Original Research Article

A study of lipid profile of patients with hypertension at tertiary health care centre

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Abstract

Background: Lipid profile is a good indicator for predicting early coronary risk factor along with BMI. **Objectives:** To study the lipid profile of patients attending tertiary care hospital. **Material and Methods:** randomly selected 100 cases were evaluated for lipid profile and overnight fast. BMI was calculated using Kg/m2 formula. **Results:** There were 65% male and 35% females in this study. With 26% of total cases 46-55 age group was most common age group in this study. Lower (< 25) BMI had more HDL (40.6±1.2 mg/dl) compared to those whos BMI was >25, higher BMI had higher LDL, VLDL, TG and cholesterol values. Mean age was 48.2±22.5 years, HDL value was 42.5±8.3 mg/dl, LDL was 105.6±40.9 mg/dl. **Conclusions:** Atherogenic lipid profile cannot be ruled out in this population, along with BMI lipid profile serves a good indicator for early coronary risk factor.
Key Word: Lipid profile, HDL, LDL, VLDL

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INTRODUCTION

Lipids and various lipoproteins are well known risk factors for cardiovascular diseases.[1]Lipids, represented by phospholipids, cholesterol, triglycerides (TG) and fatty acids, are considered essential to the human body, both by making up of the basic structure of cell membranes (phospholipids), and by acting as a precursor to steroid hormones, bile acids and vitamin D, as well as being a constituent of cell membranes, acting on the fluidity of the latter and in the activation of the enzymes located there (cholesterol).[2] Globally there is a wide variation in serum lipid profile among different populations. Increased serum levels of triglycerides (TG), low-density lipoproteins (LDL), total cholesterol (TC), and decreased high-density lipoproteins (HDL) are known to be associated with major risk factors for CVDs.[3] World Health Organization(WHO) reported 17.9 million people died from CVDs in 2015. By 2030 more than 22.2 million people will die annually from CVDs. Populations in low and middle income countries now contribute 75% of the CVD deaths. CVD is manifested in the form of coronary heart disease (CHD), myocardial infarction and stroke.[4] There was not enough data available about lipid profile of population in this area of study. So we conducted this study to evaluate the lipid profile of patients attending OPD at tertiary care centre.

MATERIAL AND METHODS

This observational study was done at the department of from on 100 patients, who attended the outpatient department. The patients were selected randomly as they came to OPD. Study was done after obtaining permission from institutional ethics committee. Patients aged below 18 years and terminally ill were excluded from the study. The procedure and methodology of the study was thoroughly explained to the patients as well as their relatives and the informed consent was obtained from all the participants. Detailed history was taken with the help of preformed proforma. Other patient details like the weight, height and body mass index were carefully noted after physical examination. Body mass index was calculated by using kg/m2 formula.[5] All the patients were

instructed for at least 12-14 hours overnight fasting and the 5ml venous fasting blood sample was collected the next morning before breakfast for the serum lipid profile from all the participants. The data was analyzed using SPSS-20 software package.

RESULTS

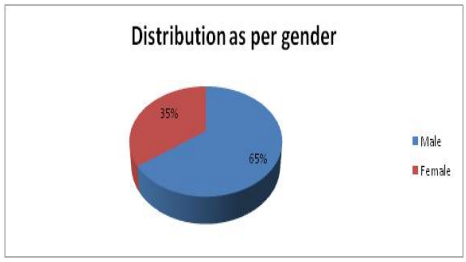

Figure 1: Distribution as per gender

There were 65% male and 35% females in this study.

Table 1: Distribution as per age groups

Age group	Male	Female	Total
18-25	3 (37.5)	5 (62.5)	8 (8)
26-35	11 (68.8)	5 (31.2)	16 (16)
36-45	13 (65)	7 (35)	20 (20)
46-55	19 (73)	7 (27)	26 (26)
56-65	15 (71.5)	6 (28.5)	21 (21)
Above 65	4 (44.5)	5 (55.5)	9 (9)
Total	65 (65)	35 (35)	100 (100)

With 26% of total cases 46-55 age group was most common age group in this study, 36-45 age group was 20% of total. 18-25 age group was least with only 8 cases.

