

Influence of various forms of information drugs
on the course of the tumor process in the experiment

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Introduction

In experiments conducted earlier on the basis of the Rostov Research Oncological Institute on rats with a transplantable tumor - sarcoma 45 (C 45), with the use of information drugs, encouraging results were obtained: complete resorption within two weeks of a tumor of minimum initial size (millet = 0, 02 cm³), regression and inhibition of tumor growth with initial volumes of 1 cm³ and 2 cm³... In the course of the experiments, a distinctive feature of the effect of BRT drugs in comparison with traditional treatment was revealed. Considering that the drugs used for the effects are not special antitumor, the mechanism of their action could be realized by increasing nonspecific antitumor resistance due to multi-frequency resonant effects at the cellular, organ, and systemic levels. One of the important manifestations of these interactions is the development of general adaptive responses (stress and anti-stress responses according to Selye and Garkavi-Kvakina) [1, 2].

The purpose of this pilot study was to assess the impact of informational preparations and frequency influences on tumors of large volumes. The study was pilot and was carried out on a small number of white outbred rats under standard conditions of a certified vivarium of the FBUZ "Center for Hygiene and Epidemiology in the Rostov Region".

Study design

Induced Guerin's carcinoma, a poorly differentiated epithelial malignant tumor of rats, which can produce metastatic nodes, was used as a model of tumor growth [3]. The "disadvantage" of this tumor is that it is quite resistant to chemotherapeutic agents, but it is thanks to this that it even more approaches the conditions observed in human tumors. The tumor strain was obtained at the Institute of Experimental Pathology, Oncology and Radiobiology. R.E. Kavetsky National Academy of Sciences of Ukraine. Suspension of tumor cells (5-6 × 10⁶ cells / ml), obtained from a donor rat, were transplanted by subcutaneous injection into 10 male rats weighing ~ 180 grams (0.5 ml in the right back region along the spine). A week later, the tumor was manifested in the form of a small "millet" (volume less than 0.01 cm³). After another 10 days, all animals developed tumor conglomerates of large sizes, without necrosis, constituting on average more than 1/3 of the animal's body with tumor volumes from 9 cm³ (smallest volume) to 90 cm³... The rats were not specially assigned to groups: the rats were marked with conditional paint numbers before inoculation, and they were then assigned to groups in a row, not taking into account the tumor volume (random sample). Experienced

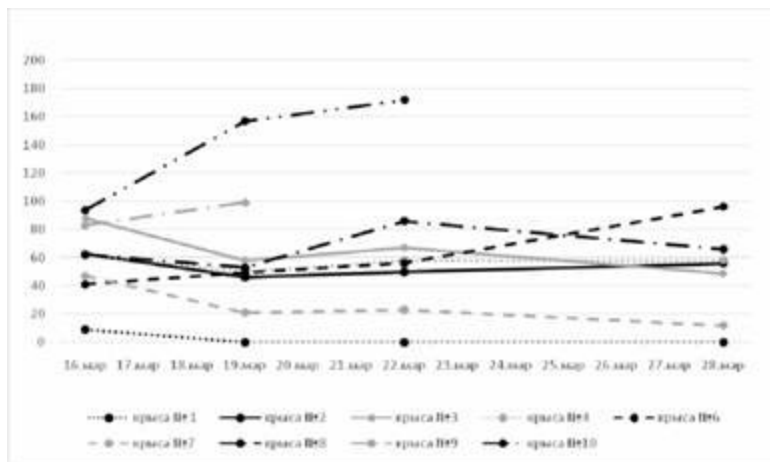
there were 4 groups (2 rats per group), and 2 rats were control without exposure.

