

Theory of health: successful translation into the real life. General biological prerequisites

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Abstract

The paper reveals logical relationships between events, facts and results of research studies and exemplary materials of practical applications of the adaptational reactions. It is demonstrated that the stress reaction by H. Selye and the anti-stressor type adaptational reactions by Lyubov Kh. Garkavi, Elena B. Kvakina and Maria A. Ukolova have become the cornerstone in development of scientifically grounded approaches to control of the organism states.

Keywords

Anti-stressor reaction, Periodic law, Self-organization processes, Adaptational reaction, Activation therapy

Imprint

Oleg I. Kit, Alla I. Shikhlyarova, Galina Y. Maryanovskaya, Lyudmila P. Barsukova, Tatiana S. Kuzmenko, Galina V. Zhukova, Elena P. Korobeinikova, Elena A. Sheiko, Tatiana P. Protasova, Natalia M. Maschenko. Theory of health: successful translation into the real life. General biological prerequisites. *Cardiometry*; No.7; November 2015; p.11-17; doi:10.12710/cardiometry.2015.7.1117; Available from: <http://www.cardiometry.net/issues/no7-november-2015/theory-of-health>

The physiological sense of an organism adaptation to external and internal influences lies in the maintenance of homeostasis and, consequently, the viability of the organism under almost any conditions it is able to adequately respond to. Adaptation changes (more or less pronounced) occur in the organism in a reaction to almost any change in the external and internal environment.

The theory of adaptation is inseparably linked with the research works by

H. Selye [1] devoted to unspecific organism adaptational reactions to an impact of an excessive intensity (called stress reactions) and the resulting functional changes (stress syndrome) and condi-

tions (stress). The importance of the proposed theory of the role of stress (reaction) in the organism adaptation [1-6] was so great that it was further irrevocably and unconditionally accepted by a huge army of his followers.

The concepts of the existence of the

"Life at all stages of its development is "a continuous adaptation... to the conditions of the existence", that is, life is a continuous process of an adaptation to constantly changing environmental conditions."

Ivan M. Sechenov

other unspecific organism adaptational reactions (except stress) were proposed later [7, 8].

The priority of the creation of a harmonious system

of general organism reactions to influences and actions of different intensity belongs to Garkavi L.H., Ukolova M. A. and Kvakina E.B. (1968-2002). They have succeeded in proving the existence

of reaction archetypes formed as a result of evolution, which are alternative to the stress. Johann Wolfgang von Goethe wrote: "Some separate segments are very often available at the hands of scientists, but the sacred thread to connect them is always very hard to find". The Russian scientists have found the thread and integrated all the ideas on the quantitative and qualitative law of the organism reaction into their new promising theory.

History of scientific discovery

Registration Certificate No.158 for Scientific Discovery "Pattern of development of qualitatively different general unspecific adaptational reactions of the organism" was issued to Garkavi L.H., Ukolova M.A. and Kvakina E.B. in 1975. The discovery formula begins with the following words: "Experimentally determined, previously not known, law of development of qualitatively different general unspecific adaptational reactions by the organism to the factors of external and internal environment..." (Fig.1).



Figure 1 | Registration Certificate No. 158

So, let us say a few words about the history of the discovery. Professor Maria Ukolova supervised research on neuroendocrine disturbances in tumour growth at the Rostov-on-Don Oncology Research Institute and the experimental department created by her. To study the role of the hypothalamus in the tumour process, she offered to her

student, young and talented Lyuba Garkavi, to use electrical signals sent through the electrodes implanted in the rat brain. Numerous experiments began. Firstly, it was necessary to properly introduce the electrode into the tiny rat hypothalamus and then monitor the reaction in the rat by varying the magnitude of the electrical signal. And there appeared the first encouraging results: under low threshold values of electrical stimulation in rats with implanted malignant tumour a complete (!) resorption of cancer cells were observed. But the disease was in its initial stage in that case, and what if to take animals with progressed tumours and increase the stimulation? But following that way, on the contrary, the strong stress stimulation of the hypothalamus definitely caused an increased tumour growth. Thus, it has been shown that stress contributes to the progression of the disease. Only stimulation of the middle-scale intensity led to regression of the malignant tumour. Under the conditions, the reaction of activation was developed, that was discovered and described by Garkavi L.Kh.