Table 2: Distribution body mass index and lipid profile parameters

Lipid profile parameters (mg/dl)	BMI	
	< 25	> 25
HDL	40.6±1.2	28.5±2.1
LDL	98.5±3.2	109.9±2.9
VLDL	27.9±2.2	38.2±2.1
Triglycerides	135±5.5	202.±2.9
Cholesterol	181±5.6	190±6.5

Table 2 shows distribution as per lipid profile and BMI. Lower (< 25) BMI had more HDL compared to those whos BMI was >25, higher BMI had higher LDL,VLDL,TG had cholesterol.

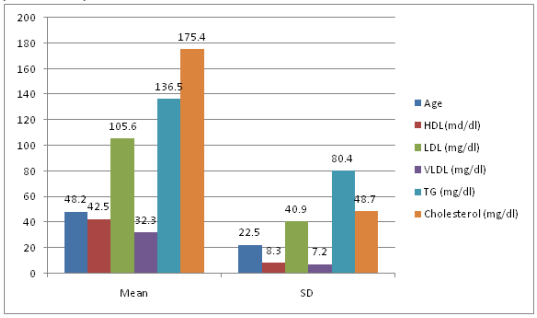

Table 3: Distribution as per mean and SD of lipid profile parameters

Mean age was 48.2±22.5 years, HDL value was 42.5±8.3 mg/dl, LDL was 105.6±40.9 mg/dl.

DISCUSSION

This was a observational study carried out in tertiary care centre on 100 randomly selected cases. 65% cases were male and 35% were females. Similar male dominance was seen withChungkham R et al[6] study. In this study 26% of total cases belonged to 46-55 age group which formed most common age group in this study, 36-45 age group was 20% of total. 18-25 age group was least with only 8 cases. Almost similar age group distribution was seen with Pant P et al[7] study. In our study the mean HDL in group of < 25 BMI was 40.6±1. mg/dl and in > 25 BMI group was 28.5±2.1mg/dl this was in accordance with Chungkham R et al[6] study. In this study we found that subjects who were having BMI > 25 had positive correlation with HDL, LDL, total cholesterol and triglyceride. The relationship between overweight and LDL was significant. Obesity was associated positively with HDL and LDL. This was in accordance with Archana et al[8] and Udiong CEJ et al[9] which in their respective studies showed that BMI correlated positively with HDL, LDL, TC and VLDL. The study by UdiongCEJ et al[9]also showed that Cholesterol levels are correlate with BMI indicates that the lipid levels are influenced by BMI. Similar was seen with our study. Himabindu Y et al[10]and Ugwuja EI et al[11].studies showed positive correlations BMI >25kg/m2 and VLDL. This was in accordance with our study. Mean age of study subjects was 48.2±22.5 years, HDL value was 42.5±8.3 mg/dl, LDL was 105.6±40.9 mg/dl. This was in accordance with Pant P et al[7] study with mean age of 50.2±16.1 years. mean HDL of 40.1±10.1mg/dl. Dietary and lifestyle pattern, anthropometric parameters, metabolic factors are reasons behind accelerated atherosclerotic changes in population. Lack of exercise, hypertension. Dyslipidemia are some of the reasons for coronary risk factors in this part of the religion. Study has its limitation as only a cross section of population was studied so we can not apply findings to general population. Also status of lipid profile has a multifactorial causation which needs to be evaluated with more sophisticated studies design.

CONCLUSION

We found that the BMI is associated with serum lipid profile and lipid profile was significantly higher in patients who had BMI ≥25, but for HDL which it was low in subjects having higher BMI.LDL, VLDL, TG and cholesterol were directly proportional to BMI while HDL was seems to be inversely proportional. Obesity will increase metabolic syndrome risk through risk

factors like accumulated plasma triglycerides, high cholesterol, VLDL sterol and low HDL cholesterol. Obese people having dyslipidemia are at lot of risk of developing CVD.

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