

INCREASING SERUM LEVELS OF VITAMIN A, D AND E ARE ASSOCIATED WITH ALTERATIONS OF DIFFERENT INFLAMMATION MARKERS IN PATIENTS WITH MULTIPLE SCLEROSIS

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Inflammatory processes play a key role in the development and evolution of multiple sclerosis. The vitamins A, D and E have immunological properties that may modulate these processes. To explore the relationships between vitamin A, D and E and inflammation in relapsing remitting multiple sclerosis (RRMS), we assessed their associations with 11 inflammation markers in 9 serial serum samples obtained from 85 patients included in the ω -3 Fatty Acid Treatment in Multiple Sclerosis (OFAMS) trial. OFAMS was a double-blind, randomized, prospective trial with 24-month follow-up of clinical and/or radiological active RRMS patients without immuno-modulatory treatment the last 6 months before inclusion. The patients received either ω -3 or placebo supplements for 24 months and interferon- β 1a (IFN- β) treatment was initiated after 6 months. By obtaining serum samples before and after initiation of IFN- β treatment, we were able to examine both the relationship between the vitamins and inflammation before and during established immuno-modulatory treatment. After Bonferroni correction, a negative association was found between vitamin A and pentraxin 3 independent of interferon- β 1a use, whereas positive associations between vitamin D and interleukin-1 receptor antagonist and secreted frizzled-related protein 3 were seen before, and between vitamin E and chemokine (C-X-C motif) ligand 16 during interferon- β 1a treatment. Adjusting for gender, age, BMI, HLA-DRB1*15 status and ω -3 supplementation, and baseline vitamin A and E or mean vitamin D levels, had minor impact on the outcomes. These findings suggest that vitamin A, D and E are associated with diverse inflammatory pathways, which may be differentially influenced by interferon- β 1a treatment.