

Nutritional Assessment and Dietary Pattern of Coronary Heart Disease Patients in Kanpur City

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Abstract: CHD (coronary heart disease) is the single most important cause of death and, more importantly, the single biggest cause of premature death in modern, industrialized countries. On the basis of summarized results in respect to assessing the nutritional status and dietary pattern of coronary heart diseased patients, it was concluded that nutritional status of control group was better as compared to diseased group. The dietary pattern of diseased group was similar to control group.

Key words: CHD, dietary pattern, nutrient intake and health status.

1. Introduction

CHD (coronary heart disease), also known as IHD (ischaemic heart disease), characterized by a limited supply of oxygen to the heart muscle, has clinical manifestations ranging from angina pectoris to MI (myocardial infarction) and sudden death. The heart, like all muscles, needs oxygen from the blood to function. The heart is supplied by its own blood vessels, the coronary arteries, but these can become clogged up in places with fatty deposits (atheroma) which narrow them, restricting the blood flow. These deposits may rupture, leading to clotting, blockage of the artery and acute MI.

The purpose of the present study is to assess the significance of family history practices and lifestyles in the causation of clinical CHD in middle aged people who represent high risk subjects of CHD. Moreover, attention needs to be paid to the dietary habits because of their effect on body weight serum lipids, blood pressure and diabetes. It is well known that the percentage of total cholesterol derived from fat, the ratio of saturated to polyunsaturated fatty acids of the cholesterol content of the diet all have independent

effects on the level of serum lipids particularly on triglycerides, cholesterol carried by LDL (low density lipoprotein), which have a close relation to the occurrence of CHD.

2. Materials and Methods

The study was conducted in Kanpur city where 120 respondents were selected in which 90 were for study group and rest 30 were keeping for control group. The respondents were selected through random and purposive sample technique, within the age group of 30-80 years. The primary tool used in the study was a detailed performa. The information was obtained from the respondent by interview method. Each subject was contacted individually and persuaded to answer all the questions in the questionnaire and their response were recorded.

With the help of questionnaire the general information was collected like name, age gender, address, educational status, income, marital status, type of family and socio-economic status of respondents. All the respondents were visually examined for the various deficiency disorders in the clinical examination.

All the subjects were bio-chemically examined for blood pressure, serum cholesterol level (LDL, HDL, VLDL (low density lipoprotein, high density lipoprotein).

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protein, very low density lipo protein respectively), total cholesterol, triglycerides), blood glucose (fasting and postprandial). The collected data were classified in the light of the objectives of study. The classified data were tabulated and analyzed statistically with the help of approved statistical techniques like arithmetic mean, standard deviation, correlation coefficient and percentage. Correlation coefficient was used to compare the serum cholesterol and lipid profile of diseased patients with the control group.

The 24 hours dietary recall method was used for conducting the diet survey and to collect information about the food consumption of subject. The respondents were asked to inform about the menu, ingredients used for the preparation of previous day's meal, food and beverages consumed by the subject over the previous day. Nutrients consumed i.e., protein, carbohydrate, fat per unit/day were calculated by using the values from ICMR 1990. Nutritive values of the diets consumed by the subjects were then compared with the RDA (recommended dietary allowance) value given by ICMR (1990).

3. Results and Discussion

3.1 Health Status of the Respondents

The mean BMI for diseased group was 24.2 kg/m² and for control group was 23.7 kg/m². The value of *r* for diseased group was 0.937 and control group was 0.3845 which was significant in both the groups. Table 1 shows that in diseased patients there is relation between age and BMI of the heart patients.

Table 2 shows that in diseased group, the highest mean cholesterol level i.e., 234.5 mg/dL was found in the blood pressure up to 120 mmHg where as lowest mean cholesterol level i.e., 249.0 mg/dL was found in the blood pressure ranging between 140-160 mmHg while the lowest mean cholesterol level i.e., 224.0 mg/dL was found to be in the blood pressure ranging from 120-140 mmHg.

The value of *r* for diseased group was 0.0923 and for control group was 0.2948 where both are non-significant. Table 2 depicts that the cholesterol level of diseased patients were high with high blood pressure. It shows from research that cholesterol level of diseased patients were high with high blood pressure.

3.2 Dietary Assessment of the Respondents

In the diseased group, 57.78 per cent were vegetarian and 42.22 per cent were non-vegetarian while in control group 76.67 per cent were vegetarian and 23.33 per cent respondents were non-vegetarian.

Data reveal from Table 3, that most of the respondents in both the diseased and control group were vegetarian eating home made food with all the food groups included in it. Maximum respondents usually consumed saturated fat in their diet and are physically less active.

Results throw Table 4 shows that in diseased group, 60.0 per cent were using saturated fats and oils and 40.0 per cent were found to be using unsaturated fats and oils while in control group, 53.33 per cent were using saturated fats and oils and 46.67 per cent were found to be using unsaturated fats and oils.

