

Watching the animals' state according the wound repair rate on the place of the section didn't detect a significant difference between the animals. More authentic differences the registration of the radiation exposed and control animals showed. After the exposure which was carried out in 1-2 days after the infection introduction we observed a greater losing weight of the radiation-exposed animals compared to the control ones. But on the 8th day already the weight gain of the radiation-exposed animals exceeded the weight gain of the control animals. On the 12th day the difference between the weight gain became authentic. Thus, we have made sure that the radiation-exposed animals recover from infectious diseases much quicker.

Conclusion

The carried out research testified that a single total irradiation can condition sick animals' state. The irradiation for oncology disease treatment is very often applied. Traditional methods of oncology disease treatment with the help of radiation therapy are focused on tumor cells inactivation (damage). The radiation is performed with a strictly directed narrow-beam-radiation which must affect only the radiation-exposed cells. At that a great radiation dose, which is able to kill cancer cells, is used. We offer applying total (wide-field) radiation, which covers not only cancer but also stromal cells. The doses used at that can not kill or somehow essentially damage most of the cells. The amount of the applied dose must reduce the energy economy of the cell. When goal making it is our understanding that usually observed the irradiated in front of stromal cells tumor size reduction is explained not only by some tumor cells death but also by dividing intensity decrease. The tumor cells dividing intensity in many ways is conditioned by the energy which the body additionally deliver to both self-duplicating germinal and tumor cells. After the total radiation all the cells of the body incur an energy deficit, that is why the dividing cells suffer particularly. Thus, real opportunities are created for using small dose of irradiation to decrease the intensity of malignant tumor development. At that there is no need to expose to radiation the tumor place locally. It is important to irradiate the whole body or its significant part to escalate the rivalry of the cells for the stored energy reserved in the body. Under the circumstances the tumor cells will get

considerably less energy that will essentially slow the tumor growth. This method of preventive radiation of the body must be especially effective for virus infection.

At passed into the body bacterial cells self-duplicating the energy dependence is not so evident. That is why when introduced into the body the staphylococcus bacteria can multiply without using the body's energy. However, the carried out experiment testified that the body energy reduction at radiation takes toll on the bacterial cells (staphylococcus infection). Therefore, total radiation in small doses can be applied for therapy of infection processes which are caused both by viruses and bacteria.

The article is admitted to the International Scientific Conference "Scientific researches of the higher school in priority directions of a science and technics", Russia-Danija-Shvetsija-Finlandija-Norvegija-Estonija, July, 11-25th 2007г., came to the editorial office on 21.04.07

MODERN METHODS OF PSYCHOPHYSIOLOGICAL CORRECTION

Urazayeva F.Kh., Urazayev Kh.F.

Dashkina A.A., Khamzina A.F.

*Sterlitamak State Pedagogical Academy
Sterlitamak, Russia*

There is a range of methodical approaches of human functional state diagnostics, according to which one can firmly and objectively judge on the body's state and its changes [1, 2]. The research of Frolov M.V. [7] testifies that the emergency of emotional tension in a stress situation is attended by negative dynamics of spatial-temporal parameters of an electroencephalogram, and at the anxiety decrease the synchrony of alpha activity in anterior-posterior departments of the right hemisphere increases.

It was proved [6] that unlike symmetrical picture of intracortical connections normally, at the decrease of energetics and human frame of mind the agitation of the right frontal region of the cortex and relative decrease of functioning of the left one are registered. At depressive positions the spectral capacity of practically all rhythms authentically decreases, excluding theta-

and delta-rhythms, intensification of which occurs at the emotional tension [4, 5]. According to modern typology it is customary to distinguish two pathology types of emotional disorders: the first – with the overweight of active symptoms - enhanced emotional tension, impatience and anxiety; the second – with negative ones – emotional burnout, bad depressive position, social isolation and retardation [3]. Such differences are found out in the spectral capacity of beta- and alpha-rhythms, interconnections in alpha-diapason in endogenic and reactive depression patients [8, 9]. So, on the ground of the above said, an opportunity to select sound rhythm frequency, taking into account the peculiarities of spatial-frequency EEG characteristics, appears.

