

# Abstract

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## Effect of L-carnitine on the size of low-density lipoprotein particles in type 2 diabetes mellitus patients treated with simvastatin.

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**OBJECTIVE:** Therapeutic modulation of low-density lipoprotein (LDL) size could be of benefit in reducing the risk of cardiovascular events in diabetic patients. This study evaluated the efficacy of L-carnitine on the size of LDL particles in type 2 diabetes mellitus patients treated with simvastatin.

**METHODS:** Eighty diabetic patients were randomly assigned to 1 of 2 treatment groups for 3 months. The 2 groups received either simvastatin monotherapy 20 mg (n = 40) or L-carnitine 2 g/d and simvastatin 20 mg (n = 40). The following variables were assessed at baseline; after washout; and at 1, 2, and 3 months of treatment: body mass index, fasting plasma glucose, glycosylated hemoglobin, total cholesterol, LDL cholesterol, LDL subclasses, LDL size, high-density lipoprotein cholesterol, triglycerides, apolipoprotein A-1, and apolipoprotein B-100.

**RESULTS:** After 12 weeks, comparing the 2 groups, we observed a decrease in fasting plasma glucose (1.45 vs 0.61 mmol/L,  $P < .001$ ) and an increase in glycosylated hemoglobin (0.2% vs 0.4%,  $P < .05$ ). Moreover, there was a decrease in total cholesterol (2.07 vs 1.45 mmol/L,  $P < .001$ ), LDL (1.65 vs 1.29 mmol/L,  $P < .001$ ), triglycerides (1.36 vs 0.41 mmol/L,  $P < .001$ ), apo B-100 (49 vs 9 g/L,  $P < .001$ ), and small-sized LDL proportion (10.8% vs 4.9%,  $P < .001$ ), whereas LDL particle size increased (6 vs 3 A,  $P < .001$ ) and HDL increased (0.2 vs 0.11 mmol/L,  $P < .001$ ).

**CONCLUSION:** We observed that patients treated with carnitine and simvastatin showed a reduction in small-sized LDL proportion and an increase in LDL particle size.

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