

Lipid Profiles in Alcoholics

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Abstract:

Thirty nine male alcoholics in the age group (41.3 ± 8.3 years) with an average daily consumption of more than 60g of ethanol were compared with healthy subjects in the same age group. Venous blood samples were collected from both alcoholics and healthy subjects after 12 - 14 hour fast and the lipid profiles were determined. All biochemical tests done on alcoholics were repeated after one-two weeks of hospital abstinence from ethanol. Alcoholics were divided into two subgroups based on their liver histologies i.e; alcoholics without liver disease and alcoholics with liver disease. Serum total cholesterol, total HDL - cholesterol and cholesterol content of HDL - subfractions were determined by Abell and Kendall's method. The Serum HDL - cholesterol fraction was separated from other lipoproteins using heparin / Mn²⁺ precipitating reagent. A double precipitation method using NaCl/Dextran SO=4 precipitating reagent was used to separate serum HDL3 cholesterol fraction. The serum triglyceride concentration was determined using the Hantzch reaction. The serum LDL cholesterol level was calculated using Friedewald's equation. As an independent assessment of alcohol consumption serum levels of gamma glutamyl transpeptidase were also monitored. Alcoholics and healthy subjects did not have significantly different serum total and LDL cholesterol levels. Alcoholic without liver disease had a significantly higher ($P < 0.05$) Serum triglyceride concentrations compared with healthy subjects. The mean serum triglyceride level of alcoholics with liver disease was similar to that of alcoholics without liver disease but the difference was not significant. Significantly higher serum HDL cholesterol ($P < 0.01$) and HDL3 cholesterol ($P < 0.01$) levels were observed in alcoholics without liver disease as compared with healthy subjects but not in alcoholics with liver disease. Elimination of alcohol from the diet significantly reduced serum total HDL cholesterol ($P < 0.01$) and HDL3 cholesterol concentration ($P < 0.05$) in the alcoholic subgroup without liver disease but had no significant effect on serum HDL2 cholesterol concentrations. The change in serum HDL3 cholesterol concentration was directly correlated with the subjects alcohol consumption ($r = 0.38, P < 0.02$). A positive relationship was noted between serum total HDL cholesterol and gamma glutamyl transferase concentrations ($r = 0.32, P < 0.05$) while a stronger positive correlation existed between gamma glutamyl transferase and HDL3 cholesterol levels ($r = 0.45, P < 0.001$). These results suggest that the ethanol induced elevation of total HDL cholesterol is mediated through an increase in HDL3 cholesterol rather than through an increase in HDL2 cholesterol, the component which protects against CHD.

Key Words : Alcoholism-metabolism / Lipids-blood / Lipoproteins, HDL / ALCOHOLISM