Then it was necessary to understand, interpret the obtained data and move on. Hans Selye discovered and substantiated the first unspecific systemic reaction of the organism: the reaction of stress. Scientists of the Rostov-on-Don Oncology Research Institute (RORI) Professor Garkavi L.H., Ukolova M.A. and Kvakina E.B. substantiated in detail and developed the second after Selye fundamental discovery in the field of general physiology, recognized as far back as 1975. Of course, we are referring to their Scientific Discovery No. 158. Its essence consists in the detection of other fundamental reactions of the organism to external stimuli (moderate and low intensity), and the authors called them the “training” and “activation” reactions [9-12].

Living dialectics

Stress and the reactions of training, elevated and calm activation are considered to be four qualitatively different physiological states. Each of them has its own set of indicators at all hierarchical levels:

“The human organism can successfully fight diseases under natural conditions. So, the only thing we need to understand, what organism and conditions we should have for this purpose.”

E. I. Roerich.

“Living ethics”

from the molecular level up to the higher mental ones.

The first state of the organism as a whole was described by Canadian scientist Hans Selye in 1936. He demonstrated that the organism responds to the stimuli of any quality, but to the stimuli of supramaximal quantity it responds with the standard non-specific reaction called stress. A characteristic set of changes (lymphopenia, immunosuppression, mucous membrane ulcers in the stomach, elevated levels of glucocorticoids with a sharp decrease in mineralcorticoids, cessation of sex hormones release, etc.) develops regardless of what chemical, physical, or psychological factor caused the abnormality. Then any reaction to any stimulus began to be considered as a stress. Ignored was the fact that the stress state is extremely unfavorable, leads to death and develops only under stimuli that are life-threatening owing to their intensity.

Stress is a state (or such general unspecific adaptational reaction), when the organism perceives the external environment as seriously life-threatening conditions. Firstly, tremendous excitation rises at the centers of the regulation; energy is released (it is necessary to run from the tiger, to jump over the fence, to survive after the poisoning, etc.); the organism consumes the most valuable proteins; oxidative phosphorylation is suspended at all; the immune cells and lymphoid tissue are resolved; blood vessels constrict; anti-inflammatory hormones increase, and, of course, the organism saves everything that is not needed for momentary survival, for example, suppressed are production of sex hormones and germ cells and reduced is libido; memory and attention to everything, except life-threatening ob-

jects, are disturbed. If the stress condition lasts for a long time, the protective inhibition occurs, and then it leads to depletion and death.

Training is a state when there are no life-threatening circumstances available: there are no dangerous microbes or extreme temperature fluctuations in the environment, or there is no necessity to grow, mature or learn anything. Indicators of hormones, immunity, sexual and physiological activity are in the lower half of the normal range. The shift towards anabolic processes is characteristic. Soft predominance of the glucocorticoid function of the adrenal cortex over the mineralcorticoid one provides the anti-inflammatory potential increase, and protective inhibition in the central nervous system creates the favorable state of rest.

Calm activation is a state of a young, healthy, learning organism. Timely intense reactions to external and internal stimuli are typical. Indicators of the immune, hormonal and other systems are in the upper half of the normal range. The main distinguishing feature of this state is that all the functions are aimed at improving the organization of the system as a whole. Increased are the levels of the mineralocorticoids. If this state lasts for a long time, rejuvenation and rehabilitation occur.

Elevated activation seems to be externally similar to the calm activation. Physiological activity is typical for both states. The indicators of the immune system, the hormonal activity and energy metabolism are elevated. Under the elevated activation they are in the upper half of the normal range and higher, and under the calm activation they are only in the upper half. Healing of damages and resorption of tumors occur in both states, but faster under the conditions of the elevated activation reaction. The principal difference is that the organism has one main goal under the elevated activation, and it ignores all other goals for the sake of that one (in case of the calm activation the main goal is always to maintain harmony and the same well-being of every subsystem in the organism).

