

Pattern of Cardiovascular Disease Among Dhaka University Teachers

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Introduction

It is increasingly realised by the professionals that cardiovascular diseases are steadily increasing in Bangladesh. Malik (1) analysed death records of Dhaka Medical College Hospital and found death due to cardiovascular disease was second highest. Malik (2) also carried out a survey amongst 7062 urban and rural people and observed that 2.92% suffered from some sorts of heart disease. In a survey in 5000 population, Hossain (3) found that 4.6% of the respondent had cardiovascular problem. Talukdar and Azad (4) analysed 3863 case records of inpatient department of children ward of Postgraduate Hospital and found 3.5% had cardiovascular disease. Malik and Islam (5) found peak age of Ischaemic heart disease was between 51 and 60 years. In another study Sharma et. al. (6) observed that the peak age of heart disease was between 41 and 60 years and 18% had sedentary occupation. In subjects who had hypertension, hypercholesterolaemia, excessive cigarette smoking and no physical activity ran an eleven times greater risk of developing coronary heart disease than one who showed none (7).

The increase in coronary heart disease is markedly seen in highly educated societies, whose dietary habits and life style have changed or modified like that of West. These societies contribute much to the national development. So it is important to find out the cardiovascular disease pattern in a cross section of educated urban effluents like the teachers of Dhaka University who are exposed to various risk factors for these diseases.

Materials and Methods

The Professors, Associate Professors, Assistant Professors and Lecturers of Dhaka University constituted the study population.

A standard questionnaire was developed and filled up by direct interview at the Institute of Nutrition and Food Science, University of Dhaka on a preappointed time and date.

Height and weight was measured in minimum clothings by Decto medico-weighing-height scale and the reading was taken in kilogram and centimeter respectively. Blood pressure was measured by murcury sphymomanometer in sitting position. Korotkoff 5th phase was taken for diastolic reading. Electro-cardiogram was done by Fakuda and Kardex machine by standard technique and read in usual ways.

Results

Table I- showed that 12.1% of teachers participated in the study had abnormal electrocardiographic tracing. Amongst them, 5.1% had abnormal tracing suggestive of myocardial ischaemia, 1.5% had heart block, 9.3% had left ventricular hypertrophy and 5.1% had non specific ST-change, tachy and brady cardias etc.

Table II- showed that among the 270 male teachers participated in the study 36 (3.33%) had same sorts of cardiovascular disease. In 61 female teachers 4 (6.56%) had cardiovascular disease. It was observed that male teachers (13.33%) had more cardiovascular disease than female (6.56%) teachers. The relative risk of cardiovascular disease for male and female teachers were 2:1.

Table III- showed that in the normal PBMI group myocardial ischaemia was 5.7% and very obese group had 8.34% but, none had ischaemia in lean and obese group. Heart block were present in normal (1.42%) and obese group (4.77%). Left ventricular hypertrophy was 0.36% in only normal group. Other abnormalities were seen in lean (6.25%) and normal (5.34%) PBMI subjects. 82.18% of the total subjects had no ECG abnormalities.

Table IV- showed ECG changed according to age. As age advanced myocardial ischaemia increased upto 49 yrs. and after that in 50-54 yrs. age group there was a drop and at 55 years, and above it showed again a rise. Heart block follow same pattern with a drop in 45-49 years. In other group a steady rise was observed in the increasing age. While considering professional status myocardial ischaemia and other were more common in professors than the other categories of teachers (table-v). Between assistant and associate professors percentage of ECG abnormalities were more common in assistant professors.

Table VI showed age vs systolic blood pressure. Systolic blood pressure above 160 mm of were found in 5 cases aged 45 years and above. The prevalence rate was 1.5%.

Table V II showed that diastolic blood pressure 90 and above had rising tendency in 30 years age and above. The prevalence rate of diastolic hypertension was 21.38%.

Discussion

The prevalence of cardiovascular abnormalities in the teachers of Dhaka University is alarming. Among the 331 teachers 40 teachers had some sorts of ECG abnormalities, making a prevalence rate of 12.1%. Male teachers showed double the chance of getting heart disease than the female. The peak age range was 35 to 54 years, Sharma et al (6) found maximum number of cases were between 41-60 yrs. Malik and Islam (5) found the same which showed a peak prevalence of Myocardial ischaemia in admitted patients of Institute of Cardiovascular diseases.

