Abstract: 284

Visualization of coronary artery calcification and the influence on preventive therapy and lifestyle modification

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Background: The relation of coronary computed tomography (CCTA) findings in symptomatic patients regarding adherence to preventive medical therapies and risk modification is unknown. The purpose of this study was to test the effect of "visualization" of coronary artery calcification and brief recommendations on cholesterol levels and other risk variables in patients with a new diagnosis of coronary artery disease (CAD).

Methods: A prospective two-center randomized controlled trial. Patients were randomized 1:1 to standard follow-up in general practice or intervention. Patients were followed for six months. The primary end-point was change in serum total-cholesterol.

Results: The study included 189 patients, aged 61 ± 12 years (males 57%), and median (IQR, range) Agatston score was 166 (101-334, 70-2054). Intention-to-treat analysis showed a tendency towards a more effective absolute reduction in total-cholesterol levels in the intervention group (1.32 mmol/L versus 1.18 mmol/L, P = 0.181). In a subgroup analysis excluding patients discontinuing statin therapy due to side effects (N = 147), the 6-months reduction in total-cholesterol was more efficient in the intervention than in the control group, 1.71 mmol/L versus 1.44 mmol/L, (P = 0.027). More patients in the control group continued smoking (22% versus 9%, P = 0.014) and unhealthy dietary behaviour (64% versus 44%, P = 0.005). Weight loss was more pronounced in the intervention group (-1.5 kg versus +0.5 kg, P = 0.001) and furthermore there was a tendency towards a higher degree of statin adherence in the intervention group (P = 0.056).

Conclusion: Visualization of coronary artery calcification and brief recommendations regarding risk modification after CCTA in symptomatic patients with a new diagnosis of CAD has a positive effect on serum total-cholesterol levels, statin adherence, smoking cessation, healthy dietary behavior, and weight loss.