primary studies - published RCT

Supplementation with fatty acids influences the airway nitric oxide and inflammatory markers in patients with cystic fibrosis.

Code: PM20639712 **Year:** 2010 **Date:** 2010 **Author:** Keen C

Study design (if review, criteria of inclusion for studies)

3-month, parallel design trial. Randomised using random number generator.

Participants

43 children and adults with "severe" CF mutations (age range 7 to 41 years); 35 participants completed the study; 18 female, 17 males. 20 participants were chronically infected with Pseudomonas aeruginosa. 8 participants discontinued the study and the inclusion parameters of these patients did not differ from those who completed the study.

Interventions

50 mg/kg per day of one of three fatty acid blend capsules over 3 months; group A capsules contained predominantly EPA and DHA, group C contained high proportion of linoleic acid and arachidonic acid and group B (placebo) contained predominantly saturated fatty acids. Participants increased their pancreatic enzymes by 10% to 20% to maintain normal stools.

Outcome measures

changes in serum phospholipid essential fatty acid content; changes in inflammatory markers; adverse effects; BMI and weight; lung function; medical treatment.

Main results

35 patients in clinically stable condition completed the study. The serum phospholipid FA pattern changed significantly in all 3 groups. An increase of the n-6 FA, arachidonic acid, was associated with a decrease of FENO and nNO. The inflammatory biomarkers, erythrocyte sedimentation rate, and interleukin-8 decreased after supplementation with n-3 FA and erythrocyte sedimentation rate increased after supplementation with n-6 FA.

Authors' conclusions

This small pilot study indicated that the composition of dietary n-3 and n-6 FA influenced the inflammatory markers in CF. FENO and nNO were influenced by changes in the arachidonic acid concentration, supporting previous studies suggesting that both the lipid abnormality and the colonization with Pseudomonas influenced NO in the airways.

See also

Journal of pediatric gastroenterology and nutrition YR: 2010 VL: 50 NO: 5

Keywords

Adolescent; Adult; Child; omega-3; omega-6; non pharmacological intervention - diet; Supplementation; essential fatty acids; Capsules; Docosahexaenoic Acid -DHA-; linoleic acid;