

Beneficial Effects of Drossinakis Bio-influence (With Infrared Thermal and Electromagnetic Fields) on the Development of Experimental Graffi Myeloid Tumors in Hamsters. Hematological Studies

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Abstract

The aim of the present experiments was to study the effect of bioinfluence - Infrared thermal field (ITF) and electromagnetic fields (e.m. fields) on the progression of experimental tumor - *Graffi* myeloid tumor in hamsters. Spectral analysis methods called Non-equilibrium spectrum (NES) and Differential non-equilibrium spectrum (DNES) for 1% solutions of blood serum from hamsters with cancer and healthy hamsters were investigated. Drossinakis has a beneficial effect on the *Graffi* tumor-bearing hamsters. Results are obtained with the DNES method - compared to the control serum samples of hamsters with cancer and healthy hamsters. The spectrum was obtained in the range (-0.0937 eV; 13.23 μm ; 755 cm^{-1}) - (-0.1387 eV; 8.95 μm ; 1117 cm^{-1}). The average energy ($\Delta E_{\text{H}\dots\text{O}}$) of hydrogen H...O-bonds among individual molecules H_2O after treatment of Drossinakis was measured by NES- and DNES-methods. The result $\Delta E = -0.0071 \pm 0.0011$ eV is according control serum samples of hamsters with cancer and $\Delta E = -0.0035 \pm 0.0011$ eV is for healthy ones. These results suggest the restructuring of $\Delta E_{\text{H}\dots\text{O}}$ values among H_2O molecules with a statistically reliable increase of local extremums in DNES-spectra. Local extremum was obtained at (-0.1212) eV, which is an indicator of anti-inflammatory effect. Another local extremum was obtained at (-0.1387) eV, which is an indicator of the tumor-development inhibition at the cellular- and the molecular level. The beneficial effects of Drossinakis are characterized as the anti-inflammatory, anti-oxidant, anti-cancer, anti-stroke, etc. This article deals with the review of the basic biophysical-, biochemical- and biological processes - bio-influenced of Drossinakis. In this sense, the experimental research of Toshkova and co-authors has shown increased life span of the tumor-bearing hamsters, bio-influenced by Drossinakis. There are new analyses from hematological studies from Zvetkova.

Keywords: Christos Drossinakis - bioinfluence, Infrared thermal field (ITF), Electromagnetic fields, Experimental myeloid tumor of *Graffi*, hematological studies - erythrocytes

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1. Introduction

The strong bio-influence of Drossinakis has been proved via the application of the methods biophotons (Popp), thermovision (Schlebusch), spectrum analysis of water (Antonov, Ignatov), color coronal spectral analysis (Ignatov), gas discharge visualization (Korotkov), synchronizing of brain electromagnetic waves (Li Gendinovich) etc. at more than 80 institutes and centers in Europe. Drossinakis has achieved the following results according the norm - biophoton emission (Popp) (~ 900 biophotons $1 \text{ cm}^2 / 1 \text{ s}$), (norm ~ 85 photons, $1 \text{ cm}^2 / 1 \text{ s}$); increasing of the temperature after bioinfluence (Schlebusch) (1.6 - 1.8 $^{\circ}\text{C}$) (norm 0.1°C); average energy of hydrogen bonds among water molecules according control sample (Antonov, Ignatov) (± 8.2 meV) (± 1.1 meV) etc.

In the current study was followed the effect of influence with Infrared thermal field (ITF) and electromagnetic fields (e.m. fields) of Christos Drossinakis over the experimental myeloid tumor of *Graffi*, implanted in hamsters. The study was conducted by a team under the authority of Reneta Toshkova. There are new analyses from hematological studies of Elissaveta Zvetkova.

Purpose of the research: To establish the therapeutic effect of infrared thermal field and e.m. fields in hamsters

with experimental tumor.

2. Methods

2.1. Experimental animals

Hamsters, breed “Golden Syrian”, aged 2-4 months with weight around 90-100 g, delivered from breeding organization – Slivnitsa – Bulgarian Academy of Sciences (BAS) were used in the trials. The animals were grown in standard conditions in the vivarium of the Institute of experimental morphology, pathology and anthropology with museum (IEMPAM) – BAS, in individual plastic cages with free access to food and water.

2.2. Experimental tumor model

The experimental Graffi solid tumor was supported once monthly in hamsters from the research team at IEMPAM-BAS (Toshkova, 1995) via subcutaneous transplantation of tumor cells ($1-2 \cdot 10^6$) in the back. Between days 7 and 15 after the injection of tumor cells tumor appears, grows progressively and the hamsters die around 30-35 days. In this tumor model, 100% tumor transplantation and 100% mortality were observed. No spontaneous tumor's regression was observed.

2.3. Hematology examination

Blood smears from Graffi tumour-bearing /control-/ hamsters as well as from the experimental animals /bio-influenced simultaneously with tumors' implantation/, have been prepared, stained by May-Gruenwald Giemsa method and examined light-microscopically.