Obesity seems to be unrelated to the development of cardiovascular disease. This was observed by Ali (8) in a study of Hypertension in hyperglycaemics. Majority of the ECG tracings were normal but 4.77% of obese and 8.34% of very obese group had cardiovascular abnormalities. Sharma et al (6) found 44.8% obese in their subjects of M. I. This difference may be explained by the fact that the present study population is drawn from more homogeneous cross section of population who are supposed to be conscious about diet. Health awareness might have lead them to avoid fat but not the heart disease. As Marnet (9) pointed out obesity exert its deleterious effect through all associated factors, might be same for our study population. It is clear from the present study that age bears significance towards development of heart diseases. Among the teachers professors had more cardiovascular diseases than the other categories indicating influence of age to the disease.

Assistant Professors had more ECG abnormalities than associate professor might be explained by the fact that this is the stage of transition of position without taking any other consideration except profession, health situation might have gone bad. This is also supported by the fact that prevalence of diastolic hypertension is high (21.38) which is a risk factor for the development of heart disease. Blood pressure also increased with age.

So it may be concluded that cardiovascular disease among the University teachers is a serious health problem. It has relationship to age and independent of body weight, other contributing factors, which we have not considered here might be very important for the prevailing situation.

Table 1- Electrocardiographic abnormalities of University teachers

Pattern	No. of persons	Percentage
Normal	291	87.9
Myocardial ischaemia	17	5.1
Heart block (RBBB & LBBB)	5	1.5
Left ventricular hypertrophy	1	0.3
Others (Non-specific ST-T changes Tachy. Bradycardia etc.)	17	5.1
	331	100.0

Table II Sex distribution of ECG abnormal teachers

	n=331			
	Male		Female	
	No.	%	No.	%
Normal	234	86.67	57	93.44
MI	14	5.18	3	4.92
HB	5	1.85	0	0
LVH	1	0.37	0	0
Others	16	5.92	1	1.64

Table III- Electrocardiographical Status at Different Level of per cent body mass index * (PBMI) (n = 330)

ECG Diagnosis	Lean		Normal		Obese		Verv Obese		Total	
	PBMI	80	119		129		130		No.	%
Normal	15	93.75	245	87.18	20	95.23	11	91.66	291	88.18
Myocardial Ischaemia	0	0	16	5.70	0	0	1	8.34	17	5.6
Heart block	0	0	4	1.42	1	4.77	0	0	5	1.51
Left ventricular hypertrophy	0	0	1	0.36	0	0	0	0	1	0.30
Others	1	6.25	15	5.34	0	0	0	0	16	4.85
	16	100	281	100	21	100	12	100	330	100

*PBMI was calculated as follows:

$$BMI = \frac{Wt. \text{ in Kg.}}{Ht. \text{ in M}^2}$$

$$PBMI = \frac{BMI}{\text{Standard BMI}} \times 100$$

(Standard BMI = 21.1 for male and 20.6 for female)

Table IV Electro Cardiographic status among different age groups

Age Groups/	20	30-34	35-39	40-45	45-49	50-54	55+	Total
ECG Status	No. %	No. %	No. %	No. %	No. %	No. %	No. %	No. %
Normal	19 90.48	47 95.92	80 90.91	56 87.50	47 81.04	24 77.42	18 90	91 87.9
MI	0 0	0 0.00	4 4.54	3 4.69	6 10.34	2 6.45	2 10	17 5.2
HB	0 0	1 2.04	0 0	2 3.12	1 1.72	1 3.22	0 0	5 1.5
LVH	0 0	0 0	0 0	0 0	0 0	1 3.22	0 0	1 .3
ST-1	0 0	0 0	0 0	2 3.12	3 5.18	3 9.68	0 0	15 4.5
Others	2 9.26	1 2.04	4 4.55	3 4.59	4 6.90	3 9.68	0 0	17 5.1
Total	21	49	88	66	61	34	20	339