In case of the elevated activation, the central nervous system determines the current main goal. It may be an urgent

exam preparation or victory in sports (external goals); or it may be some internal goals: to eliminate bone fracture, to resolve a tumor, to cicatrise the ulcers, to adapt to the conditions in the Far North regions... The organism ignores other functions in this case. The surplus of the energy to achieve the pre-specified goal is supplied by the other subsystems.

The state of elevated activation is not as harmonious as the calm one, and it is not suitable for long-term recovery, rejuvenation and life extension, but it is essential for the rapid relief of dangerous processes and coping with a great variety of complex and difficult problems occurring in our life.

Periodic law of nature

The gradation of the reactions according to the scale of "absolute values", being the logical result of a huge amount of joint scientific work completed by the research laboratories headed by L. H. Garkavi and E. B. Kvakina, hundreds of their experiments, deep thinking and a lot of sleepless nights, led to a scientific discovery of the periodic law of development of general unspecific adaptational reactions by an organism. The essence of the law is the regular and periodic repeat of the adaptational reactions (training, calm activation, elevated activation, stress) in different parts of the scale of the absolute values of exposure intensities, when changing the intensity (strength, dose) of a stimulus in a very wide range. The researchers have determined the periodic dependence of the general unspecific adaptational reactions on the stimulus dose and showed that all possible physiological conditions of the organism can be displayed in the periodic table that is similar to the Mendeleev's one.

What is meant by the periodic system in physiology?

Four types of different states of an organism in a repetitive sequence are found in each period. In this case, "a step" is a measure of power of an influence (as to the chemical elements periodic table, the step is determined by one unit change in the atomic nuclear charge). In physiology this measuring

value is equal to 1.19. The exposure dose should be multiplied by this value to obtain the next state of the organism. Every period is characterized by its own stress, training, and etc. Stress of the last, sublethal period is described by Selye. Stresses of the other periods, namely, activation and training, are described by Garkavi, Kvakina and Shikhlyarova [12-18]. Knowing the current state of the organism it is possible to describe the performance of its higher nervous activity, the immune system state, the correlation of hormones, the nature of intra-mitochondrial redox state, the cell membrane structure, the emotional mood, the appetite, the pregnancy history, i.e. any parameter that depends on the general state of the organism. In brief, both in physiology and chemistry, all the object properties are determined by the respective periodic table according to a certain table cell the object is located in (Fig.2).

The periods in the physiological table correspond to the levels of reactivity of the organism, which can be designated

T ₁	CA ₁	EA ₁	S ₁	OA
T ₂	CA ₂	EA ₂	S ₂	OA
T ₃	CA ₃	EA ₃	S ₃	OA
...

Li	Be	B	C	N	O	F	Ne
Na	Mg	Al	Si	p	S	Cl	Ar
K	Ca	Ga	Ge	As	Se	Br	Kr
...

Figure 2 | Periodic table of types of adaptational reactions vs. Periodic table of chemical elements

Legend: T – reaction of training
 CA – reaction of calm activation
 EA – reaction of elevated activation
 S – stress
 OA – over-activation

as "the floors". This term is used because the same state is repeated in different periods as a reaction to stimuli of a varying intensity. If the state appears as a reaction to a weak stimulus, the reactivity is considered to be high, and, on the contrary, if a stimulus is strong, the reactivity is judged to be low.

Based on some experimental models of tumor growth, the periodic relationship between anti-tumor efficacy of influences and exposures of different nature (including magnetic fields, pharmacological neurotropic drugs and biostimu-

lants) and their intensity (dosage) has been substantiated, and the nonlinear multi-optimum nature of this effect has been defined [13]. In the course of biophysical research, the said regularity has been also detected considering the level of tissues, cells and subcellular structures. The observed periodicity in reactions on the level of tissue allowed obtaining an anti-tumor effect upon exposure with low dose chemotherapy to provide local stress in the tumor, but avoiding at the same time damage on the level of the organism [14] as a whole.

