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

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FROM ABSTRACT:

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 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 severity scoring of atopic dermatitis.

Conclusions
Our data suggest that dietary DHA could be bioactive and might have a beneficial impact on the outcome of atopic eczema.

THESE AUTHORS ALSO NOTE:

“Atopic eczema is a chronic relapsing skin disease characterized by an increased IgE response to common environmental allergens reflecting the unbalanced T-helper (Th) cell cytokine pattern.”
The increasing prevalence of atopic eczema is associated with the typical Western diet which is characterized by an increasing omega-6 (n-6)/omega-3 (n-3) polyunsaturated fatty acids (PUFA) ratio.

“Linoleic acid (LA; C18:2 n-6), one of the major dietary n-6 PUFA, is converted into the main eicosanoid progenitor arachidonic acid (AA; C20:4 n-6).”

After liberation AA is metabolized to PGE2.

An increased intake of n-6 PUFA may promote atopic disorders.

This study was a randomized, double-blind, controlled clinical trial for 8 weeks with an intake of 5·4 g of DHA daily.

RESULTS

“The severity scoring of atopic dermatitis is significantly reduced by docosahexaenoic acid supplementation.”

“The tolerability of DHA was excellent. Only three participants reported slight gastrointestinal discomfort.”

Docosahexaenoic acid inhibits IgE synthesis.

DISCUSSION

“With this randomized, double-blind, controlled trial we show that an 8-week supplementation with 5·4 g daily of the n-3 PUFA DHA led to a significant clinical improvement of atopic eczema compared with baseline scores.”

“EPA and DHA are important molecules for the stratum corneum and therefore essential for maintaining normal function and structure of the skin barrier.”

“Our clinical results imply that dietary DHA may be beneficial in supporting the standard treatment of atopic eczema.”

Different doses of DHA and long-term treatment may be more effective in patients with atopic eczema.
KEY POINTS FROM DAN MURPHY:

1) “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.”

2) In this 8 week randomized, double-blind, controlled trial, 5·4 g daily of DHA was used. The authors noted that the DHA was adequately converted into EPA, which was the active inhibitor of atopic eczema.

3) DHA supplementation resulted in a significant clinical improvement of atopic eczema.

4) “Atopic eczema is a chronic relapsing skin disease characterized by an increased IgE response to common environmental allergens reflecting the unbalanced T-helper cell cytokine pattern.”

5) Linoleic acid (from corn, cotton, sunflower, safflower, peanut and soy oils), one of the major dietary n-6 PUFA sources, is converted into arachidonic acid, and arachidonic acid is metabolized to prostaglandin E2 (PGE2).

6) An increased intake of n-6 PUFA may promote atopic disorders.

7) Docosahexaenoic acid inhibits IgE synthesis.

8) “With this randomized, double-blind, controlled trial we show that an 8-week supplementation with 5·4 g daily of the n-3 PUFA DHA led to a significant clinical improvement of atopic eczema compared with baseline scores.”

9) “EPA and DHA are important molecules for the stratum corneum and therefore essential for maintaining normal function and structure of the skin barrier.”