RESEARCH ARTICLE

Lipid profile in chronic alcoholics

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ABSTRACT

Background: Alcohol is the most common and cheapest recreational drink in the world. It is both a chemical and psychoactive drugs. Aim and Objective: The aim of the study is to determine the lipid profile in chronic alcoholics. Materials and Methods: The study group comprised chronic alcoholics among families, relatives, friends neighborhood workplace, and those attending health clinics. The subjects were 40 alcoholics within the age group of 30–50 years with lean body, normal blood pressure, no history of surgery, tuberculosis, diabetes mellitus, obesity, drug intake (steroids or immunosuppressive drugs), debility, and disability. The daily consumption of alcohol was about 50–100 g/day for 3–4 days a week, amounting to 50% of total calorie consumption. The questionnaire was used to detect alcoholism. Results: The results showed rise in triglycerides, total cholesterol, low-density lipoprotein, and high-density lipoprotein. Conclusion: The study shows the effect of alcohol to cause gross dyslipidemia and its toxic effects in the tissues. The therapeutic recommendation of alcohol for healthy heart is not recommended as overall dyslipidemia offsets it.

KEY WORDS: Lipoprotein; Recreational; Alcohol

INTRODUCTION

Alcohol is a psychoactive drug and its consumption pattern varies from person to person. There are two kinds of alcoholic beverages, that is, distilled and undistilled or fermented drinks. Wine and beer are undistilled beverages produced by bacteria and yeast that convert sugar into ethanol. Liquor and spirits contain more percentage of alcohol and are distilled beverages produced by distillation of fermented substances.

Alcoholism is commonly used in the American society but it is non-clinical descriptor. The American Medical Association defines chronic alcoholism as a “primary chronic disease with genetic, psychosocial, and environmental factors influencing the development and manifestation.”

Alcoholism is excessive use of alcoholic drinks leading to physical dependence/addiction that results in mental or physical health problems. It is not recognized diagnostic entity. The predominant diagnostic classification is “Alcohol Dependence,” that is, it is hard for an individual to control the alcohol consumption and “Alcohol Tolerance” meaning that an individual can consume more alcohol. The chronic alcoholics have increased alcoholic tolerance and dependence. Chronic alcoholism for a period of 15–20 years with alcohol ingestion of 50% of total calorie ingestion leads to dependence of the body on ethanol for energy.[1] The microsomal ethanol oxidizing system and the enzyme aldehyde dehydrogenase are the mechanism for oxidizing alcohol in liver. The study is performed to determine the lipid profile in chronic alcoholics. [2]
MATERIALS AND METHODS

The study group comprised chronic alcoholics among families, relatives, friends neighborhood workplace, and those attending health clinics. The subjects were 40 alcoholics within the age group of 30–50 years with lean body, normal blood pressure, no history of surgery, tuberculosis, diabetes mellitus, obesity, drug intake (steroids or immunosuppressive drugs), debility, and disability. The daily consumption of alcohol was about 50–100 g/day for 3–4 days a week, amounting to 50% of total calorie consumption.

The questionnaire was used to detect alcoholism. It included any lack of interest in normal activities with impairment to work and socialize; inability to say no to alcohol and neglect of proper nutrition, appearing intoxicated regularly and post-alcoholic anxiety, irritability, aggressiveness, tremors insomnia, confusion, and depression.

The control group included 40 healthy males between 30 and 50 years of age selected amongst the relatives neighborhood, friends, colleagues, and employees.

Blood Sampling

The blood sampling was done between 8.30 and 9.30 am from forearm vein of all the participants asked to fast for more than 8 h. The biochemical parameters analyzed were triglycerides (TGLs), total cholesterol (TC), low-density lipoprotein (LDL), and high-density lipoprotein (HDL). About 2 ml of venous blood in a biochemical tube was taken and the above-mentioned biochemical parameters were analyzed using automated analyzer.

RESULTS

The findings of the present study are summarized in Tables 1 and 2.

DISCUSSION

Alcohol is a psychoactive drug that has complex physiological, metabolic, nutritional, cardiovascular, and hepatic effect that varies according to age, gender, and consumption patterns.

In the present study, alcoholics demonstrate increase in mean value of fasting blood glucose in subjects that are statistically significant ($P < 0.01$). The present study demonstrates statistically significant ($P < 0.001$) decrease in total leukocyte count in subjects. In the present study, the difference in the mean value of total TGLs between subjects and controls as determined by unpaired $t$-test is statistically significant ($P < 0.0001$). In the present study, the mean value of TC in subjects is greater than that of control and the difference in the mean value is statistically significant as determined by unpaired $t$-test. The present study demonstrates increase in HDL in subjects as compared to controls and the difference in the mean value is statistically significant as determined by unpaired $t$-test. The difference in the mean values of LDL in the present study is also statistically significant ($P < 0.01$) among subjects and control.

Our observations are in compliance with the study conducted by Sheethal et al.[3] who demonstrated significant rise in TGLs, LDL, HDL, and TC in chronic alcoholics. Our findings are also in compliance with a study conducted by Toffolo et al.[4] who also reported increase in TGLs, LDL, HDL, and TC. Our findings are also in compliance with the study conducted by Park and Kim[5] who also demonstrated increase in the total TGL.

The effect of alcohol on the plasma lipid levels is variable and related to dose and duration of ingestion. Alcohol raises TGL level because body breaks calories from alcohol to use as fuel. Alcohol is consumed with food so that body stores calories from the food as fats in the TGL form. Furthermore, some of the alcoholic beverages contain added sugar which increases the TGL level.

Earlier, animal experiments have shown elevated tissue cholesterol levels due to alcohol.[6] Liver metabolizes alcohol and also produces cholesterol as alcohol is processed through the same organ that is responsible for making cholesterol. The increase in the TC in alcoholism leads to esterification of cholesterol in tissues and polymorph nuclear leucocytes.

The cardioprotective effect of alcohol is less as compared to gross dyslipidemia. However, consuming alcohol with the

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<th>Table 1: Age distribution of subjects and controls</th>
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<th>Table 2: Mean value of hematological parameter and lipid profile of subjects and controls</th>
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<td><strong>Parameter</strong></td>
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*Significant; **very significant; ***highly significant. LDL: Low-density lipoprotein, HDL: High-density lipoprotein
purpose of taking advantage of its cardioprotective effect is not recommended.

**Strength of the Study**

The study demonstrated lipid profile in alcoholics with long duration of alcohol intake.

**Limitations**

The study has limitations that excluded the lipid profile, especially HDL and LDL in alcoholics in hypertension. The study can indicate association but cannot be used to determine casualty. We did not analyze the beverage. The study did not include female alcoholics.

**CONCLUSION**

The study shows the effect of alcohol to cause gross dyslipidemia and its toxic effects in the tissues. The therapeutic recommendation of alcohol for healthy heart is not recommended as overall dyslipidemia offsets it.

**REFERENCES**


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