Assessment of the reliability of detecting violations of mineral metabolism using vegetative resonance test (preliminary results)

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The human body, like other living organisms in the process of evolution, has adapted to a certain chemical composition of the environment, which explains its increased sensitivity to changes in the content of macro- and microelements. The constantly growing chemical pollution of the environment contributes to the occurrence of pathological changes in the human body, which are caused by a deficiency, excess or imbalance of macro- and microelements. In this regard, the assessment of the elemental status, which is associated with the methods of its determination and their information content, is the main point in the diagnosis of macro- and microelementosis in humans.

Currently, the method of electropuncture autonomic resonance test (ART) is becoming more and more widespread as a method of non-invasive diagnostics. In this regard, a thorough and comprehensive assessment of the reliability of ART in relation to other, including more complex and laborious invasive diagnostic methods, is required.

Recently, in modern medicine, more and more attention is paid to constitutional-oriented diagnostics, which includes one form or another of describing the patient's constitution [1]. In this case, the constitution means a systemica mistake made by the patient's body and leading, ultimately (in particular, tobackground of interaction with various factors of the external environment) to the development of a systemic pathological process in it and to its incomplete self-realization (reduction in the duration and deterioration of the quality of its life) [2]. The development of methods for such diagnostics should include the identification of systems of disorders of the patient's vital functions, with the help of which it is possible to describe his constitution. One of the candidates for the role of such a system is the system of disorders of mineral metabolism in the human body. This circumstance determined the choice of the diagnostic task, in relation to which the reliability of the ART method is studied - the task of identifying violations of mineral metabolism in the patient's body. In fact, this task is preparatory, in relation to the task of describing the patient's constitution, within the framework of ART, as a system of violations of his mineral metabolism.

Research Objectives

1. Determination of the most common disorders of mineral metabolism, detected using the ART test [3].

2. Evaluation of the degree of coincidence of the results of diagnostics of disorders of mineral metabolism using the ART test and the results of assessing the elemental status of a person by the method of A.V. Skalny [5-6]. Based on this, the assessment of the reliability of the ART method as a method for detecting violations of mineral metabolism in the patient's body.

Materials and methods

Material and technical equipment of the method:

1. For diagnostics by the ART method was used apparatus for electropunctural diagnostics, drug testing, adaptive bioresonance therapy and electro-, magnetic and light therapy by BAT and BAZ computerized "IMEDISEXPERT", Registration certificate No. FS 022a2005 / 2263-05 dated September 16

2. To assess the content of chemical elements in the biosubstrate (hair), we used assessment of the elemental status of a person A.V. Rocky ANO "Center for Biotic Medicine", in accordance with the use of a special analytical method (FSNSZSR license No. 77-01-000094) - spectral analysis of the content of chemical elements in the biosubstrate. To assess the fact of a violation of the exchange of a chemical element, the following criterion was used: a deficiency or excess of an element in the bio-substrate (hair), outside the norm corridor.

The study involved 12 patients aged 25 to 55 years. For all patients:

1. Primary ART diagnostics was carried out.

2. The patient's hair was taken in order to further assess his elemental status according to A.V. Rocky.

ART diagnostics of patients was carried out in two stages:

1. At the first stage of the examination, all patients were tested without fail. the following pointers:

- test for the presence of geopathogenic load (Silicea D60);
- test for loading by electromagnetic force fields (Phosphorus D60);
- test for radioactive load during X-ray irradiation (Glob. D1000);
- testing of meridians with energy disorders (meridian complex preparations according to X. Schimmel [4, 8]);
- testing of indicators of metabolic disorders of heavy metals (chakras, according to H. Schimmel);
- test for bacterial infection (Tetracyclinum D30);
- test for the presence of viral burdens (acute, subacute) (Interferon D30);
- tests for burdening with helminths.

In addition, it was mandatory that:

- testing the biological index and determining the optimal biological index;
- testing of adaptation reserves and determination of optimal adaptation reserves;
- determination of violations of the macro- and microelement status using 18 tests indicators of violations of elemental metabolism, present both in the test-pointers of ART, and in the method of assessing the elemental status by the method of A.V. Rocky.

All of these tests were carried out in accordance with the approved methodology for conducting an ART examination of the patient [3].

2. At the second stage of the ART examination, the algorithm of its conduct depended on complaints presented by the patient, his age and systemic disorders identified at the first stage of the examination. Depending on the individual condition of the patient, the following were used:

- test indicators of organs involved in the systemic pathological process and body systems (organopreparations);
- test indicators of nosologies and pathogens (nosodes).

Hair sampling: in patients from the scalp of the back of the head, a hair sample was taken in special disposable labeled envelopes, followed by a systematic diagnosis of mineral metabolism to determine the content and metabolic disorders of chemical elements (25 elements).

In the present work, out of these 25 elements, violations of those 18 were monitored, the test indicators of which were present in the drug selector of the IMEDIS-EXPERT apparatus.

