

EFFECTS OF SATURATED LONG-CHAIN N-ACYLETHANOLAMINES ON CARCINOGENESIS AND METASTASIS

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N-acylethanolamines (NAE) are minor lipids widespread in nature that possess a lot of biological properties for example, antiinflammatory, membrane protective, antioxidative properties etc. Recent studies have shown that some of NAE arrest tumor growth and metastasis. In spite of the intensive investigation of this question the antiproliferative effect of these lipids is insufficiently studied. N-stearoylethanolamine (NSE) belongs to the bioactive lipid class, N-acylethanolamines.

We investigated the influence of NSE on tumor growth and metastasis in mice tissues at the beginning and terminal stages of the lung Lewis carcinoma development. Lipid composition of metastases and adjacent uninjured lung tissue was also studied. For quantitative assays spectrophotometric method as well as thin-layer and gas-liquid chromatography were used.

We demonstrated that NSE inhibited the tumor growth and decreased the volume and the quantity of metastases by dose-dependent manner at investigated stages of the tumor development.

Examination of the lipid composition showed that the level of phospholipids and cholesterol was reduced under the condition of tumor growth, and the quantity of unsaturated fatty acids was increased both in the metastasis and in the adjacent lung tissue. The treatment of tumor-bearing mice with NSE led to normalization of indexes mentioned. The decreasing of sphingomyeline (SM) level was shown in the group of "tumor". Its level was decreased still more in tumor animals which were fed with NSE. It is well known that sphingolipid metabolites including ceramide, sphingosine and sphingosine-1-phosphate have messenger functions and play the significant role in the regulation of cell proliferation, survival and death.

Sphingosine is described as one of the inductors of apoptosis. It was shown that NSE treatment increased the level of sphingosine in the adjacent with metastasis lung tissue compared with that of tumor-bearing mice.

The effects of NSE on growth and metastasis of lung Lewis carcinoma suggest that this compound can be used in cancer therapy.