Table V Cardiovascular status in different rank of teachers

CVD	Rank		Professor		Associate Professor		Assistant Professor		Lecturer		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Normal	37	78.72	103	89.54	103	87.29	48	94.12	291	87.92		
MI	5	10.64	5	4.35	7	5.93	0	0	17	5.14		
HB	1	2.13	2	1.74	2	1.69	0	0	5	1.51		
LVH	0	0	1	0.87	0	0	0	0	1	0.30		
Others	4	8.51	4	3.47	6	5.09	3	5.88	17	5.14		
Total	47	100	115	100	118	100	51	100	331	100		

Table VI Age vs. Blood pressure in mmHg (Systolic)
n=332

Age Groups yrs.	Below 29		30-34		35-39		40-44		45-49		50-54		55 +	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Systolic Blood pressure														
Less than 160	21	100	49	100	89	100	64	100xx	57	98.28	28	90.32	19	95
160 - 169	0	0	0	0	0	0	0	0xx	1	1.72	0	0	1	5
170 - 179	0	0	0	0	0	0	0	0	0	0	2	6.45	0	0
180 - 189	0	0	0	0	9	0	0	0	0	0	1	3.23	0	0
Total	21	100	49	100	89	100	64	100	58	100	31	100	20	100

Table VI Age vs. Blood pressure in mmHg (Diastolic)

		Age Groups in years-											
Diastolic Blood Pressure		Blow 29	30-34	35-39	40-44	45-49	50-54	55+					
Less than	, 20	95.25	, 46 93.88	, 75 84.27	, 48 76.00	, 44 75.86	, 17 54.84	, 11 55.00					
90 - 99	, 1	4.75	, 3 6.12	, 8 8.99	, 16 25.00	, 10 17.24	, 11 35.84	, 8 44.00					
100-109	, 0	0	, 0 0	, 6 6.74	, 0 0	, 3 5.17	, 2 6.45	, 1 5.00					
110+++	, 0	0	, 0 0	, 0 0	, 0 0	, 1 1.73	, 1 3.23	, 0 0					
Total	, 21	100	, 49 100	, 89 100	, 64 100	, 58 100	, 31 100	, 20 100					

Summary

The study on the pattern of cardiovascular disease among the teachers of Dhaka University was conducted during February—April, 1987 in the Institute of Nutrition and Food Science, Dhaka University. A total of 331 teachers including 61 female teachers participated in the study. It was observed that male teachers had more cardiovascular disease than female teachers with a relative risk of 2:1. Diastolic hypertension was as high as 21.38%. Overall cardiovascular disease was found to be higher among professors. Obesity was found unrelated to the development of the disease. This study amply demonstrated that cardiovascular disease is a serious health problem among Dhaka University teachers.

References

1. Malik, A: A cause of death in Dhaka Medical College Hospital-A Heart disease Foundation Bulletin, 3, 1978.
2. Malik, A Congenital and acquired heart disease. Bang. Med. Res. Counc. Bull: 11, (2,) 115, 1976.
3. Hussain, A Cardiovascular disease in the rural community of Bangladesh. Abstract No, 38. Bangladesh Japan joint conference on Cardiovascular disease, 36, 1984.
4. Talukder, M. Q. K. and Azad, K. Heart disease in infancy and childhood in a general children ward. Abstract No. 38-P 38, 1984.
5. Malik, A and Islam, N. Pattern of ischaemic disease and its association with some known risk factors. Bangladesh Health Journal 2, (1), 2, 1987.
6. Sarma, S; Patodi; and Mittal, M.C.. A study of Ischaemic heart disease patients admitted in intensive coronary care unit of M.Y. Hospital Index. Indian Journal of Public Health XX (3), 144, 1976.
7. Roberts, C.J. Epidemiology for the clinicians. Blackwell Scientific Publishing Company P. 61, 1977.
8. Ali, S.M.K., Ahmad, K.S. and Hossain, T: Hypertension in Hyperglycaemics. Journal of Statistical Studies 6, 101, 1986.
9. Marnot, MG. Epidemiological basis for prevention of coronary heart disease, WHO Bull-57, 331, 1979.