Electrical conductivity of acupuncture points of the heart meridian of patients with angina pectoris during laser reflexology

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Electrical conductivity of acupuncture points of the heart meridian of patients with angina during laser acupuncture

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SUMMARY

The aim of the study was to study the state (±) electrical conductivity of acupuncture points of the heart meridian in patients with angina pectoris during laser puncture. The material of the study was 348 patients with angina pectoris, in whom the (+) and (-) electrical conductivity was measured using the Elita-4 apparatus, and laser reflexotherapy was carried out with the ULF-01 apparatus at the acupuncture points of the heart meridian. In addition, (+) and (-) electrical conductivity was measured in 82 apparently healthy people. A statistically significant improvement in the electrical conductive properties of the involved acupuncture points of the course laser exposure was registered with their approximation to the indicators of practically healthy individuals.

Key words: laser, acupuncture point, angina pectoris, electrical conductivity.

RESUME

The purpose of the study was to examine the state of (±) of the electrical conductivity of acupuncture points of the heart meridian in patients with angina during laser puncture. The material of the study in 348 patients were angina, which was measured (+) and (-) electrical conductivity using the apparatus of "Elite-4", and also held laser apparatus reflexology Ulf-01 on the points of acupuncture meridians on the heart. In addition, (+) and (-) electrical conductivity was measured in 82 practically healthy persons. Registered a statistically significant im-conductive properties of the solution involved an Instrument of acupuncture points-wave laser action with the approach to the performance of their practically health officials. These results suggest the possibility of using indicators of electrical conductivity of acupuncture points,

Keywords: laser, acupuncture point, angina, electrical conductivity.

Introduction

In the light of the information theory of the effect of lasers on the body, the method of laser reflexology (LRT) acquires a new justification [3, 6, 8, 10, 12]. According to the concept of oriental medicine, a person is an integral part of a single open energy and information system of the Universe. The human energy field is in a harmonious resonance relationship with the electromagnetic oscillations of the external world, forming a single field with the properties of a wave and a particle [2]. The scientific experience of quantum physics also shows that all particles of the surrounding world maintain a quantum connection with each other through fields. This system of mutual influence goes far beyond the usual concepts of endocrine and nervous regulation systems, it includes the network of acupuncture points (TA) and meridians known from ancient times, as well as energy electromagnetic fields [5]. Studies have shown that the skin of humans and animals is characterized by morphological and functional heterogeneity. In oriental treatises on Chinese medicine, this phenomenon is described as “skin zones”, “acupuncture points”, “channels” and “collaterals” [4, 7, 9, 13, 11]. This system of mutual influence and mutual regulation really exists, it can be measured and recorded. For example, TA and meridians can be seen using gas-discharge imaging, as well as using devices that determine the areas of least skin resistance in the electrostatic field of a high-voltage corona discharge (luminescence phenomenon) [1, 5]. In oriental treatises on Chinese medicine, this phenomenon is described as “skin zones”, “acupuncture points”, “channels” and “collaterals” [4, 7, 9, 13, 11]. This system of mutual influence and mutual regulation really exists, it can be measured and recorded. For example, TA and meridians can be seen using gas-discharge imaging, as well as using devices that determine the areas of least skin resistance in the electrostatic field of a high-voltage corona discharge (luminescence phenomenon) [1, 5]. In oriental treatises on Chinese medicine, this phenomenon is described as “skin zones”, “acupuncture points”, “channels” and “collaterals” [4, 7, 9, 13, 11]. This system of mutual influence and mutual regulation really exists, it can be measured and recorded. For example, TA and meridians can be seen using gas-discharge imaging, as well as using devices that determine the areas of least skin resistance in the electrostatic field of a high-voltage corona discharge (luminescence phenomenon) [1, 5].

Research objective: to study the state (±) electrical conductivity of meridian acupuncture points

hearts of patients with angina pectoris during laser puncture.

Materials and methods

The study included 348 patients with exertional angina, including 251 patients in the main group, 97 in the comparison group. In addition, 82 practically healthy people were examined, which made up the control group.

The groups of patients were comparable in terms of the severity of angina pectoris, the frequency of myocardial infarction, the presence of concomitant diseases, and risk factors. All three groups of the surveyed did not differ in gender, age, and social status.

Determination of the value ± of the electrical conductivity of the TA of the heart meridian was carried out in individuals included in all 3 groups. In patients of the main group, measurements were carried out daily before the LRT procedure, in patients in the comparison group before imitation of the LRT procedure using the Elita-4 apparatus.

