ON MEDICINAL AND PREVENTIVE EFFICACY OF SMALL DOZES OF HYDRATED C_{60} FULLERENES AT THE MODELING CANCER PATHOLOGIES.

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In the experiment, the dynamics of growth of transplantable tumors under the influence of hydrated fullerenes C_{60} (**HyFn**) at the ovarian tumor of mice and prostate cancer of rats (hormone-dependent pathologies) was investigated as well as the main biochemical indices were received. The strategy of this investigations was stipulated by the task to elucidate both preventive and medicinal action of HyFn in the form of their C_{60} molecular colloidal solutions in water - FWS [1,2].

Earlier we have shown the positive therapeutic effects of HyFn supersmall doses in volunteers with oncological diseases [3].

Taking into account the absence of any toxic, mutagenic, carcinogenic and immunogenic effects of HyFn, the facts of potent antioxidant HyFn action served as basis of such investigations. It is well known, that inhibition of biological molecules peroxidation, in turn, is correlated with inflammatory processes slowdown and antioxidant therapy is quite reasonable at the therapy of very wide spectrum of pathological states.

In our experiments the HyFn preventive and medicinal action was investigated during 30-50 days. In this case HyFn was administrated to the animals in regular way both before (2-3 weeks) and just after tumor transplantation either as *i/v*, *i/p* injections or *per os* as drinking of very diluted aqueous solution of HyFn (C_{60} concentration equal to ~ 1-10 nmol/L).

During the all period of medicinal and preventive procedures, the animals received HyFn in the total dose of C_{60} equal to 0.02 - 1.0 mg/kg.

As a whole, it is important to note that in our *in vivo* experiments we observed 30-70% inhibition of the tumor processes development both after preventive application of HyFn and after the treatment by HyFn of animals with transplantable tumors.

It is important to note that during therapy of oncological states by HyFn the prognosticated life expectancy (PLE) was increased in more than two times.

In spite of the facts that HyFn are not cytotoxic for cancer cells, in our experiments with the “overt” oncological states we confirm that HyFn, even in smallest doses, are able to inhibit tumor growth. Also, it is possible to suppose that preventive and medicinal application of HyFn can inhibit the manifestation of latent tumor pathologies, especially in the groups of risk where the probability of cancer morbidity is markedly increased.

1. G.V. Andrievsky, et al., J.Chem.Soc., Chem. Commun., 12 (1995) 1281.
2. G.V. Andrievsky, et al., Chem.Phys.Lett.,300 (1999) 392; and UA patent N29540 of 11/15/2000.
3. G.V. Andrievsky, et al., Book of Abstracts of the 197-th Meeting of the Amer. Electrochem. Soc. (May, 2000, Canada), Abs# 700 (see www.electrochem. org.); and UA patent N27669 of 09/15/2000.