Research results

The results of a comparative study of disorders of elemental metabolism in patients using ART and assessment of the elemental status of a person using the method of A.V. Rocky are given in

tab. 1.

 True positive results - a violation of the element exchange was found with the help of ART and the method of systemic diagnostics of mineral metabolism.

 False-positive results - a violation of the element metabolism was found using ART, but was not found during systemic diagnostics of mineral metabolism.

 False negative results - ART did not reveal a violation of the element, and systemic diagnostics of mineral metabolism revealed a violation of the chemical element.

 True negative results - ART did not reveal and no violation was found in the systemic diagnosis of mineral metabolism. Here, the "survey position", or simply "position", refers to the study of the exchange of a fixed chemical element.

 The "coincidence of the results of both methods in the position of the examination" means the coincidence of conclusions regarding the exchange of a fixed chemical element obtained by examining a patient using the method of systemic diagnostics of mineral metabolism and the ART method: the results of both examinations indicate a violation of the metabolism of this element, or, on the contrary, normal its exchange. Comparison of the results was carried out for 18 positions present in each of the methods.

Table 1

Results of a comparative analysis of detecting violations of mineral metabolism
using the ART method and assessing the elemental status according to A.V. Skalny

Химический элемент	Результаты				Совпа-дений, %	Несовпа-дений, %
	истинно-положи-тельные	ложно-положи-тельные	ложно-отрица-тельные	истинно-отрица-тельные		
K	6	0	0	6	100	0
Mn	5	0	0	7	100	0
Mg	7	1	0	4	92	8
P	7	1	0	4	92	8
Cu	7	1	0	4	92	8
Zn	7	1	0	4	92	8
I	7	1	0	4	92	8
Fe	7	1	0	4	92	8
Na	6	0	1	5	92	8
Ni	0	1	0	11	92	8
Al	0	0	1	11	92	8
Li	0	0	1	11	92	8
Ca	9	2	0	1	83	17
Sn	0	0	3	9	75	25
Co	4	2	2	4	67	33
Si	5	4	1	2	58	42
Cr	3	1	4	4	58	42
Se	0	0	5	7	58	42

table 2

Comparison of the frequency of coincidence of the identified violations of mineral metabolism

Количество позиций обследования (химических элементов), относительно которых наблюдалось совпадение результатов обоих методов:	Количество пациентов, у которых наблюдалось совпадение результатов обоих методов обследования по числу позиций (химических элементов)
18	0
17	2
16	4
15	2
14	2
13	1
12	1
Менее 12 элементов	0

Thus, with the total number of possible coincidences or inconsistencies in the survey results for a fixed position (chemical element) - 216, it was found:

- matches - 181,
- discrepancies - 35.

Thus, the percentage measure of the coincidence of the results of the methods for the sample used was about 83.7%. Despite the small size of the sample of patients, this result quite convincingly shows a good agreement between the results of ART and the results of systemic diagnostics of mineral metabolism according to A.V. Rocky.

For different minerals, different frequencies of coincidences (respectively, mismatches) were observed, the results of ART and the results of systemic diagnostics of mineral metabolism at a fixed position of the study. We refrain from trying to explain this phenomenon by objective factors, but we present the obtained data for colleagues who want to double-check and / or clarify them. Despite the small amount of accumulated statistical material, it can be noted that:

- when diagnosing mineral metabolism, both methods most often revealed violations exchange of the following elements: Ca, Si, Mg, most rarely - Sn, Se, Al, Li;

- except for the elements Se, Sn, there is a coincidence of the frequency sequences disorders of mineral metabolism during their diagnosis by ART methods and systemic diagnosis of mineral metabolism.

In conclusion, we note the following additional observation: metabolic disorders of macro- and microelements, which, in the study of biosubstrates, approach the lower limit of the norm, are tested during an ART examination as a violation of the metabolism of these elements.

Processing of research results: evaluating the effectiveness of ART for detection
violations of elemental metabolism

To assess the degree of reliability of ART in detecting violations of elemental metabolism in relation to the method of systemic diagnostics of mineral metabolism according to A.V. Skalny, as a reference, let us make the following assumptions:

1. Method A.V. Rocky reflects the objective state of elemental metabolism in the patient.

2. Frequency distribution of coincidence or non-coincidence of the results of the ART method with the method A.V. Rocky does not depend on the chemical element, the metabolic disorder of which is being investigated.

Both of these assumptions are undoubtedly oversimplifications of the real situation. In particular, in the sample used for the analysis in this work, the empirical frequencies of coincidence or non-coincidence of the results of the two methods under consideration are different. But:

- Assumption 1 has to be accepted, since we do not know more accurate methods detecting violations of elemental metabolism.

- assumption 2 corresponds to the essence of the problem being solved when it comes to assessing

the reliability of the ART method "on average" in relation to a particular group of elements.

In this case, to assess the reliability of ART it is natural to use Fisher's φ * criterion [7]. Percentage measure of violations of elemental metabolism, correctly determined using the method of A.V. Rocky, in accordance with assumption 1, is 100%.

