Assessment of the energy state of the meridians in patients in the acute period of ischemic stroke based on electropuncture diagnostics according to Nakatani

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Estimation of the energy condition of meridians among patients in the acute period of ischemic stroke based on electropunctural diagnostics of Nakatani

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SUMMARY

The aim of the study was to study the energy state of classical meridians according to the Nakatani method in patients in the acute period of ischemic stroke in comparison with similar indicators in patients suffering from arterial hypertension for individualization of approaches to reflexotherapy. The material for the study was 50 patients with ischemic stroke. As 2 comparison groups, 25 patients (first comparison group) suffering from arterial hypertension and 20 relatively healthy individuals (second comparison group), representative by sex and age, were examined. The most significant changes in the meridians of the Liver (excess), Heart (deficit, $p < 0.05$), Pericardium (deficit, $p < 0.05$), Stomach (excess, $p < 0.005$), Spleen-pancreas (excess, $p < 0.001$),

Key words: electropuncture diagnostics, Nakatani, acute periodischemic stroke.

RESUME

The purpose of this research was to study the energy state of the classical meridians by the Nakatani method among the patients in the acute period of ischemic stroke in comparison with similar indicators among the patients suffering from hypertension, in order to individualize approaches to reflexotherapy. 50 patients with ischemic stroke participated in this study. As two comparison groups, 25 patients (the first comparison group) with hypertension and 20 volunteers without clinically significant diseases (the second comparison group), representative by sex and age, were examined. The most significant changes were observed in the meridians of Liver (excess), Heart (deficiency, $p < 0.05$), Pericardium (deficiency, $p < 0.05$), Stomach (excess, $p < 0.005$), Spleen (excess, $p < 0.001$) , Triple Warmer (deficiency, $p < 0.001$),

Keywords: electropuncture diagnostics, Nakatani, acute period of ischemic stroke.

High morbidity, reaching 350–400 people per 100 thousand of the population in the Russian Federation, mortality and a high level of disability in survivors [1, 7, 10] determine the continuing urgency of the problem of early rehabilitation of patients with cerebral stroke. The use of drugs alone does not give an optimal clinical result, which requires the search for methods of non-drug rehabilitation that effectively complement drug therapy, among which reflexotherapy methods have taken a worthy place in recent decades. To select and adjust the individual formulation of acupuncture points for

reflexology, control results treatment maybe application electropuncture diagnostics (EPD), which, through the determination of the state of classical meridians, makes it possible to assess the functional state of the patient's body both before the start of treatment and in dynamics [3]. To date, the Nakatani EPD method is recognized throughout the world and is the most used not only by specialists in puncture therapy, but also by doctors of a therapeutic profile, the foundations of which were laid in the 50s of the twentieth century by the Japanese doctor-researcher I. Nakatani. On the basis of a huge empirical research base, he convincingly substantiated the use of a testing current with a voltage of 12 V and a current of 200 μA for diagnostic purposes in order to assess the so-called "viscerocutaneous sympathetic reflex" [11]. The test current is sufficient, to induce a response of the ganglia of the sympathetic trunk, followed by an analysis of the relationship between the indicators of the intensity of autonomic responses in dermatomes to a standard test signal. The author's approach to the interpretation of the obtained indicators consists in assessing the autonomic regulation of dermatomes, which correlates with the autonomic regulation of the corresponding functional systems according to the teachings of oriental medicine on the localization of the outer branches of classical Chinese meridians [2].

In the foreign and domestic literature, information about the results of EPD in cardiovascular diseases is extremely scarce. In patients with arterial hypertension (AH), in comparison with the control group, the use of the computer complex "Diakoms" made it possible to reveal the most significant changes in the meridians of the Pancreas and the Gallbladder [4], and the use of the hardware-software complex "ARM PERESVET" - the hyperfunction of the meridians of the Large intestine ($p < 0.05$), Triple heater ($p < 0.005$) and, to a lesser extent, the Kidney meridian ($p > 0.05$), as well as hypofunction of the Heart ($p < 0.05$), Pericardium ($p < 0.05$) canals , Spleen ($p > 0.05$) and Small intestine ($p > 0.05$) [6], which indicates the possible participation of these organs in the pathogenetic mechanisms of hypertension as one of the main causes of stroke.

