

Biological feedback during the stress

Aubakirov A B^{1, 2}, Zhailaubai N², Mansharipova A T³

¹Kazakh-Russian medical university department of general medicine, RK Almaty

²NIS, RK Almaty

³KRMU, RK Almaty



Abstract

Biofeedback - a strategic component of any treatment and recovery process, providing potential mechanisms of self-actualization and developing prospect of treatment. This is medical technology, where the patient, which is a passive object of medical manipulations, naturally becomes an active subject in all medical and rehabilitation process.

Keywords: stress, biofeedback, psychology

1 Introduction

Set of diagnostic methods that open up the possibility of managing the functional state are necessary in order to maintain mental health and increase stress tolerance.

One of these methods is the method of biofeedback (BFB). It helps to accelerate the learning of self-regulation skills and improve a person's ability to resist stress.

The idea of the biofeedback is to train the subconscious human regulatory mechanisms, i.e. fundamental physiological processes that ensure its homeostasis. The importance of studying this direction increases also in connection with the growth of maladaptive diseases and forced long-term intake of drugs that promote super saturation of the organism with subsequent disruption of higher nervous activity, and hence of the whole organism [4 - 6].

2 The purpose and objective

The aim of the work is to diagnose physiological changes in students under conditions of educational stress using BOS training.

1. To study the correlation of psycho physiological features.
2. Analyse the psychological and physiological literature on selected topic.
3. Perform a study of physiological parameters using BOS-method based on the school and university.
4. Carry out a psychological study about the quality of patients' life.
5. To determine ways of correcting the educational stress and normalizing the activity of the autonomic nervous system, which will allow students with less loss of health and more successfully absorb the learning process.

3 Material and procedure of the experiment

With an equal ratio of theta and beta rhythms, the moment of aerodynamic balance with the dominance of the alpha

rhythm comes. The state of the aerodynamic balance is considered optimal for humans [1, 2].

The principle of biofeedback (BFR) is based on the fact that the effective functioning of any biological system depends on the return of information in the form of feedback on the operation of this system. BFR sessions were conducted daily for 10 days, in an isolated room, where patients sat in a sitting position on the armchair. The training was conducted in the presence of methodologists. Before and after each session, the subjective state of patients was determined according to the psychological test of SAN-7, systolic and diastolic blood pressure, heart rate, and the temperature was monitored. Training in EEG-BOS mode lasted for 20 minutes, without taking into account the time for psychological testing, measurement of hemodynamic parameters. Also, conducted psychological testing using SAN techniques, short-term memory, personal and reactive anxiety for Spielberger-Khanin [3].

The results of the work are processed by the method of variation statistics using the t Student's test.

4 Results and its discussion

The study of the psycho-emotional state according to the Spielberger test in the patients of the main group revealed a significant decrease in reactive anxiety (from 44 to 34 ± 1.90 to 21.30 ± 2.05 points) by the end of the training as compared to the control one, where this index decreased only by 3.84 points (Table 1).

According to the SAN-30 test (Table 2), a noticeable improvement in all indicators (well-being, activity, mood) was observed before and after the training in the patients of the main group.

At the end of BOS-training in patients of the main group, there was a significant improvement in RAM by 1.56 points (in the control group by 0.39 points). The level of subjective determination of the quality of life in the two groups studied has not undergone any significant changes.

TABLE 1 Dynamics of changes in the degree of anxiety in the Spielberger-Khanin test (in points)

Groups	well-being		activity		mood	
	initial	final	initial	final	initial	final
Basic n=30	5,19±0,32	6,03*±0,18	4,22±0,30	5,53*±0,25	5,14±0,31	6,12±0,28
Control n=30	4,99±0,33	5,49±0,41	4,78±0,32	4,91±0,33	5,55±0,31	6,01±0,20

TABLE 2 Dynamics of evaluation of the state according to the SUN test (in points)

Groups	the quality of life	
	initial	final
basic	15,09±1,89	14,82±2,08
control	16,40±1,97	15,57±1,89

TABLE 3 Determination of quality of life in patients

Groups	personal anxiety		reactive anxiety	
	initial	final	initial	final
Basic n=30	45,08±2,11	41,36±2,31	44,34±1,90	21,30±2,05
Control n=30	42,36±1,44	40,36±2,41	39,18±2,83	35,34±2,21

*p <0,05 The reliability of the differences with respect to the reference level

The average score in the experimental group is higher than in the control group at 1.31 (initially) - 0.75 (final). Table 3 shows the quality of life of patients. The analysis

References

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showed that the students with bio-adaptive management in the complex was better tolerated when passing the test control. They were earlier than the patients of the control group adapted to the stresses.

5 Conclusion

The analysis showed that patients with adaptive management in the complex better tolerated the situation when passing the test control. They were earlier than the patients of the control group adapted to the stresses. Thus, biologically feedback can be one of the additional methods of adaptation to chronic stress. The use of psychological training has a positive effect on the inclusion of compensatory mechanisms, to reduce internal conflict and improve health, as well as the psychological status of patients.