Targeted nosodes of certain drugs were used as antitumor effects (tumor cell death, PI photo of a tumor, microelements, long-lived animals - naked mole rat and crocodile), recorded on water for injection during bioresonance testing of a rat (informational drugs - PI). One animal from the group was tested daily according to the author's method; for the second, the same PI was used. Informational preparations were administered to the animals 2-3 times a day intragastrically through a tube, 0.5 ml each. Animals of the 4th group (Nos. 7 and 8) were added an electromagnetic high-frequency effect, which was administered to the animals of this group once a day for 2 hours. During the experiment, the tumors were measured and the volume was determined using the Shrek formula for an ellipsoid. Besides, In the course of the experiment, the percentage composition of peripheral white blood was assessed in order to test developing adaptive reactions for an indirect judgment about the level of general and, in particular, antitumor resistance. The behavioral responses and appearance of the animals were also evaluated. After the end of the experiment, the animals were decapitated and preparations of the tumor and some organs (thymus, adrenal glands, liver, spleen) were subjected to histological analysis.

For ART and recording of information preparations, we used the ARTEMIDA-PRO device of the authors' team of LLC MCIT "Artemida".

Results and discussion

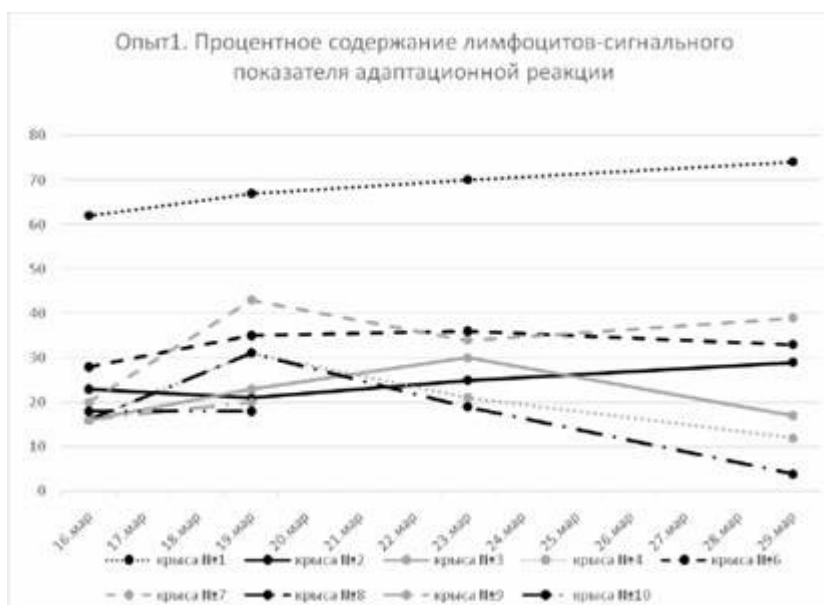
Three days after the start of the exposure, the tumors in almost all experimental rats decreased significantly: in one rat by 56% (No. 7), in another rat (No. 1), the tumor practically resolved (from 9.04 cm³ up to 0.15 cm³). In other animals, tumors decreased by 15–35%. In control animals, tumor growth continued (+20% and +67%) (Fig. 1). The tumor in rat No. 1 completely resolved by the end of the 1st week (complete regression). When opening at the site of the tumor, only a yellow microscopic membrane was found (capsule?). The impacts carried out lasted two weeks. The tumor in rat No. 7 disintegrated into 3 movable encapsulated tumor nodes with a total volume of 7.9 cm³, that is, the tumor has decreased by 83% in relation to the initial volume (regression).



Rice. 1. Changes in tumor volumes in rats

Such significant positive changes occurred against the background of activation of the anti-stress link of adaptation: an increase in the percentage of lymphocytes in the leukocyte composition of peripheral blood (Fig. 2) upon activation of the thymus, an immunocompetent organ (when using chemotherapy, the total number of leukocytes usually decreases, the percentage of lymphocytes falls and the thymus resolves) ...