The aim of the study was to study the energy state of classical meridians according to the Nakatani method in patients in the acute period of IS in comparison with similar indicators of patients suffering from hypertension in order to individualize approaches to reflexotherapy.

MATERIALS AND METHODS

The material for the study was 50 patients in the acute period of IS, who underwent a course of early rehabilitation in the Primary Vascular Department of GAUZ JSC "Blagoveshchensk City Clinical Hospital", aged 40 to 85 years (average age 62.6 ± 1.56 years). Among the surveyed men predominated (60%). In 27 patients, stroke was diagnosed in the basin of the right or left middle cerebral artery, in 23 - in the basin of the vertebrobasilar arteries. As 2 comparison groups, 25 patients (first comparison group) with hypertension, aged 50 to 65 years (mean age 60 ± 2.5 years), and 20 relatively healthy individuals without clinically significant diseases (second comparison group) were examined.), representative by sex and age (60% of men, mean age 61.4 ± 1.7 years) (second comparison group) and not suffering from high blood pressure.

Diagnostics according to Nakatani was carried out at the medical and diagnostic complex "ARM PERESVET" by measuring the electrical conductivity at 24 representative points located symmetrically in the area of the wrist and ankle joints. The program calculates the corridor of the patient's individual norm. Channels that are in hyperfunction

(or "Completeness") are located above the normal corridor. The meridians in deficiency (or in the "Void" state) are below the normal corridor. The result of the diagnostic study is to determine the functional state of the meridians. In this case, not the absolute values of the transcutaneous electrical conductivity of the representative points are used, but their location relative to the individual norm corridor on the R-map [3]. EPD was performed in the first 3-5 days of hospital stay.

Statistical analysis was performed using the Microsoft Office 2013 (Excel) and Statistica 10.0 software package. For data with normal distribution, the sample mean (M), standard deviation and standard error of the sample mean (m) were calculated. When comparing the sample means for two groups of data with a normal distribution, the Student's t test was used. Differences were considered significant at $p < 0.05$.

RESULTS

When conducting EPD, hyperactivity in the Liver meridian was revealed in those examined in all three groups, more pronounced in patients with stroke ($p > 0.05$) (Table 1). Also, an excessive condition was diagnosed in the canals of the Stomach and Spleen, significantly higher than the analogous indicators of patients with hypertension ($p < 0.005$ and $p < 0.001$, respectively). In all groups, there is a tendency to a deficit in the meridians of the Heart and Pericardium, which is gradually aggravated in patients with hypertension compared with the group of relatively healthy individuals ($p < 0.05$), and is even more pronounced in patients in the acute period of stroke ($p < 0, 05$). Significant differences were also obtained when comparing the energy state of the Triple Heater channel (excess in hypertensive patients compared with a group of healthy volunteers ($p < 0, 005$) and deficiency in patients with stroke, compared with patients with hypertension ($p < 0.001$)) and urinary bladder (hyperfunction in patients with stroke, against the background of hypofunction in both comparison groups, ($p < 0.001$)). There was also a slight tendency ($p > 0.05$) to hyperfusion in the Kidney meridian in hypertensive patients and patients with IS. In all groups, a deficit state of the Lungs meridian was revealed, which was significantly more pronounced in the main group of patients ($p < 0.05$) (Table 1).

Table 1

Energy state of meridians

based on the study of electrical conductivity indicators according to the Nakatani method

Channel	Energy state of channels			p1	p2
	1st group comparison n = twenty	2nd group comparison n = 25	Main group n = 50		
I lungs	- 0.18 ± 0.11	- 0.13 ± 0.17	- 0.7 ± 0.16	0.873	0.034
II large intestine	- 0.05 ± 0.13	0.54 ± 0.15	- 0.04 ± 0.19	0.006	0.031
III stomach	0.40 ± 0.15	0.46 ± 0.11	1.08 ± 0.16	0.996	0.002
IV spleen	- 0.11 ± 0.12	- 0.54 ± 0.13	0.64 ± 0.19	0.073	< 0.001
V heart	- 0.03 ± 0.10	- 0.54 ± 0.15	- 1.1 ± 0.15	0.049	0.016
VI small intestine	0.11 ± 0.10	- 0.27 ± 0.12	- 0.52 ± 0.21	0.064	0.356
VII bladder	- 0.24 ± 0.10	- 0.35 ± 0.15	0.7 ± 0.23	0.958	< 0.001

