

Prevalence of hyperlipidemia among the Sindhi community: A case study

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ABSTRACT

Estimation of lipids study was done among 100 subjects in Sindhi community group. Other 70 subjects in general community group studied as the control group. Subject's data was recorded with respect to age, height, sex, weight, food habit, smoking habit etc. Total 170 subjects were participated in this study. 12 hrs fasting blood samples were collected and analysis was done on biochemistry semi-auto analyzer in the clinical laboratory. Data analysis was performed using Statistical Software Epi Info. The study showed that was 69 % subjects were obese. 19% subjects found were with hypercholesterolemia. According to many researcher Hypercholesterolemia and obesity is the major risk factor for Coronary Heart Disease. Study found percentage shows serious problem among the Sindhi community. Study shows necessary to advice eating right, regular exercise, no smoking, avoid alcohol, consumption of unsaturated fatty acids and regular check up of the body.

Key words: Lipids, Hypercholesterolemia, BMI, Sindhi community.

INTRODUCTION

Lipids are more important to the body as well it is more harmful to the body when it excess. Lipids constitute about 15-20 % of the body weight in humans. Plasma lipids consists of triacylglycerols (16 %), Phospholipids (30 %), Cholesterol (14 %), and Cholesteryl esters (36 %) and a much smaller fraction of unesterified long-chain fatty acids (free fatty acids) (4 %).

Cholesterol is a soft, waxy substance found among the lipids (fats) in the bloodstream and in the body's cells. It is an important part of a healthy body because it's used to form cell membranes, some hormones and other needed tissues. But a high level of cholesterol in the blood – hypercholesterolemia – is a major risk factor for coronary heart disease, which leads to heart attack.

The plasma levels of lipids are often useful for assessing the health of the individual. Table: 1 Cholesterol, a waxy substance containing fats, is

found in foods such as meat, eggs, and other animal products. It is also produced in the liver. Saturated fatty acids are the chief culprit in raising blood cholesterol, which increases the risk of heart disease. But dietary cholesterol also plays a part. The average man consumes about 360 milligrams of cholesterol a day; the average woman, between 220 to 260 milligrams. Some of the excess dietary cholesterol removed from the body through the liver. Still, the American Heart Association recommends

Table 1: Lipids of human blood plasma

Lipid fraction	Concentration (mg/dl) Range	Mean
Total lipid	350-800	570
Triacylglycerol	75-175	140
Total Phospholipid	125-400	210
Total Cholesterol (free cholesterol)	150-250 (25-100)	200
Free fatty acids	5-15	10

to limit the average daily cholesterol intake to less than 300 milligrams. People with severe hypercholesterolemia may need an even greater reduction. Since cholesterol is present in all foods from animal sources, care must be taken to eat no more than six ounces of lean meat, fish and poultry per day and to use skim and low fat dairy products.

Obesity is a disorder of excess calorie intake, in simple language overeating. It has to be remembered that every 7 calories of excess consumption leads to 1 g. fat deposit and increase in body weight. If the intake of fuels is consistently greater than energy expenditure, the surplus is stored, largely as fat, leading to the development of obesity and its associated health hazards. Obesity particularly abdominal obesity is a risk factor for increased mortality, hypertension, type 2 diabetes mellitus, hyperlipidemia, hyperglycemia and various endocrine dysfunctions.

Excess weight increases the strain on the heart and increases the risk of developing coronary artery disease even if no other risk factors are present. Obesity increases blood pressure and blood cholesterol and can lead to diabetes. But this study observed, exactly opposite according to recommendation of American Heart Association and major health risk problem occur among the Sindhi community.

MATERIAL AND METHODS

A total 170 subjects both male and female participated in this study. Each subject was recorded with Age, Sex, Height in centimeters and weight in kilograms, smoking habit, food habit etc. Before the blood sample collection instructions should be given to each subject like 12 hours fasting without any take a coffee or tea. Every day twenty blood samples were collected and labeled properly. Prolong application of tourniquet during venipuncture can increase apparent lipid concentrations and the tourniquet should be released as soon as possible. Serum was separated in the biochemistry laboratory and analyzed on semi-auto analyzer, results were found is to be recorded and calculated. For accurate results of the study subjects every day standard of each test and quality control run for cross match. Total Cholesterol, HDL, Triglyceride was measured

directly but VLDL and LDL cholesterol was calculated from the following formula.

$$\text{VLDL} = \text{Triglyceride} / 5, \text{LDL} = \text{Total Cholesterol} - \text{HDL} - \text{VLDL}$$

Estrogen-Progesterone oral contraceptive medication associated with increases in plasma Cholesterol, Triglyceride and LDL, VLDL levels for that this study those female are not include.