It has been revealed that it is just the status of mitochondrial energetics that is of critical importance for realization of an anti-tumor effect for various levels of reactivity. Barsukova L.P. and Maryanovskaya G.Y. have shown that energy supply in tumor progression is characterized by low rates of oxidation, when the use of the existing reserves of energy-generating substrates is blocked. Normalization of energy metabolism occurs with tumor regression. Sheiko E.A. has studied some indicators of pe-

ripheral blood lymphocytes state which bear witness to a reduction in the synthetic and enzymatic activity of lymphocytes in acute and chronic (tumor) stress or different degree of the lymphocytes functional activity elevation in the anti-stress reactions, that is strongly pronounced in the reaction of activation of high levels of reactivity, leading to tumor regression.

Electroencephalographic research by Korobeinikova E.P. and Protasova T.P. gives evaluation of the encephalon functional state with the use of the advanced

methods of EEC topographic mapping, including complex procedures of digital EEG processing. The evaluation of the EEG dominant rhythm is used for selection of the most effective influences. Mulatova A.K. and Evstratova O.F. have described the accurate morphological characteristics of the organs of the thymicolymphaticus and endocrine systems, the encephalon cortex and the hypophysis during development of the said reactions on the different levels of reactivity.

Diagnostic tools used in the discovery

There are a lot of further parameters in the organism showing its adequate health status, e.g. indicators of activity of the thymus, the adrenal glands, the spleen, the immune system, correlations of hormones, some features of energy metabolism, etc., but it is not expedient to check every of them. Leukogram has been found to be the most valuable health parameter in the organism since it reflects the general state of the organism, in other words, a vast complex of myriads of parameters.

Selye was the first who proposed to observe homogeneous changes in blood cells under the stress conditions. It is known that aneosinophilia, lymphopenia and leukocytosis are diagnosed under acute stress. Lymphopenia with the presence of eosinophils indicates the chronic stress condition.

Garkavi L.Kh. et al. were the first who offered a method of the determination of the adaptation reactions type by the percentage of lymphocytes and their correlation to segmented neutrophils as the basis for an assessment of the influence of the complex of stimuli.

Since white blood cells can be considered as the organism hormonal state markers, such approach allows using the leukogram both for an objective evaluation of the influence by the entire complex of environmental factors on the organism and for an identification of the state of the organism resistance to the influence under consideration. Moreover, the application of this method may allow using the leukogram for actual control of the organism resistance with targeted transferring of the organism from a state of less favourable

Table 1 | Lymphocytes percentage in peripheral blood in humans as indicator of unspecific adaptational reactions of organism (UARO) for different age groups

Age / character UARO	Stress	Training	Calm activation	Elevated activation	Over activation
3–5 years	< 29,5	29,5–37,5	38–45	45,5–57	> 57
6–9 years	< 25	25–32	32,5–40	40,5–51	> 51
10–13 years	< 23	23–30	30,5–38	38,5–48	> 48
14–16 years	< 20,5	20,5–28,5	29–36	36,5–46	> 46
Adults	< 20	20–27,5	28–34	34,5–44	> 44

reaction to a better one, by graduated loading.

The information value of the hemogram for testing of the adaptation reactions has been confirmed by multiparametric correlation and regression analysis [15]. It has been proven that the signal element in the hemogram indicating the type of the reaction is the number of lymphocytes, while the other integral components (eosinophils, monocytes, neutrophils) are the indicators of the adequacy or tension of the respective reaction and characterize the level of reactivity (see Table 1). A new synthetic criterion, namely, a coefficient of correlation between the anti-stress reactions and the stress ($K=AC/C$) has been offered which makes possible to assess treatment efficacy.

What is the essence of activation therapy?