We have developed the rehabilitation methodology which allows solving this problem. The first and the second types of EEG disorders is set in if the average capacity of alpha- or beta-rhythms in the frontal derivations of the human right hemisphere is lower than in the neighbor derivations of the left one (the difference is more than 40-50%). The second type is manifested additionally, if the average capacity of alpha- or beta-rhythms in the left occipital derivations is lower than in the right ones (the difference is more than 40-50%). Also the availability of theta- or delta-diapason activity becomes apparent, with the amplitude of more than 50-60 mcV.

For brain rhythmic activity formation in the necessary direction it is offered to intensify the capacity of alpha- and beta-rhythms in the right frontal derivations with the help of binaural rhythms of the sinusoidal form with the frequencies correspondent to the calculated average frequencies in the specified derivations at the first type of EEG pathology. At the second type the alpha- or beta-rhythm capacity is increased both in the right frontal and left occipital derivations with the help of binaural waves with the frequencies correspondent to the calculated average frequencies in the same derivations. If in the EEG an increased slow-wave activity is available, to weaken it the binaural wave frequencies which differ from the calculated average frequencies in the derivations with the high amplitude or theta- and delta-rhythms capacity (the difference must be not less than 1-2 Hz) are selected.

The research testified that the offered method of rehabilitation is effective for soothing states of depression, anxiety at stress, computer or game addiction. At that not only the clinical status and psychophysical showings of clients are improved, but their evident positive psychic state of health becomes apparent. The application of the method allows lowering the level of anxiety indexes (according to the tests of Spielberg-Khanin and Tailor), increasing subjective (state of health, activity, mood on the test of SAN) and objective self-estimations (adaptivity on the test of Frolov, productivity, information processing rate, accuracy on the correction test of Landolt).

Sample 1. Patient V., 23 years of old. Increased anxiety, irritability, and infringement of dream. The preliminary diagnostics on EEG: desynchronization of alpha-rhythm and increased activity in the frontal parts of the cortex is registered, the average capacity of alpha-rhythm in the frontal derivations on the left is $2,8 \text{ mcV}^2/\text{c}^2$, on the right - $0,0 \text{ mcV}^2/\text{c}^2$, the average frequency in the frontal derivations on the left is 9,3 Hz. Slow waves of delta-diapason up to 125 mcV, frequency of 1,1 Hz and theta-diapason up to 55 mcV, frequency of 5,3 Hz, are detected. The average capacity of alpha-rhythm in the occipital derivations on the left is $3,7 \text{ mcV}^2/\text{c}^2$, on the right – $4,3 \text{ mcV}^2/\text{c}^2$. The average frequency both on the left and on the right is 9,8 Hz. The first type of EEG changes is defined, that corresponds to the reactive type of emotional pathology. The action was carried out by means of binaural rhythms of sinusoidal form with the help of stereo earphones. A set of two frequencies is selected: 9,8 Hz and 3 Hz. The effect time for one séance made 35 min. Ten séances were carried out.

Finally, the positive result was achieved. The anxiety had decreased. The alpha-rhythm zonality had restored. The asymmetry in the anterior regions of the cortex had been practically deleted. The average alpha-rhythm capacity in the frontal derivations on the left was $1,1 \text{ mcV}^2/\text{c}^2$, on the right - $1,0 \text{ mcV}^2/\text{c}^2$. The average alpha-rhythm capacity in the occipital derivations on the left had increased up to $8,5 \text{ mcV}^2/\text{c}^2$, on the right – $8,2 \text{ mcV}^2/\text{c}^2$. The amplitude of pathological waves had decreased up to 61 mcV.

Sample 2. Patient F., 18 years old. State of tense, lowered mood, attention and working capacity. The preliminary EEG diagnostics: agitations in the right frontal region of the cortex