RESULTS AND DISCUSSION

Table 2 shows the distribution of study subjects according to personal characteristics. 46 % subjects belonged to 35-45 years age group, while 29% & 25% subjects were 25-35 and >45 years. 63% subjects were non-smokers while in only 37 % of subjects there were smokers. 67% of the subjects were non-vegetable food habit. Majority (69%) subjects were obese while 31 % were non-obese. The control group of subjects was taken from general community having low (14.2 %) percentage of obese subjects as compare to Sindhi community group.

Table 3 shows abnormal value much more found in Sindhi community group as compare to general group. 14 % & 5 % subjects were found cholesterol level between 280-300 mg/dl & more than 300 mg/dl range. 31 % subjects were with Triglyceride level more than 200 mg/dl. Majority (41 %) subjects were having low density lipoprotein level is more than 150 mg/dl. High-density lipoprotein and very low-density lipoprotein are found were 4 % & 31 % subjects respectively. In Sindhi community group percentage show, most of the subjects were having hyperlipidemia.

Hypercholesterolemia and obesity lead to coronary heart disease. Most of the study found that due to faulty food habits increase the risk of heart attack. This study was done among the particular community and the surprisingly results were came out. Most of the subjects in this study having serious problem due to pay no heed our health.

The study shows that majority of the subjects in Sindhi community group were with hypercholesterolemia (19%) and obese (69%) as compare to general community group.

Table 2: Distribution of study subjects according to personal characteristics

Characteristics	Sindhi Community(N=100)				General Community(N=70)			
	M	F	Total	%	M	F	Total	%
Age (in years)								
25-35	13	16	29	29	14	4	18	25.7
36-45	28	18	46	46	32	9	41	58.5
>45	14	11	25	25	6	5	11	15.7
<i>Smoking Habit</i>								
Smoker	37	0	37	37	18	0	18	25.7
Non Smoker	63	0	63	63	52	0	52	74.2
<i>Food Habit</i>								
Vegetable	16	17	33	33	38	12	50	71.4
Non Vegetable	32	35	67	67	16	4	20	28.5
<i>Obesity</i>								
Obese	32	37	69	69	7	3	10	14.2
Non Obese	23	8	31	31	53	0	53	75.7

Table 3: Abnormal blood levels of lipids in the Sindhi community group and general community group.

Lipid Test	Sindhi Community		General Community	
	No	%	No	%
Cholesterol 280-30 mg/df	14	14	4	5.7
> 300 mg/df	5	5	1	1.4
Triglyceride 200-250mg/df	24	24	7	10
> 250 7	7	4	5.7	
HDL > 70 mg/dl	4	4	0	-
VLDL > 40 mg/dl	31	31	12	17.1
LDL > 150 mg/dl	41	41	12	17.1

This percentage shows significantly high risk for heart diseases. The development of atherosclerosis and the risk for the coronary heart disease (CHD) is directly correlated with plasma cholesterol and LDL.

Study shows necessary to advised consumption of unsaturated fatty acids, physical exercise, and reduction body weight and arrange health awareness Programme in Sindhi community group.

According to a recent study diets including mustard oil and vegetables (especially green leafy

vegetables) could contribute to lower the risk of heart disease among Indians. Aerobic exercise can lower blood pressure, help control weight, and increase HDL cholesterol. Moderate to intense aerobic exercise lasting about 30 minutes four or more times per week is usually sufficient for maximum heart health. People who are 20% or more over their ideal body weight have an increased risk of developing coronary artery disease. Losing weight can help reduce total and LDL cholesterol, reduce triglycerides, and increase HDL cholesterol. According to researchers, vegetable intake and use of mustard oil was significantly associated with

reduced risk of heart disease. Most of the subjects among the Sindhi community were with hypercholesterolemia and obese were to need regular checkup and exercise to live healthy life.

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