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Lecithin:Cholesterol Acyltransferase Activity and Cholesteryl Ester Transfer Rate in Patients
with Diabetes Mellitus

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Abstract: Several factors may be responsible for the high prevalence of atherosclerosis in diabetes mellitus, including alterations in reverse cholesterol transport. In the present study, the activity of plasma lecithin:cholesterol acyltransferase (LCAT) and the cholesteryl ester transfer rate, and concentrations of lipids and lipoproteins were measured in 11 patients with insulin-dependent diabetes mellitus (type 1), 42 patients with noninsulin-dependent diabetes mellitus (type 2) and compared with those in age-matched control groups (Control I, n = 14; and Control II, n = 29, respectively). No statistically significant differences were observed in plasma total cholesterol, triglyceride, ester cholesterol or very low density lipoprotein (VLDL)-cholesterol concentrations between the diabetic and control groups. High density lipoprotein (HDL)- and HDL₂-cholesterol levels were significantly lower in the diabetic patients. Plasma free cholesterol and low density lipoprotein (LDL)-cholesterol concentrations were higher in the type 2 diabetics than in the control subjects. LCAT activity was significantly lower in both groups of diabetic patients than in the control groups. The mass of cholesteryl ester transferred from HDL to VLDL + LDL was significantly greater in the diabetic groups than in the controls. In conclusion, the decrease in LCAT activity and the increase in cholesteryl ester transfer observed with both type 1 and type 2 diabetics could affect the reverse cholesterol transport of HDL and contribute to the development of atherosclerosis in diabetes.

Key Words: Diabetes, Lecithin:cholesterol acyltransferase, Cholesteryl ester transfer, Reverse cholesterol transport

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