

Research and correction of physical and psychological performance
in individuals in different climatic conditions

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Despite significant progress in the development of national health care, many problems of maintaining and strengthening health remain unresolved. First, at the present stage, for various reasons, medical provision remains at a rather low level. Secondly, the cost of various diagnostic procedures and, especially, treatment is extremely high and often inaccessible to a significant part of the Russian population. Thirdly, methodologically, medicine is oriented towards a sick person. This leads to the fact that the study of the state of health and, moreover, its strengthening, the development of new methods of influencing the functional reserves of the human body began to be engaged only very recently, thanks to the introduction of the principles of restorative medicine, based on non-drug effects.

The costs of civilization: malnutrition, bad habits (smoking, alcohol), a low level of medical support, environmental problems have led to the fact that the living environment in many cases ceased to correspond to the physiological adaptive capabilities of a person. Considering the fact that the northern regions of the Russian Federation lack the developed infrastructure characteristic of a modern industrial society, it is of particular importance not only to develop new principles for assessing the reserve capabilities of the human body using relatively simple methods of hardware diagnostics, but also methods of influencing the human body.

In this regard, of particular interest are methods for assessing the level of health and the degree of normalizing effect on biologically active points (BAP) and zones of the human body, which are easy to implement in any conditions, including in the North, where it is quite difficult and often impossible to deliver and operate expensive equipment.

Among the new diagnostic and therapeutic techniques based on the principles of electromagnetic action, one can single out the developed by L.V. Sharovoy (2002) electropharmaceutical spectrum of vibrations (EFSC), which in the framework of bioresonance therapy (BRT) is able not only to objectively assess the state of a person through biologically active and trigger points, but also to exert a directed effect on the adaptive compensatory processes of the human body [6].

As part of the development of this problem, the choice of a pathological model of human health disorders is of certain scientific and practical interest. This model, firstly, is typical for residents of northern territories, and secondly, it is quite labile, its state can be determined by many factors (climatic, genetic, duration of residence in unfavorable conditions, etc.) and, thirdly, it should be sensitive to the proposed methods of exposure from the arsenal of bioenergy information technologies. It seems to us that of the various pathological conditions, cervical dorsopathy (CD), which is widespread in the regions of the Northern Urals, pretends to play such a role [2, 7, 8, 10]. With an exacerbation of pain syndrome (ABS) of CD and other diseases, the adaptive capabilities of the human body decrease.

The transportation of the necessary equipment in the harsh conditions of the Northern Urals, carried out on specially made and equipped sleighs (Sharov AV, RF patent No. 41447), towed by Buran snowmobiles, has positively proved itself.

Purpose of the study: to develop and scientifically substantiate a system for the application of bioinformatic methods for assessing and correcting the adaptive capabilities of the body in practically healthy individuals and patients on the model of cervical dorsopathy based on the complex application of modern and traditional corrective technologies of restorative medicine.

Special research methods: analysis of complaints, medical history and life, data

traditional survey. The presence of injuries of the cervical spine (CS), static and dynamic overloads in different age periods was found out. The psychological state was investigated using the self-assessment scale (Spielberger Ch.D., Khanina Yu.L.). Manual testing included the study of posture, the volume of active and passive movements in the CS, palpation of the soft tissues of the neck, as well as a visual assessment of the adequacy of the motor stereotype. In palpation examination of trigger points (TT were guided by the recommendations of V.P. Veselovsky (1982), assessing the degree of pain (SB), duration of pain (PA), and the degree of irradiation (SI) using a 3-point system.

The assessment of pain intensity was studied using a 10-point visual analogue scale (VAS). In order to clarify the range of adaptive capabilities of the body (ABO), studies of cutaneous dermographism and autonomic reactivity were carried out in the first minute of the orthoclinostatic test.

Transcranial Doppler sonography (TCD) was used to study cerebral hemodynamics: the linear blood flow velocity of the middle cerebral artery (MCA), the Gosling pulsation index, the coefficient of reactivity to hypercapnic and hypocapnic loads, the index of vasomotor reactivity depending on gender at different levels of blood pressure.

Electromyographic study (EMG) included the study of distal latency, potential amplitude, pulse conduction rate, nerve excitability threshold; M-answer form. The diagnosis of CD was verified by X-ray examination, which, according to modern concepts, must be carried out for the diagnosis of degenerative-dystrophic changes.

The method of mathematical modeling of the approximation dependence of the indicators of electrophysiological measurement of biologically active points was used. The assessment of the health level was carried out in practically healthy individuals and patients on a point scale of health level using mathematical methods.

Statistical Method: Results Reported research subjected to mathematical processing using statistical software packages Excel 5.0, Statistica for Windows 5.0 and "Biostatistics".

Means used: clinical and anamnestic research, anthropometry; APK "IMEDIS-FALL"; device for adaptive BRT "IMEDIS-BRT-A", device "MINIEKSPERT-DT", electromyograph Keypoint from Dantec Electronic; for transcranial Doppler ultrasound apparatus VASOFLO-4; transport sleds, snowmobile "Buran".

Results

To study the formation of an increase in the adaptive capabilities of the body in practically healthy individuals and patients with CD, the BRT + EFSK procedures were performed. The result was achieved by influencing five BAPs. Homeopathic grits were processed with electromagnetic oscillations according to a specially developed formula (Sharova LV), RF patent for invention No. 2204374 RF dated May 20, 2003; intellectual product no. 73200400126): $V = D_i + 1.9 + 4.2 \text{ Hz}$, where D_i is the inversion of D (pathological oscillations) recorded from the most painful TT; frequency 1.9 Hz has a prophylactic effect on muscle hypertonicity, frequency 4.2 Hz - on connective tissue and autonomic nerve plexuses.