Let $0 < X_1 < X_2 < 100$, i.e. closed interval $[X_1, NS_2]$ is included in the interval $[0, 100]$. Let us formulate the following 2 alternative hypotheses:

H0. The percentage measure of violations of elemental metabolism, correctly determined using ART, is reliably X%, where X is not less than X_1 and no more than X_2, i.e. X lies in the interval $[X_1, NS_2]$.

H1. The percentage of violations of elemental metabolism, correctly determined using ART, is reliably X%, where X is less than X_1, or X is more than X_2, i.e. X lies outside the interval $[X_1, NS_2]$.

Here, reliability is understood as the probability of choosing the correct hypothesis with an error probability of no more than p.

For a fixed p, we find the maximum interval $[X_1, NS_2]$ included in the interval $[0, 100]$, such that, based on the results of the studies, and in accordance with the Fisher φ * criterion for X - $[X_1, NS_2]$ hypothesis H0 should be accepted, and hypothesis H1 - rejected, and vice versa - for $X \notin [X_1, NS_2]$, hypothesis H0 must be discarded, and hypothesis H1 must be accepted. Then the interval $[X_1, NS_2]$ is an assessment of the reliability of the ART method in relation to the task of detecting violations of elemental metabolism, in the sense that:

- for any X - $[X_1, NS_2]$, we expect X% of reliable test results (with error probability <p),

- at $X \notin [X_1, NS_2]$ we cannot expect X% of reliable test results (with error probability <p).

Interval $[X_1, NS_2]$ is determined by direct verification of Fisher's criterion φ * for all possible X - $[0, 100]$. Let, as usual, within the framework of Fisher's criterion, $\Phi_{NS} = \Phi(X)$ is the angular measure corresponding to the theoretical reliability of the method (the reliable percentage of correct detections of violations of elemental metabolism), $\Phi_0 = 2.516$ - angular measure corresponding to the experimental hit percentage [7]. Then the percentage measure of reliable detection of violations of elemental metabolism can be determined from Fisher's inequality:

$$\Phi^* = (\Phi_0 - \Phi_X) \times [(N_1 \times N_2)/(N_1 + N_2)]^{1/2} \leq \Phi_{\text{кр}}, (1)$$

where N_1 and N_2, respectively, the number of observations in the empirical and theoretical sample, Φ_{cr} - the value determined according to a special table, correlated with the degree of reliability of the criterion, F_{NS} and f_0 - percentage measures of reliable detections of violations of elemental metabolism recalculated according to a special table. In this case, by virtue of Assumption 2, $N_1 = N_2 = 216$, respectively, the quantity $[(N_1 \times N_2)/(N_1 + N_2)]^{1/2} = 10.4$. Angular measures Φ_{NS} and f_0 for X% and 83.7%, according to [7], F (X) and 2.310 are equal, respectively. Fisher's inequality, therefore, takes the form:

$(F_0 - F_{NS}) \times 10.4 \leq \Phi_{cr}, (2)$

moreover, we will put $\Phi_{cr} = 1.64$ (which corresponds to the probability of error when choosing a hypothesis $p \leq 0.05$). Solving this inequality by reverse tabulation: determining, using the table presented in [7], the possible values of X%, based on the values of Φ (X), for which:

$-2.310 - F (X) - \leq 0.158 (= 1.64 / 10.4) (3)$

we see that:

1.1. The hypothesis of 100% reliability of the ART method in relation to detection violations of elemental metabolism, it is necessary to reject (at least in relation to the values of $p \leq 0.05$), since in this case, $\Phi^* = 6.51 \geq 1.64 = \Phi_{cr} (p \leq 0.05)$.

1.2. The hypothesis about the reliability of the ART method in relation to the detection problem

violations of elemental metabolism in the corridor 77.5–89.0% can be taken (with $p \leq 0.05$), since for this corridor the percentage measure of correct observations $\Phi* = 1.61 < 1.64 = \Phi_{cr}$ ($p \leq 0.05$). Thus, with a high degree of probability (probability of error $p \leq 0.05$, the ART method possesses a high (at least 77.5–89.0%) reliability in relation to the task of identifying elemental metabolism in the patient's body.

conclusions

1. In the study of disorders of mineral metabolism using electropuncture of the ART test on the hardware-software complex "IMEDIS-EXPERT" in the groups of patients examined, the most often revealed violations of macronutrients (K, Ca, Mg, P) and microelements (Si, Zn, Cu, I, Fe). The violations of elemental metabolism revealed by means of ART coincide with the results of the assessment of the elemental status by the method of A.V. Rocky.

2. The percentage of coincidences of violations of elemental metabolism in studies by ART methods and systemic diagnostics of mineral metabolism was 83.7% in a sample of 216 survey positions. Such an indicator of coincidences indicates a high correlation between ART methods and objective methods for studying elemental metabolism, and can be estimated as 77.5–89.0% of the statistical reliability of this test with an error probability of $p \leq 0.05$.

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