The influence of musical therapy "Musical-energy key" on the bioelectrical activity of the brain and the meridian system of the body human A.B. Kirilyuk (Moscow, Russia)

Over the past decade, many scientific papers have appeared in the field of the neurobiological aspects of musical perception. According to neuropsychology, the brain reacts to a sound signal, including a very weak one, earlier than other sensory stimuli. Studies have shown that the bioelectric activity of the brain is highly sensitive to musical influences [1].

The space-time theory of pitch perception has now been adopted. The brain, having received information from the peripheral auditory system about sound, groups and compares it with a harmonic standard (template) recorded in memory, in which there are all successive harmonics, and where the pitch of the musical tone is synthesized. For each input signal, a harmonic pattern is selected that suits it best [2].

The space-time theory of pitch perception confirms the specificity of the individual musical therapy (MT) "Musical-energy key" (IEC) as an acoustic model, the concept of which is based on knowledge about the biorhythms of human birth, which are carriers of information about the nature of the individual. During exposure to MT MEK, sound information resonates with a harmonic pattern recorded in memory, corresponding to the innate program of a person's harmonious states. In this case, the listener unconsciously disposes of the store of meaning that is in the given sound information. The perception of sounds becomes the process of decoding this information, which manifests itself on the physical plane. Previously, studies were carried out on the effect of individual MT MEK on the functional and psychophysical state of the body [3].

Purpose of the study: comparative assessment of the impact of MT IEC options onfunctional state of the brain and the meridian system of the human body.

The objectives of the study were to identify the influence of MT in different versions (melody, melody accompanied by harmony, and melody accompanied by harmony and sounds of nature) on the indicators of electrical conductivity (EC) of biologically active points (BAP) of the meridian system of the body and on the indicators of the spectral power of the bioelectric activity of the brain.

Materials and methods

The study was conducted on 11 conditionally healthy volunteers of both sexes aged 30 to 60 years. An individual sound fragment was recorded for each participant. Each sound fragment was presented in two or three

variants, where the first option was one melody, the second option was a melody and harmony, and the third option was a melody, harmony and sounds of nature (the sounds of water were used). The impact of the sound fragment was carried out for 5 minutes. All studies were carried out before and immediately after MT (for all variants): the level of mean electrical conductivity (SE) and the number of meridians in a state of norm and pathology were recorded according to the Nakatani method; blood pressure (BP) and cardiovascular rate (HR) were measured; an electroencephalographic examination (EEG) was performed.

Registration of indicators of the meridian system was carried out on the apparatus "Biotest FN", registration certificate No. FSR 2911/12421, certificate No. ROSS. RU. IM04.N08431. Certification body reg. No. ROSS RU.0001.11IM04 LLC "CENTER FOR CERTIFICATION OF MEDICAL DEVICES VNIIMP". To register blood pressure and heart rate, an Omron automatic model HEM-703C tonometer was used. EEG registration was carried out using a 21-channel neurocartograph "Neuro-KM" ("Neurostatokin", Russia).

During the statistical processing of the results, we used Student's t-test, X-square test using Microsoft Excel (version 7.0 for Windows 2000), using the statistical software BIOSTAT and STATISTICA 5.11, statistical software package SPSS ^ version 17.0. Computer analysis of changes in the EEG spectral power was carried out using the Student's t-test using the BRAINSYS program (AM Mitrofanov).

results

Results of the study of the meridian system:

- after MT, the SE level individually decreases or increases within the range of 40 to 80 μ A, which is the corridor of the physiological norm (in all MT variants);
- SE indicators after listening to a musical fragment decrease to a greater extent than increase in all MT variants; In the 1st and 3rd MT variants, the SE indices decrease significantly; the number of meridians in a state of normalcy significantly (p <0.05) increases, and the number of meridians in a state of imbalance decreases in all variants of MT (reliably in the 1st and 3rd variants (p <0.05);
- comparison of indicators of research results between MT variants is not reliable; however, in the variant - a melody accompanied by harmony, after MT, the number of meridians in a state of norm increases significantly more (p <0.05) than in variants 1 and 3;
- after MT, each subject individually has a tendency to normalize the lateral symmetry indices of the EP BAP and a tendency to improve blood pressure and heart rate in all MT variants.

EEG results

Against the background of MT MEK, there is a significant change in the bioelectrical activity of the brain, both upon presentation of only a melody, and upon its

accompanied by harmony and sounds of nature. The greatest severity of changes in the EEG was when listening to the second option (the number of indicators of changes in brain activity compared with the background indicators in the second option is greater than in the first).

The main changes in bioelectric activity after listening to a piece of music are recorded in the range of alpha and beta rhythm. Moreover, for 47% of the subjects there was a significant decrease in alpha activity in the range of 8-10 Hz and an increase for 84% of the subjects in the range of 10-13 Hz. An increase in spectral power after MT in comparison with background indicators in the beta-1 rhythm in the range of 14–20 Hz was observed in 68% of the subjects, in the beta-2 rhythm in the 21–30 Hz range - in 84% of the examined. In some of the subjects - 68% - there is an increase in delta activity and low-wave theta activity.

Significant interhemispheric differences v identified changes bioelectrical activity after listening to MT relative to background values was not detected. However, in the form of trends, there is an increase in delta and theta-1 activities in the right hemisphere, and alpha, beta-1 and beta-2 activities in the left hemisphere.

conclusions

Studies have shown that after the impact of a musical fragment, the energyinformational balance of the body changes. The tendency towards a decrease in SE is associated with the inhibition reaction of the sympathetic nervous system and the inclusion of the homeostatic function of the parasympathetic nervous system, which is of a restorative nature and acts at rest. A significant increase in the number of meridians in the corridor of the physiological norm and a decrease in the state of imbalance were noted. The observed normalization of the lateral symmetry indices of the EP BAP of various meridians indicates the harmonizing effect of sound effects on the energy-informational balance of the organism.

For most of the study participants, the effect of a melody in combination with harmonic accompaniment and sounds of nature causes a more vivid reaction of the body than the effect of one melody. This can be traced both in the study of the meridian system and in the study of the bioelectric activity of the brain. A tendency towards a decrease in the level of tension is observed after all MT variants. Relaxation is influenced by an increase in delta and theta 1 activity, as well as an increase in beta 1 activity at a frequency of 14-15 Hz. An increase in the power in the beta-2-rhythm range and an increase in the alpha-rhythm in the 10-13 Hz range may indicate a combination of relaxation and mental activity. There was a significant increase in the alpha rhythm at a frequency of 10-13 Hz in the occiput and vertex, which indicates tendencies associated with the positive impact of alpha rhythm frequencies on humans,

According to the results of a study of the effect of MT MEK on bioelectric

brain activity and the meridinal system, we can say that all variants of a musical fragment presented for listening (melody, melody accompanied by harmony, melody accompanied by harmony and sounds of nature) contribute to the improvement of the functional state of the human body.

Literature

1. Samsonova G.O. Sound therapy Musical health technologies. -Tula ed. ZAO Grif and K, 2009 --- 248 p.

2. Aldoshina I., Pritz R. Musical acoustics. - SPb: Composer, 2006.-Pp. 159-163.

3. Kirilyuk A.B., Makashova V.V., Maksimova R.F. Influence of individual music therapy MEK on the functional state of patients with chronic viral hepatitis // Abstracts and reports. XX International Conference "Theoretical and Clinical Aspects of the Application of Bioresonance and Multiresonance Therapy". Part I. -M .: IMEDIS, 2014 - pp. 286–294.

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