ON MEDICINAL AND PREVENTIVE EFFICACY OF SMALL DOSES OF HYDRATED \( \text{C}_{60} \) FULLERENES AT THE MODELING CANCER PATHOLOGIES.

Andrewsky G.V.*, Burenin I.S.

*Institute for Therapy of AMS of Ukraine, 2-a, Postyshev ave., 61039, Kharkov, Ukraine;
E-mail: yard@kharkov.ua.

SRIEDTT of Russian Oncological Scientific Center of RAMS, 24., Kashirskoe shosse, 115487, Moscow, Russia.

In the experiment, the dynamics of growth of transplantable tumors under the influence of hydrated fullerenes \( \text{C}_{60} \) (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 \( \text{C}_{60} \) 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 \( \text{i/v}, \text{i/p} \) injections or \( \text{p.o} \) as drinking of very diluted aqueous solution of HyFn (\( \text{C}_{60} \) concentration equal to \( \sim 1\text{-}10 \text{ nmol/L} \)).

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

As a whole, it is important to note that in our \textit{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.