

Abstract

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Effect of apolipoprotein E4 allele on plasma LDL cholesterol response to diet therapy in type 2 diabetic patients.

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OBJECTIVE: The aim of this study was to investigate the effect of apolipoprotein (apo)E4 allele on plasma LDL cholesterol response to calorie-restricted diet therapy in type 2 diabetic patients.

RESEARCH DESIGN AND METHODS: Twenty-four diabetic patients with the apoE3/3 genotype and 11 diabetic patients with the apoE4/3 genotype were recruited. Participants were hospitalized for calorie-restricted diet therapy (25.0 kcal. kg body wt(-1). day(-1)) for 14 days. Body weight, fasting plasma glucose (FPG) levels, and plasma lipid levels on hospital days 1 and 14 were compared between the two apoE genotype groups.

RESULTS: There were no significant differences in baseline FPG levels, HbA(1c) levels, BMI, and plasma levels of total cholesterol, triglyceride, and HDL cholesterol between the two apoE genotype groups, but baseline plasma levels of LDL cholesterol were significantly higher in the apoE4/3 group than in the apoE3/3 group. Body weight decreased slightly and FPG levels decreased significantly after diet therapy in both apoE genotype groups. In the apoE3/3 group, only plasma levels of triglyceride decreased significantly after diet therapy, whereas in the apoE4/3 group, plasma levels of triglyceride, total cholesterol, and LDL cholesterol decreased significantly after diet therapy. The decrease (percentage of change) in total cholesterol (-16.3 vs. -6.6%) and LDL cholesterol (-15.6 vs. -0.7%) after diet therapy was significantly greater in the apoE4/3 group than in the apoE3/3 group.

CONCLUSIONS: Calorie-restricted diet therapy is more effective in reducing plasma LDL cholesterol in type 2 diabetic patients with the apoE4 allele.

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