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Short Communication

Prevalence of High-risk Lipid Profiles in Hospital Population in Vijayawada Rural

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In the present study the rural population of Vijayawada was selected and 243 fasting blood samples were collected from the male and female patients who were suffering with one or more clinical symptoms of heart problem. The patients were analyzed for serum lipid profile i.e. Total Cholesterol, HDLCholesterol, Triglyceride (Tg), LDL-Cholesterol and VLDL-Cholesterol. The people were categorized according to their gender and age. The overall male patients were 146 and females were 97 in number. These people were separated by age groups like < 40 years (male: 35, female: 31), 41-60 years (male:82, female:55), > 61 years (male: 29, female: 11). The lipid profile significantly varied in the age group of 41-60 years in male and female patients where as there was no significant difference in the reaming age groups. A slight variation was observed between males and females within different age groups. Ultimately the 41-60 years age group showed the risk factors.

Keywords: Lipid profile, age, risk factor, gender

In an average Indian population, diseases due to altered levels of lipid profile are more frequent. A number of diseases including coronary artery disease (CAD) are manifested due to the accumulation of fat in the sub endothelial space of arteries. There is a great variations in serum lipid values in rural population and usually are affected by food habits, life style, races and socio-economic status, etc… (1). A reference value may be defined as a value obtained by observation or measurements of a particular type of quantity on the reference individual (2). An increased value of lipid profiles can be seen in some other clinical conditions such as hypothyroidism and obesity (3). Decreased values are always associated with hyperthyroidism and the condition generally called hypo lipidemia. Hence estimation of lipid profiles will help in the diagnosis of these diseases.

Materials and methods

The present study was conducted during January 2015 to May 2015. During this period the patients who came to Dr.Pinnamaneni Siddhartha Institute of Medical Science and Research Foundation and Rx Labs and Research Center, Gannavaram and some Vijayawda rural hospitals,

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Table 1. Lipid profile values of male and female subjects

Parameter (mg/dl)	<40 years		41-60 years		> 61 years	
	Male (n=35)	Female (n=31)	Male (n=82)	Female (n=55)	Male (n=29)	Female (n=11)
Total Cholesterol	198±3.9	213±2.5*	200±2.8	228±3.9	192±2.5*	224±2.4*
HDL-Cholesterol	37±0.64	38±1.2	40±0.8	39±1.1	38±1.02	40±2.7
Triglyceride (Tg)	197±2.3*	204±2.2*	194±2.3*	211±2.3*	191±2.1*	204±2.2*
LDL- Cholesterol	144±2.5*	119±3.2	141±3.8	129±2.7	134±2.3*	125±3.4
VLDL-Cholesterol	28±1.65	32±1.3	28±1.7	31±0.86	28±2.4	30±1.44

The data presented are means ± SE values.* represents P <0.05.

were screened for lipid profile. The present study comprises 243 patients, out of which 146 were male (age range from 20-80 years) and 97 were female (age range from 20-80 years). The patients showed at least one clinical symptom of heart disorder. For the sake of the present study, the patients were again categorized according to their age and sex, in order to know which group is more prone to the lipid related diseases. About 3 ml of 12 h overnight fasting blood sample was collected and serum was separated and analyzed for lipid profile within 5 h after collection (4-6). The test kit used for Total Cholesterol, HDL-Cholesterol, Triglyceride (Tg), was procured from Nicholas Piramal India Ltd, Navi Mumbai. LDL-Cholesterol and VLDL-Cholesterol were estimated by Friedwald's formula (7). The remaining chemicals and reagents used in this study were of analytical reagent grade procured from SD Fine-Chem Ltd, Mumbai. The results were statistically evaluated with Mean± SE with probability P<0.05 being considered as statistically significant.

Results

The overall lipid profiles (mean ± SE) of both male and female subjects according to age groups are presented in Table 1.

