Docosahexaenoic acid (DHA) supplementation in atopic eczema: a randomized, double-blind, controlled trial.

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BACKGROUND: The increasing prevalence of atopic eczema has been linked to the alteration of the Western diet, namely the reduced consumption of omega-3 (n-3) polyunsaturated fatty acids (PUFA) and an increased omega-6 (n-6) PUFA intake. OBJECTIVES: The aim of the pilot study was to determine the efficacy of dietary n-3 PUFA docosahexaenoic acid (DHA) in patients with atopic eczema. METHODS: Fifty-three patients suffering from atopic eczema aged 18-40 years were recruited into this randomized, double-blind, controlled trial and received either DHA 5.4 g daily (n = 21) or an isoenergetic control of saturated fatty acids (n = 23) for 8 weeks. At weeks 0, 4, 8 and 20 the clinical outcome was assessed by the SCORAD (severity scoring of atopic dermatitis) index. IgE production and activation of peripheral blood mononuclear cells (PBMC) were analysed. Plasma fatty acids were measured by gas chromatography. RESULTS: DHA, but not the control treatment, resulted in a significant clinical improvement of atopic eczema in terms of a decreased SCORAD [DHA: baseline 37.0 (17.9-48.0), week 8 28.5 (17.6-51.0); control: baseline 35.4 (17.2-63.0), week 8 33.4 (10.7-56.2)]. A significant reduction of anti-CD40/interleukin 4-mediated IgE synthesis of PBMC was detected in the DHA group only. Supplementation led to a modulated activation status of PBMC in both groups. The DHA group showed an increase of plasma n-3 PUFA and a decrease in the n-6/n-3 PUFA ratio. CONCLUSIONS: Our data suggest that dietary DHA could be bioactive and might have a beneficial impact on the outcome of atopic eczema, but our results need to be confirmed in a larger study.