

## Effect of omega 3 fatty acids on serum lipid profile, malondialdehyde and paraoxonase activity in patients with end stage renal disease under regular hemodialysis.

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**Background and Aims:** Atherosclerosis and cardiovascular disease are important problems in end-stage renal disease (ESRD) under hemodialysis. Increased serum lipids and lipoprotein can be considered as the causing factors for atherosclerosis. The study designed to evaluate the effect of Omega 3 fatty acids on the serum lipids, lipoproteins, malondialdehyde (MDA) and paraoxonase activity. Study design: Interventional Study Place and Duration of Study: Department of Clinical Biochemistry, Isfahan University of Medical Sciences, Department of Nutrition, Tehran International Branch Shahid Beheshti Medical University, Department of Clinical Biochemistry and Laboratory Medicine and Department of Urology, Tabriz University of Medical Sciences, between Aug. 2009 and Feb. 2011.

**Methodology:** Forty two hyper-lipidemic male ESRD patients under regular hemodialysis, aged 35-70 years were daily treated with 2000 mg Alaska deep sea fish oil (super Omega 3, all natural nutrition INC, USA) containing 360 mg Eicosapentaenoic Acid and 240 mg Docosahexaenoic Acid for three months. The lipid profile was estimated by standard methods. The level of MDA was measured using thiobarbituric acid reaction and the activity of paraoxonase was determined using paraoxon as substrate.

**Results:** Comparing Pre and Post supplementary Omega 3 fatty acid data significant reduction in the levels of triglyceride (25%) and VLDL-C and marked elevation in that of HDL-C (5%) and meaningful increase in the activity of paraoxonase (7%) were noticed ( $p < 0.001$  in all cases). No significant changes in the levels of total cholesterol, LDL-C and MDA were observed ( $p > 0.05$  in all cases).

**Conclusions:** Since hyper-triglyceridemia and low level of HDL-C and reduced activity of paraoxonase are important risk factor of atherosclerosis, supplementary Omega 3 fatty acid may be useful in the treatment of the lipid abnormalities in ESRD, but to reduce the levels of total cholesterol and MDA it can be used simultaneously with cholesterol lowering drugs such as statins and antioxidant vitamins.

**Keywords:** Omega 3 fatty acid; ESRD; Lipids; Lipoproteins; MDA; Paraoxonase