VIII kidney	- 0.16 ± 0.13	0.17 ± 0.14	0.38 ± 0.22	0.136	0.421
IX pericardium	- 0.03 ± 0.02	- 0.60 ± 0.12	- 1.0 ± 0.15	0.014	0.025
X triple heater	- 0.29 ± 0.11	0.58 ± 0.21	- 0.84 ± 0.22	0.001	< 0.001
XI gallbladder	- 0.68 ± 0.13	- 0.42 ± 0.21	- 0.1 ± 0.23	0.261	0.266
XII liver	1.13 ± 0.21	1.04 ± 0.16	1.3 ± 0.17	0.713	0.282

Note:
Comparison group 1 - healthy volunteers.
Comparison group 2 - patients with arterial hypertension. The main group consists of patients with ischemic stroke.
p1 - reliability of the difference between the indicators in patients with hypertension and the control group. p2 - the reliability of the difference between the indicators in patients with stroke and patients with hypertension.

DISCUSSION AND CONCLUSIONS

One of the main reasons for the development of chung-feng syndrome (stroke) - hypertension - was found in 100% of patients. Traditional Chinese medicine considers hypertension as “an imbalance of Yin and Yang in two storage organs (Liver and Kidney), as well as stagnation in the body of Moisture and Mucus as a result of damage to Spleen Qi with a further decrease in Yang. The Yang of the Spleen does not receive power from the Kidneys, there is a violation of the Spleen's control over moisture, the blockage of mucus clogs the Lo-channels, the flow of energy along the meridians is disturbed. Such mutual influences lead to the appearance of the Fire of the Liver or to an extreme increase in the hepatic Yang, which causes the formation of the hepatic Wind inside the body, which can lead to a stroke ”[8]. As a confirmation of this fact, redundancy was found in the Liver meridian in all groups, more pronounced in patients after stroke.

Psychoemotional overloads, revealed in the anamnesis of almost all patients and causing the onset of cardiovascular problems, are also major in the pathogenesis of diseases of the Spleen, Liver and Heart [9]. Disturbances in the circulatory system cause emptiness of Yang and (or) Yin of the Heart, a lack of Shen, which may explain the deficit found in the Heart canal and the associated Pericardium, which is significantly more pronounced in patients who have suffered a stroke than in patients with hypertension. Mental overload can also cause emptiness of Qi and weakness of the Yang of the Spleen. And due to the excessive strengthening of the Yang of the Liver, Mucus and Moisture in the body rise up and, in their excess state, can cause the development of a stroke [8].

The lack of Heart Qi is possibly a consequence of an energy deficit in the channel of the Lungs, which control the Qi of the whole organism, helping the Heart to carry out its function of ensuring blood circulation [9]. Lung Qi deficiency gradually affects the Heart and leads to Heart Qi deficiency [5], which is reliably aggravated in patients in the acute period of IS. Disruption of the downward Qi flow of the Lungs damages the Liver and causes an increase in Liver Yang [5], which is manifested by hyperfunction in this meridian in most patients with IS.

The excess in the urinary bladder canal is possibly a consequence of the inclusion of sanogenetic mechanisms in the acute period of stroke, aimed at “cleansing

organism "against the background of ongoing infusion therapy, and is the cause of the overwhelming majority of patients with complaints of pain in the back (along the meridian of the Bladder).

The triple heater is responsible for the correct circulation of all types of Qi in all parts of the body, and if this function is impaired, the normal movement of Qi, Blood and Body Fluids suffers [5]. Hypofunction in the Triple Heater meridian is possibly due to a disturbance in Yang-Yin balance towards a systemic predominance of Yin over Yang, which is found in the majority of patients with deficiency in the San Jiao meridian.

Thus, based on the study of the electrical conductivity of the meridians in patients in the acute period of IS in comparison with the group of patients with hypertension and the control group, the most significant changes in the meridians of the Liver, Heart, Pericardium, Stomach, Spleen-pancreas, Triple heater, Lungs were revealed. and the urinary bladder, which indicates the interest of these organs in the pathogenetic mechanisms of stroke, and opens up opportunities for optimizing approaches to reflexotherapy. Some inconsistency of the data in comparison with the classical concepts of traditional Chinese medicine on the pathogenesis of chung-feng syndrome dictates the need for further research in this area.

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