

The Effect of Omega 3 Supplementation on the Associations between the Changes in serum Non-High Density lipoprotein and Inflammatory Markers Associated with Atherosclerosis Progression in Adults with Vitamin D deficiency.

**(Retrospective Clinical Study) Prepared by: Maha Nabhan Mansour Supervisor:
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Abstract

Aim: The present retrospective clinical study was designed to assess the effect of intensive dose of unsaturated free fatty acid (n-3FA) supplementation on the association between serum levels of non-high density lipoprotein (non-HDL) and selected inflammatory markers associated with atherosclerosis progression in Jordanian participants with vitamin D deficiency.

Methods: Sixty three participants (39 males and 24 females), randomly were split into two groups; interventional (300 mg n-3FA /day for 8 weeks) and control VDD. Serum levels of 25-hydroxy vitamin D (25OHD), Interleukin 6 (IL-6), Interlukin10 (IL-10), Interleukin 1 β (IL-1 β) and tumor necrotic Factor (TNF- α) were assessed at baseline and follow-up (10 weeks) of the study .Parathyroid hormone (PTH), calcium, phosphate, fasting lipid profile, and blood glucose were also analyzed. **Results:** Supplementation of n-3FA (300 mg daily dose) for 8 weeks significantly increased serum IL-1 (3.2 ± 1.8 ng/ml to, 6.5 ± 2.1 ng/ml, $P_A < 0.001$), IL-6 (3.4 ± 3 ng/ml to, 20.9 ± 13.4 ng/ml, $P_A < 0.001$), TC (161.9 ± 38.7 mg/dl to, 184.5 ± 32.7 mg/dl, $P_A < 0.001$), HDL (31.9 ± 9.9 mg/dl to 38.6 ± 8.7 mg/dl, $P_A < 0.001$), LDL (90.5 ± 31.9 mg/dl to 120 ± 30.8 mg/dl) and non-HDL (130.0 ± 40.9 mg/dl to 145.8 ± 36.1 mg/dl $P_A = 0.008$). In the same interventional group, n-3FA intake significantly decreased 25-hdroxy vitamin D levels (24.8 ± 4.5 ng/ml to 16.3 ± 5.0 ng/ml, $P_A < 0.001$) P_A : p- value follow up changes (paired t-test).

Conclusion: Intensive n-3FA supplementation (300 mg/day for 8 weeks) may have negative effects on the association between serum level non-HDL and IL-6 in people with VDD and could be implicated in the failing to implement effective therapies in cardiovascular disease.

Keywords: vitamin D deficiency, omega-3, non-HDL, Cytokines, IL-6.