Thus, an organism of a human individual or an animal, considered as a whole, is found to be in each period of time in one of the following states: training, calm activation, elevated activation, over-activation or stress, as suggested by the respective stages or “the floors” in the periodic system of physiological states. Each state has its own complex of indicators on every hierarchical level, i.e. from the molecular level up to the mental one. These indicators have been studied during 20 years by different research institutions and clinics, and the applicable regularities of the complex manifestations of the relevant indicators in each given state have been revealed. At specized workshops, physicians can be trained in application of the concepts of the activation therapy, so they will be able to identify the complexes of the key indicators. The theory of the activation

therapy offers new ways how to transform, convert, change or avoid some initial pathologic states, providing us with proven practices. It has made possible to develop the activation therapy capable of recovering health in patients with different diseases.

The target of the activation therapy is normalizing of general unspecific background in an organism with low doses of adaptogens, or physiotherapy procedures, or any other influences and exposures. To achieve the target, it is necessary to properly optimize an individualized activation therapy mode, considering the type of the initial state in a patient (training of a certain stage, or activation of a certain stage, etc.).

It all results in general health recovery and training of the organism to cope with possible deviations which may occur in its different systems with the use of its own potential. This is the basis for a stage-by-stage reduction and final stopping of medication because of the improved health state of the patient to be treated.

The activation therapy includes administration of some natural remedies or a physiotherapy procedure to be strictly performed according to an individual algorithm, i.e. a schedule that should correspond to the initial type of the patient’s health state defined by the periodic system. The therapy algorithm is considered to be of primary importance, and means used are treated as the matter of secondary importance.

The activation therapy may be applied as a method to accompany the conventional treatment. In this case, an enhancement in the treatment efficacy reflects in the following:

1) a reduction in medication therapy and drug doses;

2) an increase in the therapeutic effects as compared to those produced with high dosages in medication;

3) favorable effects are observed in greater percentage of the cases;

4) induced remission of coexistent diseases, not subjected previously to any treatment, that is a distinctive feature of the unspecific therapy only, i.e. "a favorable side effect" of the activation therapy, that means general recovery.

This approach has been found to be effective against a wide range of diseases. But the most important is the fact that this approach is the only effective way to improve the state of hopelessly ill patients. In such cases, when even powerful medicine does not work, when the organism system has been already heavily disorganized by unsuccessful attempts to influence on some individual functions therein, only a careful removal of stress, using adaptogens prescribed individually according to some specific algorithms, might be the remedy. It has been detected, that as long as a human individual is alive, no matter how critical his state is, he remains a highly-sophisticated self-organizing system subject. Consequently, as long as the system exists it can be subjected to any exposures to enhance its self-organization function and reduce the chaos in the regulatory systems. There is always a chance available that the brain will undertake its responsibility to regulate the internal environment in the organism and make it more harmonious, than it is the case with strong drugs (affecting some separate organism systems only). The activation therapy is a slow-rate treatment. It should be taken into account that the process of normalization of one function or another might take some weeks, months or even years. But, in this case, it is important that the function is being normalized by the organism itself, and thereupon it remains normal for a long time. For this purpose, the current status of the organism should be monitored every month before to proceed to the next therapy algorithm.

Every physician being aware of the theory of the adaptation reactions is able to select and optimize an appropriate algorithm to provide the required therapy in-

dividualization. The essence of the algorithm is to involve a stimulus exposure once or twice a day, according to an individual schedule, considering the patient's initial state and his/her specific characteristics. The stimulus can be either of physical or pharmacological type. For instance, liquid adaptogens are easiest to dose.

Research has identified the role of biorhythms of oscillation processes on the cell and membrane levels in formation of the anti-stress adaptational reactions. It has become a groundwork for use of alternating magnetic field at different frequencies inherent to various hierarchical levels in the human organism. Such approach has allowed developing a new treatment technology based on applications of the programmed modes of very low-frequency magnetic field exposures with the use of innovative magnetotherapy device Gradient-2. It has contributed to development and implementation of new methods intended for combined therapy of oncological patients which, under the conditions of the special drug therapy, allow reducing intoxication, correcting the state of the organism regulatory systems and increasing their functional reserves, improving the therapy results and life quality. Development of such synchronizing modes of magnetic field exposures has led to increasing its anti-tumor efficacy.

