

Abstract

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L-Carnitine supplementation reduces oxidized LDL cholesterol in patients with diabetes.

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BACKGROUND: Patients with type 2 diabetes are under high oxidative stress, and levels of hyperglycemia correlate strongly with levels of LDL oxidation. **Carnitine favorably modulates oxidative stress.**

OBJECTIVE: This objective of this study was to evaluate the efficacy of L-carnitine on the reduction of oxidized LDL cholesterol in patients with type 2 diabetes.

DESIGN: Eighty-one patients with diabetes were randomly assigned to 1 of 2 treatment groups for 3 mo. The 2 groups received either 2 g L-carnitine once daily (n = 41) or placebo (n = 40). The following variables were assessed at baseline, after washout, and at 1, 2, and 3 mo of treatment: body mass index, fasting plasma glucose, glycosylated hemoglobin, total cholesterol, LDL cholesterol, HDL cholesterol, triglycerides, apolipoprotein A1, apolipoprotein B-100, oxidized LDL cholesterol, thiobarbituric acid-reactive substances, and conjugated dienes.

RESULTS: **At the end of the study period, the L-carnitine-treated patients showed significant improvements compared with the placebo group** in the following markers: oxidized LDL levels decreased by 15.1 compared with 3.0 U/L (P < 0.001); LDL cholesterol decreased by 0.45 compared with 0.16 mmol/L (P < 0.05); triglycerides decreased by 1.02 compared with 0.09 mmol/L (P < 0.001); apolipoprotein A1 concentrations decreased by 0.12 compared with 0.03 mg/dL (P < 0.05); apolipoprotein B-100 concentrations decreased by 0.13 compared with 0.04 mg/dL (P < 0.05); thiobarbituric acid-reactive substance concentrations decreased by 1.92 compared with 0.05 (P < 0.001), and conjugated diene concentrations decreased by 0.72 compared with 0.11 in the placebo group (P < 0.001).

CONCLUSION: **Our study indicates that oral administration of L-carnitine reduces oxidized LDL cholesterol levels in patients with type 2 diabetes.**

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