The value (±) of electrical conductivity in TA in the norm, recorded using the apparatus "Elita-4", is ± 10 μA.

The method for studying (±) electrical conductivity in the heart meridian TA is as follows: on the panel of the Elita-4 apparatus, the “current (+)” button is pressed, that is, the device is set into working state to generate a direct current with a (+) sign. Next, the passive electrode is short-circuited with the search probe of the same apparatus and by turning the potentiometer knob, the microammeter reading is set to +20 μA, then, by pressing the "current (-)" button on the instrument panel, the passive electrode is closed with the search probe and the generation mode is set by the apparatus - 20 μA. The device is ready for testing.

When taking measurements on the "Elite-4" panel, the "current (+)" button is pressed, the passive electrode is fixed on the patient's hand, the search one is installed alternately on all 9 TA of the heart meridian for 2-3 seconds. At the moment of a short circuit, a direct current with a (+) sign passes through the circuit, the maximum value of which is recorded by an Elita-4 microammeter, the data is entered into the protocol.

Then, on the “Elite-4” panel, the “current (-)” button is pressed, after which the search probe is installed in the same sequence on each of the 9 TA of the heart meridian. At the moment of closing, a direct current with a sign (-) passes through the circuit, the maximum value of which is recorded by an Elita-4 microammeter with data recording in the protocol.

Laser reflexology technique.

When treating patients of the main group, LRT was used along the TA of the heart meridian, which was carried out using an ULF-01 laser device, which generates continuous low-intensity laser radiation with a wavelength of 0.63 μm, an output power density of 0.1-10 mW / cm^2 and a beam diameter of 1.5–0.1 mm. To achieve the maximum therapeutic effect and exclude overdose, we used the method of laser radiation dosimetry proposed by A.F. Pavlov. et al. (1985), certificate for invention No. 1194415 (1985). The duration of the laser action on each TA was determined by the dynamics of the magnitude of the electric potential relative to the initial level [139].

After determining the magnitude of the electric potential in the terminal TA of the heart meridian using a V7-16 universal voltmeter, an ULF-01 laser beam was applied sequentially to all TA of the heart meridian.

The dynamics of the level of electropotentials in each patient in each case proceeds individually. In this case, the magnitude of the electric potential decreases or increases relative to the initial values and remains at the newly reached level for a certain time. The termination of changes in the magnitude of the electric potential serves as the basis for the termination of the laser action on the TA.

Research results

Measurement of the electrical parameters of the TA of the heart meridian of the subjects included in the study showed that they are far from normal in all three groups. The greatest deviations from the norm were found in patients with angina pectoris. The initial values of the (+) conductance value in the TA of the heart meridian of patients of the main group ranged from 5.22 ± 0.53 μA in the 2nd TA to 9.81 ± 0.67 μA in the 1st. In patients of the comparison group, they differed little and ranged from 5.12 ± 0.55 in the 2nd to 9.62 ± 0.69 μA in the 1st TA (Table 1).

In terms of (-) conductivity, these groups were also comparable: in the main group, its parameters ranged from 5.68 ± 0.52 in the 5th TA to 10.52 ± 0.62 μA in the 1st TA, and in the comparison group

the minimum values were recorded in the 5th TA (5.57 ± 0.54 μA), and the maximum - in the 1st (10.31 ± 0.64 μA). In the control group of practically healthy people, the indices of both (+) and (-) conductance were better and in almost all TA statistically significantly (from p <0.05 to p <0.001) differed from the corresponding indices of patients with angina pectoris.

As a result of a 15-day course of LRT, a significant improvement in the state of (+) conduction was recorded in all involved TA (Table 2). At the same time, only in the 9th TA there is a decrease in this parameter from 8.59 ± 0.58 to 7.86 ± 0.54 μA, and in the remaining TA - an increase (p <0.001) with approaching the indicators of the control group. Changes in (+) conductance in the comparison group were insignificant.

The value (-) of conductivity had a similar dynamics both in the main group and in the comparison group (Table 3).

Thus, in the main group of patients (-), the conductance in 2 TA under the influence of treatment increased from 5.96 ± 0.55 to 7.64 ± 0.59 μA (p <0.001), and in the comparison group, on the contrary, there was a decrease in this indicator from 5.84 ± 0.57 to 5.55 ± 0.55 μA, while in the control group this indicator was 8.45 ± 0.61 μA. In all other TA patients of the main group, with the exception of the 1st group, there is an increase in (-) conductivity (p <0.001) with its approach to the parameters of practically healthy individuals.

