Influence of fish oil on plasma phospholipid fatty acid composition in lung cancer

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INTRODUCTION

- The European Society for Clinical Nutrition and Metabolism (ESPEN) recommends early initiation of nutritional support for cancer¹
- Fish oil supplementation is a wellknown anti-inflammatory agent, and may be used as a nutritional support for cancer patients, who suffer from systemic inflammation.
- The objective of the present study was to investigate the effect of fish oil supplementation on fatty acid composition of plasma phospholipids in lung cancer patients.

METHODS (I)

Study: During the first three cycles of primary anti-neoplastic treatment, patients (N=60) were daily provided fish oil (2 g eicopentaenoic acid (EPA)/and docosahexanenoic acid (DHA) as Møllers Tran[®]). Dietary fish oil supplementation was given on average 67 days. In total 41 patients had blood sampled on the day before the first treatment cycle, and again at clinical follow up.

METHODS (II)

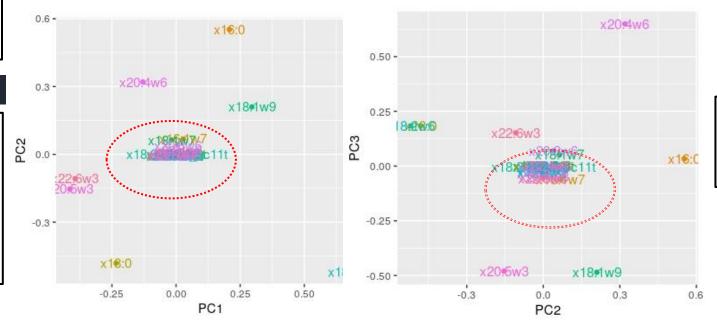
Lipid analysis: Plasma phospholipid fatty acid composition was determined by gas chromatographic analysis of fatty acid methyl esters after extraction of total lipids and separation of the phospholipids. Relative FA composition was statistically analyzed using pairwise comparison of changes of FA and principal component analysis (PCA).

RESULTS

Fish oil supplementation significantly (p<0.001) increased the proportion of: **C20:5n-3** (EPA, 1.68%; SE=0.31) **C22:6n-3** (DHA, 1.69%; SE=0.24) While decreases were obtained for: **C18:2n-6** (linolenic acid, 1.79%; SE=0.43) **C20:4n-6** (arachidonic acid, 1.43%; SE=0.27)

Figures show results of PCA analysis.

Figures: The PCA plots revealed that besides EPA, DHA, C18:2-6, C20:4n-6 also C16:0, C18:0, and C18:1n-9 could explain some variation in the fatty acid profiles of the patients. Changes in the other 23 detected fatty acids were minimal.





CONCLUSION

Fish oil supplementation increased the proportion of EPA and DHA primarily at the expense of linoleic and arachidonic acid.

Provided the well-known antiinflammatory activities of marine n-3 FA, and the pro-inflammatory activity of the n-6 FA, fish oil supplementation may be clinical relevant for lung cancer patients suffering from disease related inflammation.

REFERENCES

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