

Abstract

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Fish-oil supplement has neutral effects on vascular and metabolic function but improves renal function in patients with Type 2 diabetes mellitus.

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AIMS: Increased dietary fish-oil consumption is associated with a reduced risk of coronary heart events and has pronounced effects on dyslipidaemia. However, the effects of fish-oil supplement on vascular function and metabolic profile in patients with Type 2 diabetes mellitus (DM) are unclear.

METHODS: In a double-blind placebo-controlled trial, we randomized 97 Type 2 DM patients without prior cardiovascular disease to fish-oil (4 g/day, n = 49) or olive-oil (with equivalent calories, as placebo, n = 48) supplements for 12 weeks. Assessment of vascular function with brachial artery flow-mediated dilation (FMD) and circulating levels of endothelial progenitor cells (EPCs), and metabolic parameters, high-sensitivity C-reactive protein (hsCRP), oxidative stress markers and renal function were examined before and after the supplement.

RESULTS: Despite a significant reduction in serum triglycerides (-0.47 mmol/l, $P < 0.01$), 12-week supplement of fish oil did not improve vascular function as determined by FMD (+0.16%, $P = 0.83$) and circulating EPC count (+4 cells/microl, $P = 0.78$). Furthermore, fish-oil supplement did not have any significant treatment effects on hsCRP, oxidative stress, low- and high-density lipoprotein and glycated haemoglobin (HbA_{1c}) (all $P > 0.05$). In contrast, serum creatinine was lower (-4.5 micromol/l, $P = 0.01$) in fish-oil-treated patients as compared with control subjects.

CONCLUSIONS: This study demonstrated that 12 weeks of fish-oil supplement had no significant beneficial effect on vascular endothelial function, but improved renal function without changes in endothelial function, metabolic profiles, blood pressure, inflammation or oxidative stress in patients with Type 2 DM.

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