Original Article

Association of Risk Factors of Coronary Heart Diseases and Socio-demographic Characteristics of Civil Employees of Combined Military Hospital Dhaka

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Abstract

***Introduction*:** Risk factors are the most ruinous and mischievous ingredient to develop coronary heart diseases (CHD). Factors contributing to develop CHD and their associates are, therefore, of prime importance. It needs endless splurge to address the issue.

Objectives: To identify the attributing risk factors and socio-demographic characteristics of coronary heart disease among civilian employees of Combined Military Hospital (CMH) Dhaka.

***Materials and Methods*:** This observational study was conducted on 287 civil employees of CMH, Dhaka from September to December 2011. Data were collected by interview using questionnaire and check list which includes blood pressure measurement, anthropometric measurement and biochemical examinations.

***Results*:** Respondent's age range was 23 to 59 years, educational level up to class VIII were 56.4 % and more than that were 36.6%, illiterate were 7%. Regarding income low, medium and high income group were 40.4%, 56.8% and 2.8% respectively. It was found that 68.6% had normal BP, 61.3% practices moderate exercise. Among the respondents 72.2% has got 1-5 risk factors of CHD. Risk factors ($p < 0.001$) were significantly associated with age.

***Conclusion*:** This study finding is suggestive of association between risk factors of CHD and socio-demographic characteristics among the study population. Care through motivation, avoidance of risk behaviour, addressing clinical conditions can resist risk factors of CHD thus coronary heart disease can be prevented.

Key-words: Coronary heart diseases (CHD), Cardio Vascular Diseases (CVD), Risk factors, Civil employees.

Introduction

In the history of civilization many devoted personality donated their conscientious and utmost effort with earnest immolation to rule out the dark and rementerous inventory of CHD in the domain of exalted cardiovascular disease[1]. Experts round the globe gathered at the 2011, American Heart Association (AHA) Scientific Session was devoted to (CVDs). However, carefully performed epidemiologic studies from the Framingham Heart Study and others identified the major CVD risk factors including hypertension, elevated cholesterol levels, smoking, and diabetes. These seminal works changed the view of CVD from a preordained fate to a preventable disorder[2]. World health organization (WHO) has drawn attention to the fact that CHD is our modern epidemic. CHD itself may be manifested in many forms like Angina pectoris on effort, Myocardial infarction, Irregularities of heart beat, Cardiac failure and sudden death[3].

A risk factor of interest may be behavioral (e.g. smoking), inherited trait (e.g. Family history) or a laboratory measurement (e.g. cholesterol). For a risk to be considered causal, the marker of interest must predate the onset of the disease and must have biological plausibility[4]. In a study on risk factors of coronary heart disease shows that most of the population-attributable risk is explained by eight factors**:** smoking, hypertension, diabetes mellitus, abnormal lipid, abdominal obesity, psychological factors, consumption of too few fruit and vegetable, too much alcohol and lack of physical activity. Smoking remains the number one preventable cause of CHD worldwide[5]. At the beginning of 20th century**,** cardiovascular disease accounted fo**r** less than 10% of all death world-wide. In the year 2000, 16.7 million people died from cardiovascular disease accounting 30.3 % of all death world-wide, more than half of this death was in developing countries. Based on the current trends, by 2020, these diseases are expected to account for 43% death and 60% disease burden[6].

WHO report revealed that 12.5% of all non-communicable disease deaths were due to cardiovascular causes in Bangladesh in 2002 but within ten years the death toll increased to a level that is more than double (27%) in 2011. As Bangladesh is steadily changing from agro-based socio-economic structure towards industry based settings, coronary heart disease is also getting a prominence[7]. Silence is dark; dark means fear, breaking the silence now time has come to focus deeply to the catastrophe of coronary heart disease. In this study, efforts have been made to identify the attributing risk factors of coronary heart disease among civilian employees of Combined Military Hospital (CMH) Dhaka.

Materials and Methods

This cross-sectional observational study was carried out at CMH Dhaka from September 2011 to December 2011. The study population was the civil employees of CMH Dhaka. A total of 287 respondents were selected by probability type of simple random sampling. Data were collected through face to face interview by using semi structured questionnaire and reviewing of check list which includes blood pressure measurement, anthropometric measurement and biochemical examination during the month of November 2011. Data were analyzed according to the key variables by using SPSS version 23.0.

Results

Patients' age range was 23-59 years with mean age 39.40±9.42 years. Majority 31.4% of the respondents were in age group 41-50 years. In consideration of gender 67.2% were male and 32.8% were female. The educational status was found as illiterate (7.0%), only can sign (11.5%), up to class-VIII (44.9%), up to SSC (27.9%) and beyond SSC (8.7); which indicates that most of the civil employees of combined military hospital Dhaka were literate. Family income shows that 40.4% had low family income, 56.8% had middle income

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and rest 2.8% had high family income (Table-I). Among the respondents 34.1% were smoker and 25.1% had high diastolic blood pressure. Regarding physical exercise status found 61.3% do regular moderate physical exercise but 4.2% did not do any physical exercise. BMI was more than 25 in 41.5%, fasting plasma glucose was high in 20.6% and LDL cholesterol was high in 34.5% respondents. Among the respondents 72.2% had 1-5 risk factor of coronary heart disease, 13.5% had 6-10 risk factors and 11.50% were free from those risk factors (Table-II). Distribution of the respondents by risk factors of coronary CHD showed significant (p< 0.001) association in relation to age (Table-III).

