LIPID PROFILE OF PATIENTS WITH ISCHAEMIC HEART DISEASE FROM RURAL AREA OF MARTHAWADA REGION, INDIA

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Abstract
Background: Extensive research work by mankind over several decades has concluded that cure as well as the treatment of CAD is very difficult hence attention towards prevention of such ischemic events is of utmost importance.

Methods: The present study was conducted with an aim to study lipid profile of patients of Ischemic Heart Disease (IHD).in comparison with healthy controls. A total of 150 IHD patients for the study were selected from the Medicine Ward, ICU, and OPD. Normal healthy person of matched number, age and sex of the study group were used as control.

Results: Serum cholesterol, TG, VLDLc, LDLc and AIP were significantly higher in IHD patients as compared to healthy controls.

Conclusion: Lipid profile is very useful research tool to assess the effect of risk factors pertaining cardiovascular diseases.

Keywords: Cholesterol, Ischemic heart disease, lipid profile, triglyceride

1. Introduction:
Cardiovascular disease is the most frequent cause of adult death in industrial societies and is increasingly important in developing countries like India. It represents the major challenge that affects each of us professionally and personally. Extensive research by man over several decades has concluded that cure of coronary heart disease is very difficult hence prevention of such ischaemic events becomes mandatory.
A large number of epidemiological studies have indicated that ischaemic event do not occurs at random. There are many risk factors, which precede them by several years. Some of the risk factors like lipid disorders, smoking, hypertension, Diabetes Mellitus, haemostatic variable, sedentary life style, obesity are modifiable and other like age, sex, personality, family history are immutable. Presence of any of these risk factors places an individual in high risk category for developing ischaemic events. Greater the number of risk factors present more likely one is to develop ischaemic event. Hence study of risk factor is important.
Amongst these risk factors lipid accumulation produces and facilitates the complex process of vascular injury. Disease of coronary arteries is almost always due to atheroma and its complication, particularly thrombosis. The risk of coronary heart disease is high in person with high serum cholesterol levels. The famous Framingham study of large population over fifteen years firmly established cholesterol as an important risk factor for coronary heart disease. The coronary heart disease is worldwide with local difference in incidence, severity and natural history.
Therefore the present study was planned at Swami Ramnanad Treeth Rural Medical College Rural Medical College and Hospital, Ambejogai with an aim to conduct clinical survey of patients of coronary heart disease and to evaluate the role of various lipids in the disease.

2. Material and Methods:
The present study was conducted in Department of Biochemistry, S R T R Medical College Ambejogai. A total of 150 patients, diagnosed as a case of ischaemic heart disease (IHD) were included in the study. Control group included normal healthy persons of matched age and sex. From both study and control group, the blood sample was obtained after overnight fasting from antecubital vein with all aseptic precautions. The blood was collected in the plain bulb for the estimation of serum lipid profile.
Blood was centrifuged at 3000 rpm for five minutes. The serum separated was used for the lipid profile estimations by a routine biochemical Kits methods using ERBA Chem 5+ Semi-automated machine. Estimation of Serum Cholesterol was done by (Enzymatic) Dynamic extended stability CHOD – PAP method, End point with Lipid clearing agent. Serum HDL cholesterol was estimated by Phosphotungstic Acid Method, End Point. Estimation of Serum Triglyceride was done by Dynamic extended stability End point with Lipid clearing agent, Trinder Method. VLDLc and LDLc are calculated parameters and they calculated using Friedwald’s Formula, TG/5 where TG is less than 400 mg/dl, LDLc was calculated as: TC - (HDLc + VLDLc) these two are calculated parameters.

3. Results and Discussion:
As shown in figure 1, the mean value of total cholesterol, triglycerides, very low density lipoprotein cholesterol (VLDLc), low density lipoprotein cholesterol (LDLc) were significantly higher in patients clinically diagnosed for IHD as compared to the healthy control. High density cholesterol (HDLc) was significantly low in IHD patients. In the present study IHD was more common in males as compared to females. Lipid profile was significantly high in the patients of IHD below the age of 50 years. Coronary artery disease (CAD) is the chief single cause of death both in developed and developing countries. It affects the people in the prime of life, when they are in the most productive stage. It is established by now that CAD is potentially preventable, even reversible. It was considered that CAD is the disease of civilization but now the condition is different as CAD is also becomes more prevalent in low socioeconomic group as in rural area.

As S R T R Medical College is largest rural medical college in Asia and the patients studied here are also from the rural area with low socioeconomic status. In our study the significant increase in lipid profile was noted in patients IHD. These findings are agreement with the findings of Vakil et al., Nazer et al., and Passey et al. Serum total cholesterol serum, triglycerides serum VLDLc, serum LDLc are statistically higher in IHD patients as compared to controls, where as serum HDLc was found to be low. Similar findings have been reported by various authors. The present study underlines the fact that risk of IHD increases with age. Male predominance was noted in our study. Goldstand et al. in their study observed IHD to be much less common in premenopausal women than in men of same age. Our study documents that IHD in rural population is more common above the age of 50 years.

In our study neither alcoholic nor smoker females reported. Females had slightly low values which correlate with findings of various Indian studies such as Dutta and Vangsarkar et al. The studies of Rifkind et al. and Tyroler H A et al showed that lowering cholesterol by cholesterol lowering agents decreases the cholesterol level associated with the decrease in the incidence of coronary artery disease. Our finding shows that hypercholesterolemia is significant risk factor for CAD. Serum triglyceride levels were found to be significantly higher in IHD patients than in age and sex matched controls. Rosenman R H et al. observed high serum triglyceride value of in patients with angiographically demonstrated CAD. Mean HDLc concentration was low in IHD patients. Serum HDLc levels has an inverse relationship with development of CAD. Marisaki et al. observed low HDLc levels in the obese diabetic persons. Our findings were similar to that of Miller et al., Castelli and Gordon et al, and Garg et al. The mean VLDLc as well as mean LDLc levels were significantly increased in IHD cases as compared to controls. LDLc level above 130mg% is considered to be a risk factor for development of IHD. Kabi et al. and Steven A et al. showed the positive co-relation of with IHD. Results of Lipid Research Clinic Prevalence Study showed that the ratio of total cholesterol / HDLc was better predictor of CAD. Thus the increase ratio was associated with increased IHD mortality for both young and old patients. This ratio was more in males as compared to that of females of the same age. This finding co-relates with the observation of Castel and Neaton. Thus, it can be concluded that the study of lipid profile is must to evaluate the risk of IHD patients as the raising tendency of different lipid fractions were noted in our study.
References:


Figure. 1 Mean value of lipid profile of IHD patients and healthy controls.

(All values shown in graph expressed in mg/dl)