women < 60 years).

Blood pressure was measured using mercury sphygmomanometer in sitting position with supported left arm. A 12-Lead resting ECG was recorded using BTL-085 machine in supine position. Random blood sugar was checked using Abbott Glucometer (Medisence Optium) by finger prick method. Serum random cholesterol was checked using Accutrend GC portable device (Roche) by fingerprick method.

Hypertension was defined according to the JNC 7 Criteria.¹¹ Diabetes was defined according to WHO Criteria.¹² Hypercholesterolemia was defined according to ATP III guidelines.¹³ For this study purpose history of smoking was considered to be positive if ≥ 5 cigarettes were smoked per day for ≥ 6 Months. Subjects were counseled about their cardiovascular disease risk status and given written information booklet which contained their current data and also methods to reduce risk factors.

Data was analyzed through SPSS version 16. Mean, mode and median were determined. Frequency was determined as percentage.

RESULTS

A total of 208 doctors were interviewed. Baseline characteristics are given in Table.1. Mean age was 30.33 ± 7.00 years. Only 13 (6.2%) doctors were known hypertensive, 02 doctors had high cholesterol and the rest had no significant past medical history of CVD. Active cigarette smokers were 39 (18.8%), while naswar was being used by 9 (4.3%). None of the doctors was drinking alcohol. 53% of the doctors were obese.

Food pattern analysis showed that 37% of doctors were having meals in canteen or restaurant and 76% were eating regular snacks during duty hours. The most frequent drink was black tea with milk and sugar followed by a combination of green tea/soft drinks. Weekly consumption of vegetables was less than 1000 grams in 88%, and fruit consumption was less than 1000grams in 78% of doctors. Weekly meat consumption was less than 500 grams in 75% of doctors studied. Only 05 (2.4%) doctors were regularly consuming fish more than 500 grams a week. All this suggested a strong trend towards unhealthy eating habits.

Doctors were asked about their daily routine life activities and it was found that 157 (75.5%) were offering prayers on regular basis while nine (4.3%) reported no prayers at all. About 45% of doctors were doing recitation of Holy Quran for about 30 minutes daily and 50% were not doing any such activity. 75% of doctors were not performing any regular exercise. Most of the doctors worked for about a mean nine hours per day and 88% had a mobile or standing job. Only

Table 1: Baseline Characteristics of 208 Doctors

Variables	Frequencies
Mean Age	30.33 ± 7.001
Gender	
Male	159 (76.4%)
Female	49 (23.6%)
Marital Status	
Married	94 (45.2%)
Unmarried	112 (53.8%)
Widowed	02 (1.0%)
Mean waist/hip ratio	0.86 ± 0.068
BMI(kg/m ²)	24.69±4.73
Mean Pulse	78.23±10.468
Mean Systolic BP	121.82 ± 13.70
Mean Diastolic BP	78.89 ± 09.36
Mean working hours per day	8.98 ±2.073
Past Medical History	
Diabetic	Nil
Hypertensive	13(6.8%)
High Cholesterol	2(1.0%)
CAD	Nil
Others	21(10.1%)
None	172 (82.7%)
Family history of CAD	70 (33.65%)
Smoking status	
Current Smoker	39 (18.8%)
Ex-smoker	02(1.0%)
Non-smoker	167(80.3%)
RBS	95.79 ± 24.57

24% of doctors were doing regular exercise including a simple walk, bicycle ride or jogging.

Systolic BP of more than 140 mmHg was present in 5.76% while 5.28% had diastolic BP of more than 90 mm Hg. Blood

cholesterol more than 180 mg/dl was found in 44 (21.15%) doctors. 98.55% had random blood sugar of less than 180 mg/dl. Interestingly, all doctors were non-diabetics. Table 2 Shows the frequency of risk factors for CVD's amongs doctors.