2.4. Ethical aspects:

All experiments were conducted in accordance with the European convention for protection of vertebrate animals, used for experimental and other scientific purposes (OJ L 222) and approved from the National Veterinary Medical Office.

3. Results of Hematological studies

Differences in the erythrocyte /RBC-/ morphology and degree of red cell differentiation were evaluated in the blood smears of controls /healthy hamsters and untreated-tumor-bearing animals/, vs. bio-influenced tumor-bearing hamsters - with implanted myeloid tumours of Graffi /as shown in Fig. 1 - A, B, C/.

The data obtained probably indicates a positive bio-influence of **Infrared Thermal Biofield (ITF)** and **electromagnetic fields (e.m. fields)** on the erythrocyte (RBC-) membranes' biochemistry, structure and functions (Komorowska, Czyzewska, 1997; Walski et al., 2015) and/or on the erythropoiesis in the Graffi myeloid tumour-bearing hamsters. The authors obtained that the erythrocyte exposure to **ITF and e.m. fields** leads to structural changes in the phosphor-lipid areas of red cell membranes – strongly influencing the structure and functions of the lipid bilayers. After **ITF and e.m. fields** exposure RBC are also protected against oxidative stress. By this way, the **ITF and e.m. fields** effects could lead to the improvement of the anemia-syndrome - obligatory presented during the development of *Graffi* myeloid tumors, as well as in other experimental models of malignancies. In this sense **ITF and e.m. fields** exerts beneficial effects on cells- in the treatment of cancer, strokes and neurodegenerative disorders including. (Walski et al., 2015). After the same authors, the bio-mechanisms of the **ITF and e.m. fields** action is probably of photochemical nature, however it is not fully understood. However, further experimental studies are required for creation of definitive conclusions.

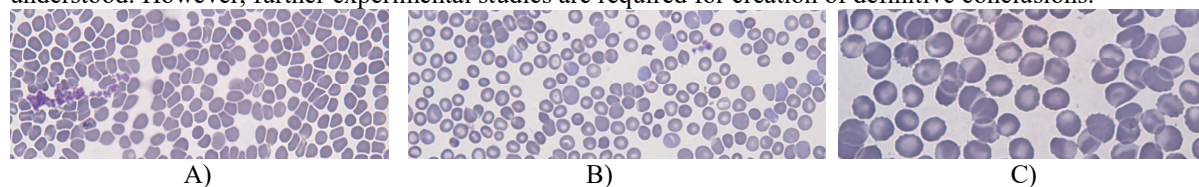


Fig. 1 . Light-microscopic characteristics of erythrocytes (RBCs) in the blood smears /stained by the method of May-Grunwald-Giemsa/:

- control groups {A - healthy animals (x 20); B - Graffi myeloid tumors-bearing hamsters (x 20)};

- experimental group {C - *bio-influenced tumor-bearing hamsters - with implanted myeloid tumors of Graffi (x40)*}. One could see normal erythrocytes (discocytes) (A), anisocytosis and poikilocytosis of RBCs, as biomsarker of anemia - in the blood smears of untreated, tumor-bearing animals (B), as well as RBCs - transformed into discocytes, stomatocytes and echinocytes – in the tumor-bearing animals, bioinfluenced with **ITF and e.m. fields** (C).

4. Conclusions

In conclusion, the results achieved from the two types of tests with 5 days course of ITF and e.m. waves

treatment of hamsters with experimental subcutaneous tumor are positive. Prolonged survival rate and decreased mortality (in the first and second trial), as well as lowered transplantability and slowed tumor growth (in the second trial) were observed. The present results are the base for conducting further tests that aim to establish the optimum regimen of bioinfluence with regards to frequency and duration of the therapeutic procedures, also valid with other experimental models.

The basic conclusion is that Drossinakis is able to increase the average energy of hydrogen bonds among water molecules in the blood of hamsters with cancer after treatment compared to the average energy of hydrogen bonds among water molecules in the blood of non-treated hamsters with cancer and healthy hamsters as control groups. The mathematical model of blood serum solution of hamsters with cancer after the Drossinakis' influence gives significant information about the possible number of hydrogen bonds as a percent of water molecules with different distribution of energy relative to the same number in the two control groups. (Ignatov, Toshkova, Gluhchev, Drossinaksi, 2019)

As a result of different energies of hydrogen bonds, the surface tension of the blood serum solution of cancer hamsters is increased after the treatment relative to the control samples. This effect is connected with the preservation and increase in the energy of the biochemical processes between water molecules and biomolecules.

The achieved results of hamsters from experimental bio-influence of Christos Drossinakis reveal their biological efficiency and can be subject of future studies. Extending the life of the hamsters is an indicator of improving immune status. The results obtained also correspond to data from the medical scientific literature on the positive effects of the near infrared irradiation on the structure and function of erythrocyte membranes - in normal and pathological conditions: after **ITF and e.m. fields** exposure erythrocytes could be protected against oxidative stress.

The mitochondrial polarity in cancer cells was found to be lower than that of the normal cells: Drossinakis is increasing the mitochondrial polarity.

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