Discussion

The results of the present study clearly show that the number of males who has undergone the biochemical analysis of lipid profiles is higher than females,. Among those studied subjects, the age group 41-60 years is more represented both in males and females, which indicates that the lipid associated disorders are more prone in this age group, when compared with the remaining age groups. The abnormalities of blood lipids are related mainly to different dietary habits of people, life style, and heredity along with other factors. Triglycerides serve as depots of metabolic fuels and as energy source (8). When we compared our data with the normal data, no significance variation was seen, although people were suffering from at least one clinical symptom of heart related problems. As it is evident that the lipid molecules play a major role in various diseases, hyperlipidemy is more prevalent for coronary artery diseases which are always associated with lipidemia. Epidemiological studies suggested that triglycerides play an important role in determining most of the lipid related disorders. The primary course of high triglycerides includes familial hyper cholesterolemia and secondary effects can arise due to carbohydrate, alcohol and diabetes induced high triglycerides, obesity, chronic renal failure nephritic syndrome, excessive stress, etc… (9). The life style of a person can highly influence the lipid parameters. The habit of

smoking, alcohol consumption can modify the lipid levels (10). The nicotine stimulates the release of adrenaline leading to increased serum concentration of fatty acids, These fatty acids may stimulate the hepatic synthesis and release of cholesterol (11). Atherosclerosis is caused by many other factors like consumption of fat, excessive drinking of alcohol or hypertension (12). The incidence of lipid disorders is found to be more in male patients. In female patients, another reason for the increase of lipid profile in the serum may be lack of exercises and sedentary life style. A moderate level of exercises can help to utilize the fats stored in the adipose tissue. Complete history of the patients habits including their life style, food habits, level of exercise is necessary to categorize the patients and have a better knowledge of the incidence of lipid related disorders. In the present study, most of the patients were in the age group 41-60 years that clearly indicates that the lipid related disorders are more prevalent in this group. But the female patients showed higher serum lipid values when compared with the male in the same age group.

Conflict of interests

The authors declared no conflict of interests.

References

1. Murray R, Granner D, Mayes P, et al. Harper's biochemistry. 2000. Appleton and Lange: New York, NY. 2004.

2. Burtis C, Ashwood E. Establishment and use of reference values. Tietz textbook of clinical chemistry. 3 ed. Philadelphia U.S.A.: W.B. Saunders Company, 1999:336–56.

3. Martin Jr D, Mayes P, Rodwell V, et al. Harper's review of biochemistry. 20 ed: Lange Medical Publications, Los Altos, CA, 1985.

4. Trinder P. Estimation of serum total cholesterol by using chod-pod enzymatic reaction. Ann Clin Biochem. 1969;6:24.

5. Harris N, Galpchian V, Rifai N. Three routine methods for measuring high-density lipoprotein cholesterol compared with the reference method. Clin Chem. 1996;42:738-43.

6. Health N I o. National cholesterol education program, recommendations on lipoprotein measurement from the working group on lipoprotein measurement. In: Bethesda M, ed: NIH Publication, 1995:103.

7. Friedewald W T, Levy R I, Fredrickson D S. Estimation of the concentration of low-density lipoprotein cholesterol in plasma, without use of the preparative ultracentrifuge. Clin Chem. 1972;18:499-502.

8. Vasudevan D, Sreekumari S. Text book of biochemistry. 3 ed. New Delhi: Jaypee Brothers Medical Publishers,(P) Ltd, 2001.

9. Ramprasad M P. An update on the cellular basis of atherosclerosis in hypertriglyceridemia. Indian J Clin Biochem. 1995;10:2-8.

10. Manson J E, Tosteson H, Ridker P M, et al. The primary prevention of myocardial infarction. N Engl J Med. 1992;326:1406-16.

11. Bonanome A, Pagnan A, Biffanti S, et al. Effect of dietary monounsaturated and polyunsaturated fatty acids on the susceptibility of plasma low density lipoproteins to oxidative modification. Arterioscler Thromb Vasc Biol. 1992;12:529-33.

12. Satyanarayana U, Sreekumari S. Metabolism in biochemistry. New Delhi: Jaypee Brothers Medical Publishers, (P) Ltd, 2001.