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Effect of n-3 Fatty Acids on Regression of Coronary Atherosclerosis in Statin Treated Patients Undergoing Percutaneous Coronary Intervention

Purpose: N-3 polyunsaturated fatty acids(ω-3 PUFA) would be expected to reduce the risk of atherosclerosis and coronary artery disease(CAD). However, statins are still the mainstay of secondary prevention, and limited data are available on the benefits of adding ω-3 PUFA to statin therapy for regression of plaque burden. The aim of this study was to investigate the additive effects of ω-3 PUFA on regression of atherosclerosis and clinical outcomes.

Methods: Seventy-four CAD patients undergoing percutaneous coronary intervention(PCI) with stent implantation were enrolled. They were prescribed statins and then randomly divided into two groups: n-3 group(ω-3 PUFA 3 g/day, n=38) vs. placebo group(placebo, n=36). Intravascular ultrasound was performed at baseline and at 12-month follow-up. The primary endpoint was a change in plaque volume index, a change in percent plaque volume and the secondary endpoints included neointimal volume index, a change in serum lipid profiles, and the rate of major adverse cardiac events(MACE).

Results: A total of 74 subjects completed the study. There was no difference in the baseline characteristics between the groups. No significant differences were observed in the percent change in plaque volume index(-12.65% vs. -8.51%, p=0.768) and percent plaque volume(-4.36% vs. -9.98%, p=0.526) and the neointimal volume index(7.84 vs. 4.94 mm3/mm, p=0.087) between the groups. The rate of MACE was similar between the two groups(21.1% vs. 16.7%, p=0.630).

Conclusion: This study demonstrates that ω-3 PUFA did not have an effect on regression of coronary atherosclerosis and clinical outcomes when added to statin therapy in CAD patients undergoing PCI.