Effects of Dietary Manipulation with Fish Oil on Platelet Receptors for von Willebrand Factor and Fibrinogen in Patients with End-Stage Renal Disease

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Dear Sir,

Many reports showed the effects of fish oil (n-3 polyunsaturated fatty acids (PUFA) on the cardiovascular system [1, 2] and metabolism [3,4]. Several reports have found that fish oil reduces the incidence of restenosis of coronary arteries after angioplasty [5]. Fish oil seems to improve endothelial function and platelet activity, lowering also triglyceride levels with increase of HDL cholesterol. Lipid metabolism abnormalities, platelet dysfunction and progressive atherosclerotic disease are often seen in patients with end-stage renal disease (ESRD). The aim of this study was to demonstrate that dietary manipulation with fish oil not only seems to improve lipid metabolism disturbance in ESRD patients, but may also have a favorable effect on platelet function. Recently we reported alterations for platelet receptors for von Willebrand factor (vWF) and for fibrinogen in uremic patients [6]. We investigated platelet receptors for vWF with flow cytometry and monoclonal antibodies (CD-42b/ GP-Ib and CD-41, GP-IIb-IIIa) in 7 patients with ESRD receiving dialysis before and after dietary addition of fish oil (Seacor, SpA, Italy). The monoclonal antibodies (Immuno-tech SA, Marseille, France) were directly labelled with fluorescein isothiocyanate (FITC). To measure platelet-bound fluorescence we used a FACScan flow cytometer (Becton-Dickinson). Mean values of GP-Ib receptors for vWF factor before fish oil therapy were 56.68 (SE 5.45) (mean flow) and 1 month after fish oil therapy 30.03 (SE=1.66) (p < 0.001). Mean values of GP-IIb-IIIa receptors for fibrinogen were 439.95 (SE = 32.86), after fish oil supplementation 326 (SE =37.19) (p < 0.025). These data suggest that dietary manipulation with fish oil in ESRD patients, changing the expression of platelet surface receptors for vWF and for fibrinogen, may be useful not only to improve lipid metabolism, but also could have a favorable impact on progression of vascular atherosclerotic disease, in which platelet dysfunction seems to have an important role. The therapeutic role of fish oil in the improvement of atherosclerotic disease in ESRD patients deserves further study.
References