Lipid Profile in Diabetic and Non-Diabetics and its Effects

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ABSTRACT

In this study the risk factors like lipoproteins including HDL, LDL, VLDL and cholesterol have to be determined in diabetic and non-diabetics. In this the ratio of cholesterol to HDL and ratio of LDL to HDL has to be determined in diabetic and non-diabetic patients to know the risk of heart diseases. If ratios of these factors increased beyond the normal extent then the risk of heart disease also increases. A lipid profile test level taken from 300 patients reports to check the effect of them on diabetic and non-diabetic patients. And risk of heart diseases occurrence in them.

Keywords: Lipid profile, diabetes, HDL, LDL, VLDL

INTRODUCTION

Coronary heart disease is due to accumulation of lipoproteins in veins and cholesterol deposition. Coronary heart disease is a strong risk factor with the presence of different factors like HDL, VLDL, LDL, GOPT and blood pressure with their ages of patients. The lipoproteins accumulation during coronary heart attack is greater than the diabetes. “Diabetes mellitus is a metabolic complaint/disorder that mainly caused by the defect in insulin receptors, causing the thirst and uric acid secretion in excess from the body. In type 2 diabetes insulin is present, but body become resistance against it⁴⁻⁵. The effects of diabetes mellitus cause damage, dysfunction and failure of different organs. Diabetic complications may be related to the vascular or macro vascular complications which causes atherosclerosis, stroke, and peripheral artery disease. Microvascular complications in diabetic leading to end stage renal disease and blindness¹²⁻³. Plasma triglyceride and LDL cholesterol levels are increased in the case of hyperinsulinemia and also increases very low density lipoprotein (VLDL) synthesis in the liver³⁻⁴. Lipoprotein lipase resistance in peripheral tissues towards insulin also increases triglyceride and LDL cholesterol levels. The fatty acid coming from adipose tissue in the liver, causing formation of acetyl Co A which converts into VLDL⁵. Functions of the coronary artery atherosclerosis are also disturbed by the diabetes. Plasma proteins cross the endothelial obstacle. At this they are reversed by the collagen and proteoglycans that are like the subendothelial matrix. The matrix molecules are generated by the smooth muscle cells (SMCs) and ECs⁶⁻⁷. Due to this good cholesterol level decreases and causes the plaque formation in the arteries. Lipids accumulation occur due to increase uptake of lipoproteins by scavenger receptors on the smooth muscle cells nad macrophages. The resulting lesions are called the fatty streaks. Plasma lipoproteins deliver the cholesterol to peripheral tissues from the liver, particularly by the apolipoprotein B that are VLDL, LDL and LDL⁶. While HDL moves the cholesterol from the tissues back into the liver and act as good cholesterol. Homeostasis in the body are maintained by both of these well-organized mechanisms and liver is the house of the major metabolic processes like the production and excretion of cholesterol⁷⁻⁸.

METHOD

For the data collections, arrange the team that went to different labs where test of diabetic patients are taken. We applied there for the reports collection. Of all we went to the Malik Haider Hospital lab and get the data of heart patients and diabetics. Then we take the data from the City Hospital, Gujrat and Doctors Hospital, Gujrat. Our main focus was on the different values of blood glucose level, LDL, VLDL, HDL and these values are influenced by the glucose level in the body. Normal value of glucose in the body is between the 90-120mg percent in the body and when it exceeds from it, indicates that person is suffering from the diabetes. Also take the blood pressure of the patients for the comparison to check that what its effect on the heart and diabetes is. How diabetes leads towards the heart diseases.

Variables: Different variables taken and arrange them on the SPSS. And these variables have the universal/standard values. The standard values for the LDL that is used in the lab is up to 130mg%, HDL values for male is 40 while for the females is 43, cholesterol normal value for the healthy person should upto 200, triglyceride level must be less than

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200, vLDL level is between the 5-50mg%. Total 315 patients were taken for the study.

**Statistical analysis:** Data were analyzed through the SPSS. The mean values of the lipid profile LDL, HDL, vLDL were determined through the descriptive analysis. Mean and their maximum, minimum values of each variable determined. We perform the independent T test to check what the relation between the diabetes and lipid profile test and what are the chances of heart diseases in the diabetics and non-diabetics. Here take the p value of 0.05 or 95 % CI taken as statistically significant value.

**RESULTS AND DISCUSSION**

About 300 patients data obtained and analyzed to check the effect of different variables on the diabetes and non-diabetes condition and different factors ratios that can lead towards the heart diseases. SPSS a statistical tool is used to analyze the link of diabetes with LDL, HDL, cholesterol, triglyceride cholesterol. Data has been collected for around 300 patients from city hospital, Malik Haider hospital, Aziz Bhatti Shaheed hospital and Doctor’s hospital Gujrat. According to the reference values set by WHO for normal fasting blood glucose level that is 90 to 110. 37 males were non diabetic and 134 males were diabetic and 29 females were non diabetic and 100 females were diabetic according to the results analyzed by the SPSS (Table 1). It means that the prevalence of diabetic in females is more than in males. With the increase of age the chances of type II diabetic also increases.

**Statistics:** The average age mean of 300 individuals for non-diabetic patient is 47.77 and average mean age for diabetic is 52.1966. The p value of age is 0.017 which shows that with the increase in age the chances of diabetics also increase. The lipid profile of these diabetic and non-diabetic individuals were checked and compared. According to statistical analysis made from the SPSS the average mean of SGOT in non-diabetic is 3.55 and diabetic are 2.4. The average mean level of LDL, VLDL, HDL, cholesterol, triglycerides and other factors for diabetic and non-diabetic patients were mentioned in the table 2.

The p value of for LDL, cholesterol to HDL and ratio of LDL to HDL were less than 0.05 which shows that with the increase in blood glucose level there is an increase in the level of LDL while cholesterol and HDL decreases.

The p values of different variables are shown in the table 3.

**Table 1:**

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<tr>
<th>Gender</th>
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<th>Missing</th>
<th>N</th>
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<td>134</td>
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<tr>
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**Table 2**

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Table 3
### Table 3: Independent samples test

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### CONCLUSION

Our study has shown that the prevalence of heart diseases and liver damage increases with the increase in fasting glucose level. The data collected from different hospital analyzed by SPSS showed the correlation of diabetes type II with different variables. The results have shown that diabetes type II is a multifactorial disease which damage different organs. In type II diabetes there is an increase in risk of cardiovascular disease and liver damage as most heart and liver enzymes show abnormalities.

### REFERENCES