Study of autonomic support of activity in patients with pain syndromes

NS. Kirgizova[1], A.V. Miller[1], Z.M. Mizieva[2]
([1]Center for Intelligent Medical Systems "IMEDIS", Moscow, [2] GOU VPO MMA them. THEM. Sechenov
Ministry of Health and Social Development of the Russian Federation, Moscow)

SUMMARY

The article presents the materials of the study of autonomic support of activity in patients with pain syndromes using the method of segmental bioelectronic functional diagnostics in order to determine the prognosis of recovery. The patients were divided into two groups of 30 people, depending on the degree of painful experiences, as determined by the VAS scale. The control group consisted of 30 patients matched by sex and age with the study groups, but did not complain of pain. In all patients, the integral coefficient of instability was calculated at baseline and after carrying out a functional load, which was an individually selected session of bioresonance therapy. As a result of the study, a relationship was revealed between the difference in the value of the integral coefficient of instability before and after functional load and the state of autonomic support of patients' activity. Based on the results of the study of the autonomic support of activity and the results of the study of autonomic reactivity and initial autonomic tone, which were published earlier, the authors consider it possible to distribute patients into groups reflecting the dependence of the value of the integral coefficient of instability on the state of the initial autonomic tone, autonomic reactivity, autonomic support of activity and recovery prognosis.

Key words: adaptive function of the autonomic nervous system, autonomic supportactivities, segmental bioelectronic functional diagnostics, pain syndromes.

Introduction

Within the framework of assessing the possibilities of the adaptive function of the nervous system in the process of diagnosing and treating a patient, it becomes necessary to determine its parameters, namely, the initial autonomic tone, autonomic reactivity and autonomic support in numerical equivalents [1, 4]. Earlier, in order to determine the initial autonomic tone (IVT) and autonomic reactivity (VR), we carried out studies in which, according to the data of one session of segmental bioelectronic functional diagnostics (SBFD), the integral coefficient of instability (ICI) was calculated [7, 9], reflecting the state of adaptation VNS functions.

The most important indicator of the reserves of the adaptive nervous system, which determines the possibility of a favorable prognosis of recovery, is the autonomic support of activity (VOD) [4, 8].

WOD is the ability of the ANS to maintain long-term VR at a certain level, which mainly reflects the state of the autonomous regulatory system. In clinical neurology, to assess VOD, a clinoorthostatic test is performed with the processing of the results of blood pressure, heart rate before and after the test.

The authors of this article propose to use the capabilities of the AIC "IMEDIS-EXPERT" (LLC "CIMS" IMEDIS ", Moscow), which allow conducting studies of FOS using the SBPD method with a functional load. To do this, it is proposed to calculate the patient's CNI index before the initial session of SBPD, and then after carrying out a functional load and a second session of SBPD with the definition of CNI. It is proposed to determine sufficient VOD by maintaining or normalizing the IQI indicators. Purpose of the work: to study VOD in patients of various groups with pain syndromes using the FBS method to determine the state of the adaptive function of the ANS and make a prognosis for recovery.

Materials and methods

Examination by the SBPD method was carried out using an apparatus for electropunctural diagnostics, drug testing, adaptive bioresonance therapy and electro-, magnetic and light therapy using BAT and BAZ computerized "IMEDIS-EXPERT", manufactured by LLC "CIMS" IMEDIS "(registration number FS 022a2005 / 2263-05 dated 16.09.2005). The study of SBPD indicators was carried out in patients with pain syndromes of varying severity of pain experiences before and after functional load. As a functional load, we used a single session of individually selected exogenous bioresonance therapy with induction programs of “brain rhythms”, in accordance with the guidelines [11].

The mode of exogenous bioresonance therapy was selected by the method of vegetative resonance test using the pointers of the “brain rhythms” program, by the method of filtration through the Cu met pointer. D400 (VV). Two study groups and one control group were formed according to generally accepted criteria c

using a visual analogue scale (VAS) (Table 1) [1, 3, 5, 6, 10].

Table 1

Distribution of patients by groups

Группы пациентов	ВАШ	Средний возраст	Пол	
			Муж.	Жен.
Группа контроля	-	44,43 ± 12,95	14	16
Группа пациентов с выраженными болями	8,74 ± 0,87	44,17 ± 13,39	6	24
Группа пациентов с менее выраженными болями	5,5 ± 0,98	40,87 ± 9,93	12	18

The first group of the study included 30 patients with severe pain in the lumbar spine. The second group of the study was represented by 30 patients with less pronounced pain in the lumbar spine in terms of the degree of pain. The control group was represented by 30 patients who did not complain of pain.