Table 2: Risk Factors for CVD Amongst Doctors

Variables	%age
BMI(Kg/m ²)	
25-29.9	33%
30 and above	9%
W/H ratio (≥0.9)(cm)	27.4%
Systolic BP ≥140 mm Hg	5.76%
Diastolic BP ≥90 mm Hg	5.28 %
Tobacco use(cigarette plus naswar)	23%
Vegetable consumption (≤1000 grams)	88%
Fruits consumption (≤1000 grams)	78%
Exercise (≥ 20 mins /day)	24%
Cholesterol (≥ 180 /dl)	21%

DISCUSSION

Several population studies have shown that individuals with low levels of established CVD risk factors demonstrate exceptionally low incidence rates of CVD.¹² The major modifiable risk factors for coronary heart disease include smoking, hypercholesterolemia, hypertension, glucose intolerance, obesity, psychosocial factors, consumption of too few fruits and vegetables and lack of regular exercise.¹⁴

In this population based study we evaluated the frequency of risk factors for CVD amongst doctor of Lady Reading Hospital Peshawar. So far there is no local study evaluating risk factors of CVD in this group of population.

One of the challenges in global chronic disease prevention is reducing tobacco use, particularly in developing countries.¹⁵ In this study we found almost the same number of smokers as reported by Hafizullah et al¹⁶ in their study on CVD risk factors in prisoners while it was half of that in teachers found by Ali et al.¹⁷

The overall prevalence of hypertension in 2000 was estimated to be 26.4% of the world's population (26.6% male and 26.1% female).¹⁸ Fawad et al reported four time more frequency of hypertension in journalist as compared to our study on doctors.¹⁹ The possible reason could be a younger age of our study population.

Obesity or excess body fat is strongly associated with enhanced risks of morbidity and mortality, and its prevalence is rapidly escalating worldwide.^{20,21} The nationally representative survey showed 25.0% of the Pakistani population to be overweight or obese according to the Asian-specific BMI cutoff value of 23 kg/m² and 10.3% to be obese according to the BMI cutoff value of 27 kg/m².²² In this study

we observed that 25.48% doctors were above 27 kg/m² which is almost the same as in Pakistani population survey study. Contrary to this study, Hafizullah et al¹⁶, Ali et al¹⁷ and Fawad et al¹⁹ mentioned almost double frequency of obesity. Their finding could be because of more sedentary life style, and lack of motivation in their study population.

We also found that 75.5% of doctors were not doing any regular exercise. Almost same incidence (71.7%) of lack of exercise was reported by Hafizullah et al¹⁶ while studying CVD risk factors in prisoners in Peshawar Heart study. Following redefining of obesity by International Obesity Task Force and International Association for Study of Obesity²³ (overweight=23.0 - 24.9, obese= 25 or more) most of the doctors were overweight or obese. Contributing factors were probably lack of exercise, unhealthy eating and long working hours leading to exhaustion.

Hypercholesterolemia is one of the main modifiable risk factors of cardiovascular morbidity and mortality.¹³ Iqbal et al²⁴ in their study found that 31% of subjects in Karachi had hypercholesterolemia. This frequency compares well with 37% reported by Ishaq et al in a recent study.²⁵ Blood cholesterol more than 180 mg/dl was noticed in 21.15% doctors as compared to 37.95% in prisoners.¹⁶ The low incidence of hypercholesterolemia in doctors (even though 33% had family history of CAD) is probably due to younger age, and possible variation in sampling time as compared to prisoners.

Diabetes and impaired glucose tolerance (IGT) are important risk factors for coronary artery disease (CAD).²⁶ In this study the majority of doctors i.e. 205 (98.55%) had random blood sugar less than 180 mg/dl and all were non diabetics, which reflects awareness about risks of diabetes and thus lesser

intake of refined sugar in daily life. This is in agreement with Ali et al¹⁷ and Fawad et al.¹⁹

Limitations of the study include inclusion of a younger population, predominantly male subjects and inclusion of single hospital employees only. Other limitations include a smaller sample size, inclusion of trainee/junior doctors only, and absence of senior doctors in study.

CONCLUSION

Among modifiable risk factors hypercholesterolemia, diabetes, and hypertension were less frequent in doctors. In spite of working for more hours, obesity, physical inactivity and sedentary life style and smoking were more common. Doctors also had unhealthy eating habits inspite of being educated about the disease, and risk factors for CVD. This makes a plea for a comprehensive health education program for general population as well as health care providers. Increased adherence to clinical and community-level guidelines with renewed emphasis on policy, environmental and lifestyle changes will be crucial for effective prevention and control of CAD epidemic.

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