Association between low-dose folic acid supplementation and blood lipids concentrations in male and female subjects with atherosclerosis risk factors.

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BACKGROUND: Folic acid (FA) is one of the B complex vitamins. It is thought that FA deficiency promotes atherosclerosis formation in arterial endothelium. FA, acting through reducing homocysteine (Hcy) levels, may contribute to decreased cholesterol (Ch) synthesis. The aim of this study was to analyze the association of low-dose folic acid supplementation with blood lipids concentrations in subjects with atherosclerosis risk factors.

MATERIAL/METHODS: The study enrolled 124 Caucasian individuals (60 M, ages 20-39; and 64 F, ages 19-39) with atherosclerosis risk factors (family history of premature ischemic stroke, arterial hypertension, dyslipidemia, overweight and obesity, cigarette smoking, and low level of physical activity). The participants were asked to take FA at a low dose of 0.4 mg/24 h for 12 weeks.

RESULTS: FA levels increased in females (6.3 vs. 12.5 ng/dL; p=0.001) and males (6.4 vs. 11.4 ng/dL; p=0.001) and Hcy levels decreased (10.6 vs. 8.3 µmol/L; p=0.001 and 11.5 vs. 9.3; p=0.001, respectively). A significant reduction in mean concentration of total cholesterol in females (203.4 vs. 193.1 mg/dL; p=0.001) and males (209.5 vs. 201.9; p=0.002) was observed. The low-density lipoprotein cholesterol (LDL-C) levels decreased in females and in males (107.4 vs. 99.9 mg/dL; p=0.001 and 121.5 vs. 115.1; p=0.002, respectively). The apoAI concentrations increased in smoking women and in men with BMI ≥ 25 kg/m² (p=0.032 and p=0.024, respectively).

CONCLUSIONS: Low-dose FA supplementation has a beneficial effect on blood lipids through decreasing concentrations of total cholesterol and LDL-C and increasing concentrations of apoAI.

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