results

All patients underwent SBPD, and the baseline CNI was determined. The average CNI in the group of patients with severe pain syndrome initially was 37.76 ± 4.57, the average CNI in the group of patients with less severe pain syndrome initially was 8.96 ± 2.99, the average CNI in the control group was 18.07 ± 3.38. The data obtained were processed using the MS Excel program using statistical methods, calculating the arithmetic mean with the mean deviation and are presented in table. 2.

table 2

	Средний исходный ИКН	Средние исходные значения ИКН	Средние значения ИКН после нагрузки	Разница показателей до и после нагрузки
Группа контроля	18,07 ± 3,38	18,07 ± 3,38	15,47 ± 3,20	4,87 ± 2,18
Группа пациентов с выраженными болями	37,76 ± 4,57	38,10 ± 5,12	22,17 ± 6,22	16,33 ± 6,12
		35,75 ± 3,36	43,85 ± 1,34	8,36 ± 3,99
Группа пациентов с менее выраженными болями	8,96 ± 2,99	6,47 ± 1,69	14,63 ± 4,25	8,36 ± 3,75
		11,46 ± 3,48	4,34 ± 1,76	7,12 ± 4,17

In the control group, the initial average indicators of IQI correspond to the interval of 11–25 conventional units, after functional load, the IQI indicators remain in this interval.

In the group of patients with severe pain, most of the initial indices of the CNI lie in the range of 26–45; after the functional load, some of the indicators pass into the interval of the control group, some of the indices of the CNI increase and deviate from the interval of the control group.

In the group of patients with less pronounced pain syndrome, the initial indices of the CNI are in the range of 0-10 conventional units, after the functional load, some of the indicators go into the interval of the control group, some of the indices of the CNI decrease and deviate from the interval of the control group.

Discussion and conclusions

Based on the results of the study of VOD and the results of the study of VR and IWT published earlier [9], the authors of the article consider it possible to rank patients into groups reflecting the dependence of the CI value on IWT, VR, VOD and treatment prognosis (Table 3).

In the control group, the initial mean indices of IQI (Table 2) correspond to the interval presented in the second group of indices of IQI, indicated in table. 3. Average indices of CNI in the group of patients with severe pain syndrome (Table 2) correspond to the third group of CNI intervals indicated in Table. 3.

The average values in the group of patients with less severe pain syndrome (Table 2) correspond to the interval presented in the first group of CNI indices indicated in Table. 3.

Table 3

	1 группа		2 группа	3 группа		4 группа
Величина ИКН	0–10		11–25	26–45		46 и более
ИВТ	Парасимпатикотония, слабо выраженная симпатикотония		Эутония	Симпатикотония, слабо выраженная парасимпатикотония		Умеренно выраженная симпатикотония
ВР	Слабо выраженная гиперэргия, гипоэргия		Нормэргия	Слабо выраженная гипоэргия, гиперэргия		Умеренная либо выраженная гиперэргия
ВОД	Подгруппа 2	Подгруппа 1	Эутония	Подгруппа1	Подгруппа 2	Выраженная симпатикотония
	Выраженная парасимпатикотония, симпатикотоническая тенденция	Эутония		Эутония	Выраженная симпатикотония, парасимпатикотоническая тенденция	
Адаптационная функция ВНС	Снижена	Сохранена	Сохранена	Сохранена	Снижена	Резко снижена
Прогноз выздоровления	Скорее неблагоприятный	Скорее благоприятный	Благоприятный	Скорее благоприятный	Скорее неблагоприятный	Неблагоприятный

VOD in the control group according to the SBPD data is characterized by IQI indices of 11–25 conventional units, sufficient positive dynamics in the difference in IQI indicators before and after functional load, which indicates a sufficient adaptive function of the ANS.

VOD in the group of patients with severe pain syndromes is characterized by indicators of the initial CNI in the range of 26–45 conventional units, high indicators of the difference in CNI before and after functional load. At the same time, part of the CNI in this group goes into the interval of indicators of the control group, which indicates the activation of the adaptive function of the ANS and rather a positive prognosis of the prospects for recovery, in some patients, the CNI increases and deviates from the interval of the control group, which indicates a decrease in the adaptive function of the ANS and rather unfavorable recovery prognosis.

VOD in the group of patients with less severe pain syndromes is characterized by low baseline indices of CNI in the range of 0-10 conventional units, part of the CNI indices in this group increases after functional load and tends to the interval of the control group, which indicates the preservation of the adaptive function of the ANS and a rather favorable prognosis recovery. In some patients in this group, the CNI indices decrease, deviate from the interval of the control group, which indicates an insufficient adaptive function of the ANS and a rather unfavorable prognosis of recovery.

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Author's address
Kirgizova N.S.
LLC "CIMS" IMEDIS "(Moscow)
kirgizova_07@mail.ru

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