in magnitudes of the alpha- and beta-rhythm average capacity are registered. The average capacity of alpha-rhythm in the frontal derivations on the left is $3,9 \text{ mcV}^2/\text{c}^2$, on the right – $1,9 \text{ mcV}^2/\text{c}^2$. The average frequency is accordingly 8,5 and 10,3 Hz. The average capacity of alpha-rhythm in the occipital derivations on the left is $8,4 \text{ mcV}^2/\text{c}^2$, on the right – $7,9 \text{ mcV}^2/\text{c}^2$. The average frequency is accordingly 10 and 10,5 Hz. The average capacity of low-frequency beta-rhythm in the frontal derivations on the left is $0,6 \text{ mcV}^2/\text{c}^2$, on the right – $0,1 \text{ mcV}^2/\text{c}^2$. The average frequency is 16,3 Hz on the left accordingly. The average capacity of low-frequency beta-rhythm in the occipital derivations on the left is $1,7 \text{ mcV}^2/\text{c}^2$, on the right – $1,5 \text{ mcV}^2/\text{c}^2$. The average frequency is accordingly 15,8 and 15 Hz. The average capacity of high-frequency beta-rhythm in the frontal derivations on the left is $0,4 \text{ mcV}^2/\text{c}^2$, on the right – $0,0 \text{ mcV}^2/\text{c}^2$. The average frequency is accordingly 28,3 Hz on the left. The average capacity of high-frequency beta-rhythm in the occipital derivations on the left is $0,5 \text{ mcV}^2/\text{c}^2$, on the right – $0,5 \text{ mcV}^2/\text{c}^2$. The average frequency is accordingly 24 and 22,5 Hz. The reactive pathology type is defined. The action was carried out by means of binaural rhythm set of the following frequencies: 10,3 Hz (the average alpha-rhythm frequency in the frontal derivations on the right, 15 and 22,5 Hz (the average frequencies of low- and high-frequency beta-rhythms on the right). The effect time for one séance made 40 min. Ten séances were carried out.

After the correction the emotional state of the patient improved, the attention and working capacity increased. Against the background of total alpha-rhythm capacity increase the asymmetry of biopotential distribution in the anterior cortex regions decreased. The alpha-rhythm zonality restored.

References:

1. Luchinin A.S. Psychophysiology. Compendium of lectures. – Rostov-on-Don: "Phoenix", 2004. – p.320.
2. Nebylitsyn V.D. Psychophysiological research of individual differences. – M: Nauka, 1976. – p.336.
3. Psychophysiology: Textbook for higher educational institutions / Under the redaction of Aleksandrov Yu.A. St. Petersburg: Piter, 2003. – p. 496.
4. Simonov P.V. Theta-rhythm and mechanism of quantization of engram retrieval // Memory. Trace processes. Thesis of the report at IV all Union Conference.- Pushchino, 1979, p.6.
5. Simonov P.V. Functional asymmetry of frontal neocortex and emotions // AS RAS Report, 1994. – V. 338. - № 5. – p.689.
6. Strelets V.B. Disorders of bodily machinery of sensation, affection and cogitation at some kinds of psychic pathology // Human physiology. 1989. – V.15. - №3. – p. 135.
7. Frolov M.V. Human functional state control. – M.: Nauka, 1987. – p.208.
8. Heller W. Neuropsychological mechanisms of individual differences in emotion, personality and arousal // Neurophysiology. 1993. – V.7. – p. 476.
9. Schneider F., Grodd W., Gur R.E. et al. PET and fMRI in the study of emotions // ISNIP/ - Frankfurt, 1995. – p. 76.

The article is admitted to the International Scientific Conference "Medical, social and economic problems of preservation of health of the population", Turkey, May, 21-28st 2007, came to the editorial office on 15.04.2007

AGE-DEPENDENT DYNAMICS OF ELECTROENCEPHALOGRAPHIC CHARACTERISTICS IN IDIOPATHIC ARTERIAL HYPOTENSION PERSONS

Chefranova Zh. Yu., Titova L.P., Makotrova T.A.
Belgorod State University, Medical Department,
Chair of Nervous Diseases and Medical
Rehabilitation, Regional Clinical Hospital of
Sanctifier Josaphat

Idiopathic arterial hypotension – IAH (the term is recommended by the International Statistical Disease Classification of the 10th Revision) or essential arterial hypotension (PAH), attends the life of a great number of people. According to the current information every one of three women and 25 men suffers from it; it being approximately 33% among women and 4% among men, thus, reaching about 12-15 %.

We (together with Laskov V.B. and Plotnikov V.V.) have carried out an EEG-analysis of 60 different ages IAH patients