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Anti-Inflammatory Effect of Omega-3 Fish-Oil Supplements: Eicosapentaenoic Acid and Docosahexaenoic Acid in Early-Stage Tumors

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Abstract : Chronic inflammation predisposes cells to neoplastic transformation and is associated with angiogenesis. Omega-3 polyunsaturated fatty acids (n-3 PUFAs) give rise to anti-inflammatory metabolites and decrease some inflammatory cytokines. The aim of the study was to analyze the effect of n-3 PUFAs intake on patients with tumors in early-stage (without regional or distant metastasis). There were two groups of patients: one group with colon tumors and one group with lung tumors. All patients took for 60 days daily supplements from fish-oil containing 600 mg eicosapentaenoic acid and 400 mg docosahexaenoic acid. The plasma markers were evaluated before and after PUFAs intake: ceruloplasmin (using p-phenylenediamine oxidase method), plasma total thiol groups (using dithiobis-nitrobenzoic acid method) and CEA (carcinoembryonic antigen using electrochemiluminescent immunoassay). The results reflect ceruloplasmin decrease ($p < 0.05$), plasma total thiol groups increase (not statistically significant) and CEA decrease ($p < 0.05$) after n-3 PUFAs intake. Conclusions: n-3 PUFAs intake is favorable in premalignant lesions or in early tumor stage and dietary fish-oil has anti-inflammatory effects and can contribute to reduce cancer progression.

Keywords : cancer, fish-oil, inflammation, n-3 polyunsaturated fatty acids
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