



A Study on the Correlation of Alcohol Consumption and Lipid Abnormalities in Coronary Heart Disease

KEYWORDS

alcohol, Non-communicable diseases, angina, cholesterol

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ABSTRACT *The present study deals with the correlation of alcohol consumption and lipid abnormalities in coronary heart disease. The study was carried out on the patients suffering from coronary heart disease who were admitted in the Post Graduate Institute of Medical, Education and Research (PGIMER), Chandigarh. Ninety six patients were taken for the study. The questionnaire method was employed to carry out the survey. The survey provided information regarding the age, sex, marital status, education, occupation and contained CAGE and Brief MAST questionnaire. The biochemical parameters studied were cholesterol, triglycerides, HDL, LDL, VLDL and fasting hyperglycemia in alcoholics and non-alcoholic patients. Results revealed that alcohol even in moderate amounts leads to risk of cardiovascular complication and in larger amount (binge) could precipitate the attack of acute myocardial infarction.*

INTRODUCTION

Non-communicable diseases (NCDs), such as diabetes, cancer, depression and heart disease, are rapidly replacing infectious diseases and malnutrition as the leading causes of disability and premature death (Shah and Mathur, 2009). Coronary artery disease (CAD) has been defined as "impairment of heart function due to inadequate blood flow to the heart compared to its needs, caused by obstructive changes in the coronary circulation to the heart." CAD manifests itself in many presentations like: Angina pectoris of effort, myocardial infarction, irregularities of the heart, cardiac failure, and sudden death (WHO, 1985). Eighty per cent of total deaths due to non-communicable diseases occur in the low income countries. Men and women are equally affected. Cancer, cardiovascular diseases (CVD) and diabetes are becoming of serious concern, accounting for 52 per cent of deaths and 38 per cent of disease burden in the WHO South East Asia Region (SEAR). With the current trends, the top five causes of disability adjusted life years (DALYs) lost in 2020 are likely to be ischaemic heart disease, unipolar major depression, road traffic injuries, cerebro-vascular diseases, and chronic obstructive lung disease¹. It has been estimated that a 2 per cent reduction in chronic diseases death rates per year globally could result in saving about 36 million premature deaths by the year 2015.

Excessive alcohol intake has been associated with an elevated risk of liver disease, heart failure, some cancers, and accidental injury, and is a leading cause of death in industrialized countries (CDC, 2004). However, extensive research has shown that moderate alcohol intake is associated with health benefits, including less cardiovascular disease, diabetes, hypertension, and lower all-cause mortality (O'Keefe, Bybee and Lavie, 2007). Long term use of alcohol consumption is also associated with higher blood pressure (Keil et al., 1993) and cardio vascular diseases.

The main objectives of the study were: 1. To correlate the intake of alcohol and development of coronary heart disease in patients admitted in hospital (Cardiac wards). 2. To study the correlation of total lipid profile (cholesterol, triglycerides, LDLc, VLDLc, HDLc and coronary heart disease). 3. To explore the correlation between fasting hyperglycemia and coronary heart disease.

METHODOLOGY

The present study was carried out on the patients suffering from coronary heart disease, who were admitted in CTU wards in PGIMER, Chandigarh. 96 patients suffering from

coronary heart disease (CHD) were taken for the study and survey was conducted to determine the correlation of alcohol consumption and lipid abnormalities in coronary heart disease patients. The questionnaire method was employed to carry out the survey. The survey provided information regarding the age, sex, marital status, education, occupation and included CAGE and Brief-MAST questionnaire. The patients were screened by using CAGE and Brief-MAST questionnaires. The blood sample of patients were taken from the antecubital vein using a 19- Gauge sterile needle and biochemical parameters were measured by standard kits following the IFCC protocol.

RESULTS

Alcohol and coronary heart disease

Alcohol Intake	No. Of Patients	% Of Patients
Heavy	25	55.5%
Moderate	14	31.2%
Social	6	13.3%

According to table 1, out of 96 patients taken for the study, 45 were found to be alcoholics. Out of those 45 patients, 25 (55.5%) were those who indulged in heavy drinking, 14 (31.2%) indulged in moderate drinking and 6 patients (13.3%) were those who were occasional drinkers.

Relationship of duration of drinking with AMI

Out of 45 alcoholic patients, 32 were found out to be suffering from AMI. 10 patients were moderate drinkers i.e. consuming less than 2400ml of alcohol and 22 were heavy drinkers i.e. consuming more than 2400ml of alcohol. There was a significant ($p \leq 0.05$)* difference in the incidence of acute myocardial infarction (AMI) in patients who were indulged in heavy drinking as compared to persons who were taking moderate amount of alcohol.

Lipid profile of alcoholic and non alcoholics

Parameter	Alcoholics (45)	Non - alcoholics (51)	t-value
Cholesterol (mg/dl)	199.00±63.35	172.53±30.52	2.66**
Triglyceride (mg/dl)	180.38±60.96	152.39±66.049	2.51*
HDL (mg/dl)	37.98±6.73	48.85±8.55	3.075**
LDL (mg/dl)	133.55±56.37	103.20±30.85	3.32

Mean ± SD of alcoholic and non alcoholic patients.

* $p \leq 0.05$, difference in alcoholics and non alcoholics is significant.

****p ≤ 0.01, difference in alcoholics and non alcoholics is highly significant.**

Table 2 shows the alteration in lipid profile of alcoholics and non alcoholics. It is observed from the table that the mean value of the LDLc of the alcoholics is highly significant than the non alcoholics. The level of HDL was found to be more in non alcoholics. Even triglyceride level was found to be more in alcoholics.

Hyperglycemia

Out of 96 patients suffering from coronary heart disease it was found that about 48 patients (50%) were detected with fasting hyperglycemia.

CONCLUSION

Large amount of alcohol consumption especially binge alcohol consumption and alcohol consumption for large period especially more than ten years can precipitate the attack of acute myocardial infarction. alcohol consumption in moderate and heavy quantity, showed direct relationship with cardiomyopathy, hypertension, cardiac arrhythmia including heart failure. Alterations in normal lipid profile values were found to have adverse effect on the functioning of heart and increase the risk of coronary heart disease. It was concluded from the results that even HDLc referred as good cholesterol is more in non alcoholics.

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