

CORRESPONDENCE

Study of Lipid Profile in Chronic Smokers

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Introduction

In developing countries like India percentage of population indulged in smoking has been increasing day by day causing morbidity and mortality in old as well as young population by putting smokers at higher risk of atherosclerosis leading to cardiovascular and cerebrovascular accidents. Many mechanisms have been considered regarding altered lipid profile in chronic smokers. Smoking is associated with increased homocysteine level in blood which causes oxidative modification in LDL cholesterol and decrease in HDL cholesterol.

Aim of the study was to see the pattern of lipid profile in chronic smokers in the city of Rajkot, Gujarat.

Materials And Methods

A total number of 100 subjects were analyzed in this study including 50 cases of exclusive smokers smoking for more than ten years and 50 cases of non-smokers of same age group taken as control group. Cases with history of hypertension, renal disease, alcoholism, diabetes mellitus, positive family history of ischemic heart disease, history of lipid lowering agents, obesity, chronic hepatic disease have been excluded.

The blood samples are collected after an overnight fasting for about 10 hours. The serum lipid profiles were studied, and mean was calculated separately for both the groups.

The reference range for normal, borderline and high total serum cholesterol was <200,200-250,>250 mg/dl respectively. The expected values for triglycerides was <150mg/dl, for LDL-C was <150mg/dl, for HDL-C was 35-55mg/dl,for VLDL was <30 mg/dl.

Results

As shown in Table, the lipid profile parameters such as Total Cholesterol, Triglyceride, VLDL-Cholesterol, LDL-Cholesterol were significantly higher in smokers as compared to non-smokers

while this was reverse the case with HDL-Cholesterol. HDL-Cholesterol was significantly lower in smokers than in non-smokers.

The table is showing

- Total cholesterol level is significantly higher in smokers group with the SD of 28.23 and p value is <0.05
- Triglycerides level is 191.11 with SD of 55.40 in smokers group which is significantly higher as the p value is <0.05
- VLDL -cholesterol is also significantly higher in smokers group with the SD of 10.23
- LDL cholesterol level 188.36 with the SD of 14.67 in smokers group I
- HDL cholesterol level is 51.70 mg/dl with the SD value of 5.30 in non smokers group which is aka good cholesterol.

Discussion

Cigarette smoking is a major risk factor for developing of ischemic heart disease because it has nicotine which has significant influence on the increasing levels of lipid in blood.

Krishnaswami S, et al., had done the study of association between cigarette smoking and coronary artery disease. In his study they found that the prevalence of CAD was higher among smokers than among nonsmokers. The same observation was found in our study also.

Our study showed significant decrease in levels of HDL-C (p<0.05) in chronic smokers than in non-smokers.

Table 1:

Name of parameter	Smokers group I Mean ± SD	Non smokers group II (Control) Mean ± SD	P-value
Total Cholesterol mg/dl	260.88 ± 28.23	182.50 ± 21.45	<0.05
Triglyceride mg/dl	191.11 ± 55.40	114.70 ± 30.10	<0.05
VLDL-Cholesterol mg/dl	37.37 ± 10.23	22.10 ± 6.40	<0.05
LDL-Cholesterol mg/dl	188.36 ± 14.67	106.34 ± 9.47	<0.05
HDL-Cholesterol mg/dl	39.6 ± 2.18	51.70 ± 5.30	<0.05

many studies reported high levels of plasma Homocysteine in chronic smokers. Plasma Homocysteine is negatively correlated with HDL-C and Apo A-I. Increase levels of Homocysteine may lead to decrease level of HDL-C by several mechanisms. Decreased levels of HDL-C in chronic smokers are explained by smoking induced catecholamine release, causing increase in VLDL-C and decrease in HDL-C concentrations. Thus smoking promotes Coronary Heart Disease and atherosclerosis by lowering the anti-atherogenic factor HDL-C and increasing the potentially atherogenic lipoproteins LDL-C which further may lead to vascular endothelium damage.

Summary

Our study reveals a strong relationship between cigarette smoking and increased serum lipid levels. In chronic smokers raised levels of total cholesterol, VLDL-C and LDL-C and decreased levels of HDL-C are largely associated with a greater risk of coronary heart diseases.

References

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