Table-I: Distribution of the respondents by socio-demographic characteristics (n=287)

Characteristics		Frequency	Percentage
Age in years	< 30	74	25.8
	30-40	87	30.3
	40-50	90	31.4
	>50	36	12.5
Gender	Male	193	67.2
	Female	94	32.8
Education status	Illiterate	20	7
	Only sign	33	11.5
	Up to Class VIII	129	44.9
	Up to SSC	80	27.9
	Beyond SSC	25	8.7
Income group	Low Income	116	40.4
	Middle Income	163	56.8
	High Income	08	2.8
Smoking habit	Smoker	98	34.1
	Non-smoker	189	65.9

Table-II: Distribution of the respondents by risk factors (n=287)

Risk factors		Frequency	Percentage
Smoking habit	Smoker	98	34.1
	Non-smoker	189	65.9
Diastolic BP	Normal	197	68.6
	High	90	31.4
Physical exercise status	No exercise	12	4.2
	Mild	75	26.1
	Moderate	176	61.3
	Heavy	24	8.4
BMI	< 25	168	58.5
	≥ 25	119	41.5
Fasting plasma glucose status	Normal	228	79.4
	High	59	20.6
LDL cholesterol status	Normal	188	65.5
	High	99	34.5
Number of risk factors present	Nil	33	11.5
	1 – 5	207	72.2
	6 - 10	49	13.5
	>10	08	02.8

Table-III: Distribution of the respondents as per age group in relation to risk factors (n=287)

Characteristics		Risk factors			Total	Statistics
		1-5	6-10	> 10		
Age group in years	<30	49(23.7)	0	25(61.0)	74(25.8)	χ^2 =55.62 df = 6 p<0.001
	31-40	74(35.7)	7(17.9)	6(14.6)	87(30.3)	
	41-50	62(30.0)	21(53.8)	7(17.7)	90(31.4)	
	> 50	22(10.6)	11(28.2)	3(7.3)	36(12.5)	
	Total	207(100)	39(100)	41(100)	287(100)	

Discussion

Every sincere effort of the heart keeps vigor buoyant. A WHO expert committee report (1982) states that CVDs were one of the leading causes of death in industrial countries and also upcoming as a public health problem in developing countries like Bangladesh, India and Sirilanka[1]. The principal focus of the study was to link the association between socio-demographic characteristics and the risk factors of CHD. This study may act as a platform upon which future investigations may give a view on risk factors of CHD in army community and in a broader prospect to Bangladeshi people. Findings revealed the age range was 29.98-48.82 years. Discovery was almost similar to the study findings observed by Zaman et al[8]. According to BBS findings 2010, about 37.1% of population was within this group, which differs from present study finding[9]. It is observed that 67 % of the respondents were male and 33% were female, the male female ratio is 2:1 which mimics the strength of CMH, Dhaka.

The educational qualifications were defined as illiterate (7.0%), signatory (11.5%), up to Class-VIII (44.9%), up to SSC (27.9%) and beyond SSC (8.7); which indicates that most of the civil employees of Combined Military Hospital, Dhaka were literate because employees need to fulfill the job criteria while entering into service. The occupation of the respondents were classified into Class-I, Class-II, Class-III, Class-IV. Among 287 employees 92.3% were in Class-IV, 07% were in Class III and 0.3% each was in Class II and Class I. Distribution by family income shows that 40.4% low family income, 56.8% had middle family income and rest 2.8% had high family income. Hypertension is one of the recognized risk factors of CHD. It was not possible to record the diurnal variation of the blood pressure of the respondents. 68.6% had normal diastolic blood pressure and rest 25.1% had high diastolic blood pressure. This finding was similar to the study findings of Zaman et al[10]. Malik et al who had found 58.9% respondents were hypertensive[11], Ullah W who studied on hypertension among adult Bangladeshi had found prevalence rate of 20% [12]. From the above discussion, hypertension as a risk factor of coronary heart disease is evident. So, adequate screening, diagnostic and clinical measure should be taken to inhume the inimical and insalubrious effect of high blood pressure.

Physical activity is an exceptionally common modifiable risk factor of coronary heart disease[13]. It was evident from the present study that only 8.4% respondents did heavy physical exercise, 61.3% undergo moderate physical exercise and 26.10% mild or routine obligatory physical exercise. The association between physical exercise and gender (p <0.001) were found statistically significant. These study findings correspond with the study findings of Zaman et al, where he

had found. This study depicted that 72.2% had 1-5 risk factor of coronary heart disease, 11.50% were free from those risk factors. After grouping the risk factors, it was evident that 60.6% had 1-5 risk factors, 13.3% had 6-10 risk factors and 2.8% had more than 10 risk factors. This finding was a bit higher than the study findings of Diez-Roax AV et al. where 80% of the subjects had at list 1 risk factor, 9% men and 19% women had more than 3 risk factors[14]. In a different study the prevalence of risk factors was a bit lower[15]. The individual who are already within the risk group of coronary heart disease, steps like cessation of smoking, control of blood pressure and diabetes mellitus, body weight reduction, regular physical exercise, dietary control, anti-platelet drugs and beta blockers can be taken to halt further progression of risk factors into CHDs.

Conclusion

The major aim of the study was to find out the association of socio-demographic characteristics and risk factors of CHD. The inquest has discovered few inimical and insalubrious factors which were hypertension, less physical activity was identified as contributing risk factors. Habit is the servitude of intuition. Smoking, physical inactivity, showed significant influence on developing coronary heart disease. To revivify life, reverse has been proved to inseminate the light of hope. Education is indispensable to tie the noose of odds. Educational status has shown significant association with blood pressure. Females are less prone to undergo physical exercise. The more income generating people was prone to be obese and was face down to dyslipidemia.

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