Table 1 Body mass index of the respondents on the basis of age group.

N = 120

Age group	Diseased			Control		
	Frequency	Mean BMI	S.D.	Frequency	Mean BMI	S.D.
30-40	6	23.3	3.2	9	28.3	3.2
40-50	28	25.6	10.7	7	24.1	3.5
50-60	22	24.1	3.9	7	27.1	5.0
60 and above	34	23.4	3.4	7	28.9	2.1
Total	90	24.2	6.6	30	27.7	3.9
<i>r</i>	0.937*		<i>p</i> < 0.05	0.3845*		<i>p</i> < 0.05

Table 2 Total cholesterol level of the respondents on the basis of blood pressure.

N = 120

Blood pressure (mm Hg)	Diseased			Control		
	Frequency	Mean BMI	S.D.	Frequency	Mean BMI	S.D.
Upto 120	22	246.7	32.4	21	232.1	16.5
120-140	7	222.9	28.4	8	224.0	15.1
140-160	24	228.2	38.2	1	249.0	0.0
160 and above	37	234.5	32.7	-	-	-
Total	90	234.9	32.5	30	230.5	16.4
<i>r</i>	0.2923*			<i>p</i> < 0.05		

Table 3 Distribution of the respondents on the basis of food habits.

N = 120

Food habits	Diseased		Control	
	Frequency	Percentage	Frequency	Percentage
Vegetarian	52	57.78	23	76.67
Non-vegetarian	38	42.22	7	23.33
Total	90	100.0	30	100.0

Table 4 Distribution of the respondents on the basis of oil intake.

N = 120

Oil intake	Diseased		Control	
	Frequency	Percentage	Frequency	Percentage
Saturated	54	60.0	16	53.33
Unsaturated	36	40.0	14	46.67
Total	90	100.0	30	100.0

Table 5 Energy intake of the respondents on the basis of cholesterol level.

N = 120

Cholesterol (mg/dL)	Diseased			Control		
	Frequency	Mean energy	S.D.	Frequency	Mean energy	S.D.
180-200	7	1,332.55	374.5	1	1,623.3	0.0
200 and above	83	1,942.53	502.6	29	1,830.0	425.0
Total	90	1,625.2	495.4	30	1,730.0	425.0
<i>r</i>	0.3697*			<i>p</i> < 0.05		

Table 5 shows that in diseased group the highest mean energy intake i.e., 1,942.53 kcal/day cholesterol more than 200 mg/dL whereas lowest energy intake i.e., 1,332.55 g/day was in the cholesterol level between 180-200 mg/dL. In control group, the mean energy intake i.e., 1,830 g/day was highest in the respondents with the total cholesterol level of 180-200 mg/dL.

The value of *r* in diseased group was 0.3697 while *r* value in control group was 0.2804 which was found to be significant in both. This indicates that though the mean energy intake was found to be low but as the

intake increased the total cholesterol level also increased.

Table 6 shows that in diseased group, the maximum mean protein intake i.e., 59.58 g/day was found in the patients with total cholesterol of 200 mg/dL and above while in control group, maximum mean protein intake i.e., 58.6 g/day was found in the respondents with total cholesterol more than 200 mg/dL.

The value of *r* in diseased group was 0.2534 and in control group was 0.1607 which was found to be significant in both. This depicts that the protein intake increases with the increase in total serum cholesterol.

Table 6 Protein intake of the respondents on the basis of cholesterol level.

N = 120

Total cholesterol (mg/dL)	Diseased			Control		
	Frequency	Mean protein	S.D.	Frequency	Mean protein	S.D.
180-200	7	46.64	13.2	1	54.3	0.0
200 and above	83	59.58	17.4	29	58.6	13.6
Total	90	57.73	17.3	30	58.5	13.4
<i>r</i>	0.2534*	<i>p</i> < 0.05		0.1607	<i>p</i> < 0.05	

value *r* (88 d.f.) = 0.20.**Table 7 Fat intake of the respondents on the basis of cholesterol level.**

N = 120

Cholesterol (mg/dL)	Diseased			Control		
	Frequency	Mean fat	S.D.	Frequency	Mean fat	S.D.
180-200	7	18.31	3.5	1	24.64	9.6
200 and above	83	25.16	8.6	29	28.46	0
Total	90	23.78	8.5	30	24.77	9.4
<i>r</i>	0.2632*	<i>p</i> < 0.05		0.2116	<i>p</i> < 0.05	

value *r* (88 d.f.) = 0.20.

Table 7 shows that in diseased group, maximum mean fat intake i.e., 25.16 g/day was found in the respondents with total cholesterol of 200 mg/dL and above. In control group, the maximum mean fat intake i.e., 28.78 g/day was found in the respondents with total cholesterol of 180-200 mg/dL.

The value of *r* in diseased group was 0.2632 while in control group was 0.2116 which was found to be significant in both. This indicates that the fat intake plays a vital role in the cholesterol level and affected to a greater extent.

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