The impact of EFSK on acupuncture points causes an increase in the amount of bioactive substances in the blood. This leads to complex reflex responses, which are manifested by the development of sedation, analgesia, and changes in mental functions.

Measurements of electrical parameters of biologically active points by the method of R. Voll, we carried out using the apparatus "MINI-EKPERT-DT".

For evaluating the effectiveness the use of BRT + EFSK, in comparison with traditional prevention and treatment of cervical dorsopathy (CD), the indicators of EFI BAP and electromyography data were studied.

In accordance with the international classification of diseases of the tenth revision (ICD-10) osteochondrosis of the spine (M-42) is included in the section of deforming dorsopathies (M-40-43).

The patients were divided into 3 groups:

The first group included 15 patients with exacerbation of pain syndrome (ABS) of the CD who received the BRT + EFSK complex, exercise therapy, massage.

The second group - "Placebo" - consisted of 15 patients who received an imaginary effect of BRT + EFSK, they were carried out only by exercise therapy and massage.

The third group consisted of 15 patients who received only drug therapy, exercise therapy and massage.

The electrical conductivity of 7 BAP meridians was studied: lymphatic system, nervous degeneration, joint degeneration, endocrine system, small intestine, gall bladder, and urinary bladder. The measurements were carried out on BAPs, which have the most pronounced functional connection with the musculoskeletal system.

The input parameters were EFI BAT indicators before exposure to BRT + EFSK and after: after 2, 8, 12, 14, 24 and 48 weeks.

As evidenced by the data table. 1, in patients of group 1, the parameters of EFI BAP significantly increased in all meridians after exposure to BRT + EFSK (ST, WT, p = 0.0001). In the "Placebo" group, which received the imaginary exposure to BRT + EFSK, there was a slight increase in the EFI BAT indices, as in group 3, statistically insignificant [WW (1-2), 0.03669 (p <0.05)]; [WW, M-W, K-S (1-3) p = n. s].

Test conventions: WW - Wald -Wolfowitz runs test; MW - Mann-Whitney U test; KS - Kolmogorov-Smirnov test. Our data indicate the specificity indicators of EFI BAP at selected points of the corresponding meridians in relation to diagnosis, prevention and treatment of CD, which is consistent with the data of researchers on the example of the effect of magnetopuncture [3, 5].

Table 1

Dynamics of EFI BAT indicators in patients before and after exposure to BRT + EFSK

Group	No. 1 - "BRT + EFSK" (n = fifteen)	No.2 - "placebo" (n = 15)	No. 3 - "medicinal therapy "(n = 15)
Method of exposure	BRT + EFSK, exercise therapy, massage	Imaginary impact BRT + EFSK, exercise therapy, massage	therapy, exercise therapy, massage
Date of examination	Indicators (in conventional units)		
Before treatment	3.60 ± 0.40	2.71 ± 3.05	10.70 ± 3.08
After treatment			
after 2 weeks	32.94 ± 1.75	14.75 ± 3.58	13.76 ± 2.87
after 2 months	30.86 ± 3.12	12.29 ± 7.35	15.28 ± 3.34
after 3 months	34.60 ± 1.10	12.33 ± 3.45	13.60 ± 2.33
after 14 weeks	15.04 ± 5.05	8.47 ± 3.56	12.04 ± 1.46
after 6 months	5.76 ± 1.08	4.64 ± 3.12	13.30 ± 1.02
one year later	4.73 ± 4.2	5.08 ± 4.00	10.34 ± 3.2

Method electromyography in patients of the first and second groups were identified the following indicators: distal latency, amplitude of potentials, speed of impulse conduction, threshold of nerve excitability, form of M-response. When analyzing the results of electromyography, the most informative indicators were the speed of the impulse conduction and the threshold of excitability of the studied nerves.

In the process of BRT, which is attributed to physical factors of ultra-low intensities, we managed, by means of electromyography, to obtain experimental confirmation of the positive effect of BRT of a biological and physical nature. The data indicate the presence of a stimulating effect on the amplitude parameters in persons who received BRT + EFSK. In particular, a statistically significant increase in distal latency, with CD in group 1 immediately after BRT + EFSK, may indicate some destabilization of neuromuscular regulation at the cellular and intercellular levels, at the level of neuromuscular switching, which contributes to the imbalance of the existing pathological stereotype caused by a long-lasting energy-informational block. Against this background, 2 weeks after BRT + EFSK, the trend towards normalization is growing.

regulatory processes, the effectiveness of the treatment.

We have done conclusion, that the rehabilitation measures proposed by us are physiological, easily reproducible, do not require expensive equipment, and are highly effective; allow you to correct the physiological state of patients, prolong the period of remission in CD, correlate with the methods of traditional instrumental diagnostics.

Conclusion

Energy-information technologies, which include various methods and methods of BRT and diagnostic technologies, should take a worthy niche in the system of diagnostics and treatment, become a link between traditionally clinical and energy-information technologies at the stages of early diagnosis, treatment and prevention, increasing the effectiveness of special treatment methods, used in academic medicine, improving the quality and standard of life of patients.

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