Exemplary cases: oncology

The negative aspects of cancer surgical treatment (hemorrhage, narcotization, intoxication, pain syndrome, etc.) cause the development of the surgical stress that has an extremely hard effect on the organism due to its severity and acuteness. Very often it is just the surgical stress that prolongs the tumor stress effect. Such extraordinary situation in the organism provokes suppression of the state of the regulatory systems, overloading of the detoxification systems, and under the circumstances, cell and tissue depots of metabolic substrates, enzymes and vitamins are exhausted. H. Selye believed that protection costs a lot.

The alternative to the surgical stress at various stages of the surgical treatment

is a formation of an anti-stress barrier, i.e. an involvement of the capability to develop adaptational reactions of physiological type, namely, training, calm activation and elevated activation.

The necessity to apply the activation therapy at various stages of the cancer surgical treatment has been supported by our own research and studies by other clinicians focusing on application of extremely low frequency magnetic fields (ELF MF), SCENAR-therapy and bioenergetic substrates (succinic acid (SA)). Thus, the above factors of the activation therapy applied in pre- and postoperative period in treatment of colorectal cancer patients have contributed to normalization of homeostasis regulation on the level of the hypothalamus first of all, that has been indicated by evident decrease in quantity of asymmetries in both paired points of modified measuring profile according to Dr. R. Voll's method. General organism energization has been improved with formation of the anti-stress reactions that is the main goal of the activation therapy. A complex application (ELF MF+SCENAR+SA) has been found to be the most effective for an improvement of the postoperative state and an increase in the patients' life quality. SCENAR+SA have been identified to be energizing and stress-limiting enough in case of palliative operations [16].

Special attention should be paid to the evidence data on the application of the regulatory anti-stress effects of ELF MF exposures in the early postoperative period in lung cancer patients [17]. The central exposure to ELF MF, when the brain (hypothalamus projection area) is exposed thereto, determines the formation of an integral response of the organism, i.e. development of the physiological anti-stress reactions, namely, the reactions of training, calm activation and elevated activation, in 96% of patients in the main group. Besides, some of the supporting evidence for a system-forming and synchronizing effect of ELF MF comes from the indicators of the basic endogenous rhythms of electric activity of the brain, the α -rhythm first of all, which is enhanced upon the magnetic field therapy. Prognostically favorable effect of ELF MF

has been also detected according to the indicators of the β -rhythm, the fronto-central localization of which is associated with the processes of the brain biopotential synchronization. The EEG indicators in lung cancer patients after surgery and the post-operative unspecific activation therapy with the use of ELF MF are found to be in correlation with the indicators of the calm activation anti-stress reaction, which is considered to be leading among the general adaptation reactions.

An analysis of the obtained results shows that the application of the ELF MF activation therapy is capable of reducing the rate of complications (pneumonia, cardiovascular and pyoinflammatory complications) by half, the metastasis frequency is decreased, and the five-year life patient rate for patients with initial stage of tumor process in lung becomes higher (Fig.3).

The magnetic field exposures used in the complex treatment of patients with

malignant brain glioma have produced pronounced anti-stressor effect. It has induced the dominance of the reaction of training, the reaction of calm and elevated activation that was reported in 73,4% of the cases. Recorded is also a decrease in the share of stress by 2,9 times, that supports an increase in coefficient K AC/C by 10,8 times, as compared with the respective level in chemotherapy or radiotherapy without use of ELF MF exposures (Fig.4).

The said treatment conditions with involvement of the activation therapy has produced the 93,3 % clinical efficacy by comparison with 40% in the reference group; the total two-years life patient rate has increased by 2,4 times, and the two-years recurrence-free survival rate is recorded to be increased by a factor of 6. The activation therapy has promoted an improvement in chemo- and radiotherapy tolerability by lowering the hematological toxicity from 42% to 13%, reducing the dyspeptic syndrome rate

from 30% to 12%, decreasing the peripheral neuropathy rate from 20% to 10% and relieving considerably neurological toxicity syndroms, including sensation abnormalities, motor and motor speech disorders in the post-chemotherapy period of time.