The dynamics of the process in the rest of the animals can be regarded as inhibition of tumor growth with a decrease in the initial volumes (at the end of the exposure, the tumor volume practically did not exceed the initial volume). An excess of the initial tumor volume was noted in one animal, but it was not possible to compare it with the growth of the tumor in the control, since the control animals died on the third and fifth days of the experiment with tumor volumes of 99 cm³ and 172 cm³ (tumor encapsulation was not observed, tumors are soft, jelly-like, spread out).



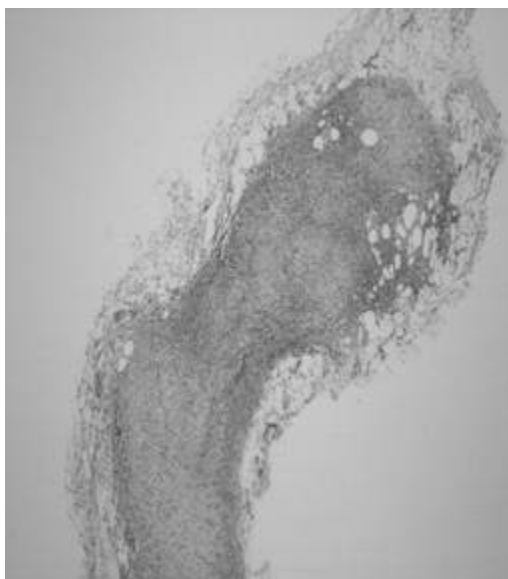
Rice. 2. Percentage of lymphocytes in peripheral blood - signal

indicator of adaptive responses

It should be noted that the conclusions drawn from antitumor bioresonance effects in previous studies were quite demonstratively manifested in this work. Already after several days of exposure to antitumor PIs, the tumor tightened, grouped, became mobile, "encapsulated", gave the impression of a roller wrapped in skin with very close convergence of the skin along the back. This effect can, perhaps, be designated as the transfer of the tumor into an operable state.

It is interesting that the activation of the anti-stress link of adaptation was also traced by the change in the behavioral reactions of experimental animals in the process of antitumor effects. On the first day, the rats are lethargic, not particularly interested in the outside world, do not take care of themselves, do not try to avoid exposure, taking blood. They eat, drink, move a little. On the second day, the experienced rats began to show interest in food, the environment, and the experimenter's hands. Further, all experimental animals showed active grooming and an increase in vertical activity. The coat is clean with undercoat, the eyes are red with shine.

Autopsy and histological examination, carried out at the end of the experiment, showed that all experimental animals had no tumor growth into neighboring organs and tissues, no metastasis, and tumor encapsulation. Necrotic ulceration, which appeared in several animals by the end of the experiment, was not associated with either weeping ulcers or suppuration: dry, odorless crusts. Histological analysis of tissue preparations taken from the site of transplantation of a resorbed tumor (rat No. 1) showed the presence of fibrous tissue, phagocytic xanthoma cells and hemosiderosis around the remains of the vessel (Fig. 3). Tumor histology of all other experimental animals was characterized by a decrease in mitotic activity max $1 \div 10$ and min $1 \div 4$ in one field of view $\times 40$ against the background of tumor resorption. The tumor capsule is represented by fibrous tissue, tumor tissue - solid fields of cells, xanthoma cells are present. In the stroma of the tumor, neutrophilic-macrophage infiltrates. In the vessels in the zone of necrosis - leukocytes, erythrocyte sludge.



Rice. 3. Histological examination. Rat# 1. Tissues from the zone of "resolved" tumor. Fibrous tissue with moderate inflammatory infiltration, foci of hemosiderosis.

conclusions

So, an experiment was carried out on the antitumor effect of bioresonance therapy on animals with large initial tumor volumes; volumes that are usually not resorbable. A pronounced effect was obtained: resorption of the tumor, complete resorption, inhibition of tumor growth. The application of several "formulations" of bioresonance effects has been tested. The work carried out indicates the need for individual selection of bioresonance effects and local resonance in frequency-wave therapy.

Literature

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