Thus, taking into consideration the above examples, demonstrating the effects produced by the activation therapy factors in post-surgery patients with cancer in different locations, it can be concluded that, no matter what the nature of an influence or an exposure is, whether some physical factors (ELF MF, SCENAR exposures) or some biochemical substrates (succinic acid) are involved, we deal with a formation of a certain unspecific constituent product to induce an increase in efficacy of the specified anti-tumor-targeted treatment, namely, oncological surgery. At the same time, the ability of a patient to withstand stress, the ability to recover and prolong the anti-stress pattern of the adaptational reactions enables the activation therapy to be among the “must-have” protection and physiological rehabilitation tools when the organism is under the conditions of tumor-progression-induced and surgery-dependent stress.

Post scriptum

It is generally accepted practice in the present medicine to provide a wide and often unjustified use of antibiotics, hormones and other strong synthetic drugs, which disorder and disarrange the self-regulation system in the human organism. The conventional medication is capable of producing an immediate, spot-like relieving, but not the curing effect, so that the patients with chronic diseases have been increasing in their number.

Actually, the regulation in the organism on the level of the general unspecific adaptational reactions of an anti-stress type (the reaction of training, the reactions of calm activation and elevated activation) represents the self-organization by executing of the targeted, evolutionarily selected, universal life programs, showing their physiological adequacy with respect to external and internal exposure factors. As opposed to extremely

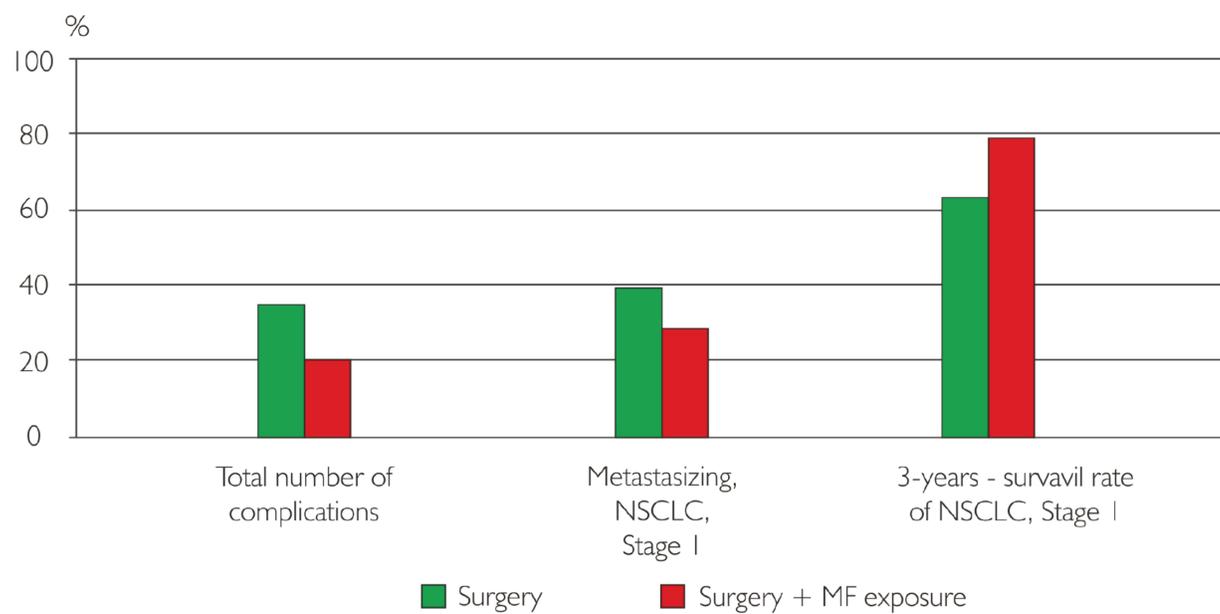


Figure 3 | ELM MF therapy: improvement in lung cancer surgery outcome

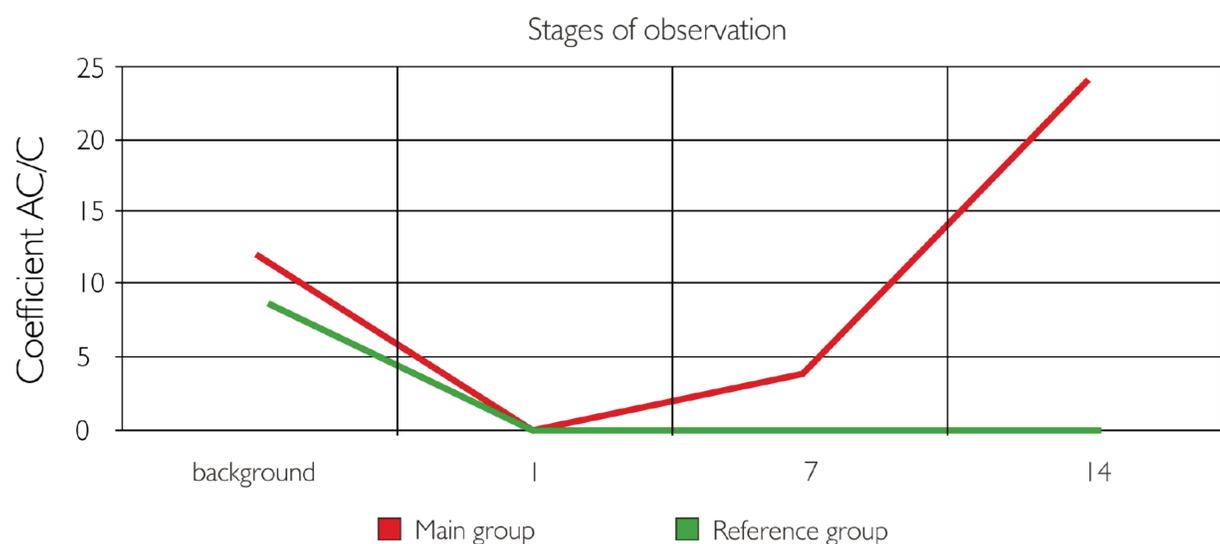


Figure 4 | Pronounced differences in K AC/C values after complex treatment in combination with central (brain) exposure with ELF MF for brain tumor patients

strong stress stimuli, the priority of exposures with a relatively weak and “middle-scale” moderate strength is indubitably important for maintenance of the stable health status that has been justified by the long-term research work by the Garkavi’s school of scientific thought.

The research work completed by the Rostov-on-Don Oncology Research Institute results in offering a pioneering effective methodology of the activation therapy to maintain health of population and provide active rehabilitation and treatment of various diseases either as a single therapy option or in combination with the conventional therapy, that contributes to a substantiable increase in efficacy thereof. The researchers have pioneered in development of rather simple activation therapy programs, open to public, which involve applications of biostimulants and physical factors of electromagnetic and electrical exposures.

This is a system of measures, built upon the theory, considering sex, age, initial conditions, nature and severity of disease and a lot of other factors of individual sensitivity of every patient. The scientific discovery made about thirty years ago has allowed us developing our own PC-assisted Program AntiStress to control low-dose biostimulant therapy patterns according to specific algorithms, with Eleuterococcus, Ginseng, Rhodiola rosea root, Schizandra chinensis and other organic plant extracts with equivalent effects.

By this expedient, the activation therapy offers capabilities of treating a great variety of diseases, and this type of treatment may be considered to be true cure because curing is managed not by a physician, but by the organism itself. It is of no concern what treats or cures, much more important is the outcome: upon self-recovery, a more profound long-term effect is always observed. And a fundamental understanding of the theory of adaptational reactions makes possible to provide an individualized dosage pattern of a drug (when the conventional drug dosing is not effective for a patient), taking into account the patient’s actual physiological status, and obtain effective results therefrom.

Statement on ethical issues

Research involving people and/or animals is in full compliance with current national and international ethical standards.

Conflict of interest

None declared.

Author contributions

All authors read the ICMJE criteria for authorship and approved the final manuscript.

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