In the comparison group, after 15 days of observation, in many TA (2, 3, 5, 6 and 8) a slight decrease in the value of (-) conductance was recorded.

Table 1

Baseline (+) and (-) conductance at acupuncture points of the heart meridian in the examined persons

ТА	Основная группа, n = 251		Группа сравнения, n = 97		Контрольная группа, n = 82	
	(+) проводимость, мкА	(-) проводимость, мкА	(+) проводимость, мкА	(-) проводимость, мкА	(+) проводимость, мкА	(-) проводимость, мкА
1	9,81 ± 0,67*	10,52 ± 0,62	9,62 ± 0,69	10,31 ± 0,64	10,24 ± 0,70	9,34 ± 0,76
2	5,22 ± 0,53*	5,96 ± 0,55*	5,12 ± 0,55**	5,84 ± 0,57**	7,31 ± 0,62	8,45 ± 0,60
3	5,82 ± 0,56**	5,70 ± 0,55	5,70 ± 0,58*	5,59 ± 0,57*	8,42 ± 0,62	7,89 ± 0,64
4	5,52 ± 0,58	6,42 ± 0,56**	5,41 ± 0,60**	6,29 ± 0,58**	7,56 ± 0,63	8,32 ± 0,66
5	5,82 ± 0,56*	5,68 ± 0,52	5,70 ± 0,58	5,57 ± 0,54**	8,61 ± 0,59	8,76 ± 0,64
6	6,41 ± 0,60	6,10 ± 0,55**	6,29 ± 0,61*	5,98 ± 0,57*	8,12 ± 0,63	9,12 ± 0,68
7	7,14 ± 0,53*	7,11 ± 0,58*	7,00 ± 0,55**	6,96 ± 0,60***	8,95 ± 0,66	7,98 ± 0,60
8	7,44 ± 0,55**	7,02 ± 0,48	7,29 ± 0,57**	6,88 ± 0,50	7,54 ± 0,55	6,46 ± 0,62
9	8,59 ± 0,58*	8,30 ± 0,58**	8,42 ± 0,60	8,13 ± 0,59*	9,12 ± 0,65	9,45 ± 0,66

Примечание: *** – p < 0,001, ** – p < 0,01, * – p < 0,05, достоверность между показателями основной группы, группы сравнения и показателями контрольной группы.

table 2

The value (+) of the conductivity at the acupuncture points of the heart meridian of the examined persons and its dynamics

ТА	Основная группа, n = 251		Группа сравнения, n = 97		Контрольная группа, n = 82, мкА
	До лечения, мкА	После лечения, мкА	Исходно, мкА	Через 15 дней, мкА	
1	9,81 ± 0,67	10,94 ± 0,69***	9,62 ± 0,69	9,80 ± 0,64	10,24 ± 0,71
2	5,22 ± 0,53	7,60 ± 0,61***	5,12 ± 0,55	5,09 ± 0,51	7,31 ± 0,56
3	5,82 ± 0,56	7,60 ± 0,52***	5,70 ± 0,58	5,72 ± 0,54	8,42 ± 0,59
4	5,52 ± 0,58	7,26 ± 0,60***	5,41 ± 0,60	5,19 ± 0,56	7,56 ± 0,61
5	5,82 ± 0,56	6,97 ± 0,63***	5,70 ± 0,58	5,66 ± 0,54	8,61 ± 0,59
6	6,41 ± 0,60	7,29 ± 0,64***	6,29 ± 0,61	6,38 ± 0,57	8,12 ± 0,62
7	7,14 ± 0,53	8,97 ± 0,52***	7,00 ± 0,55	7,23 ± 0,51	8,95 ± 0,56
8	7,44 ± 0,55	8,36 ± 0,42***	7,29 ± 0,57	7,21 ± 0,53	7,54 ± 0,58
9	8,59 ± 0,58	7,86 ± 0,54***	8,42 ± 0,60	8,37 ± 0,56	9,12 ± 0,61

Примечание: *** – p < 0,001

Table 3

The value (-) of the conductivity at the acupuncture points of the heart meridian of the examined persons and its dynamics

TA	Основная группа, n = 251		Группа сравнения, n = 97		Контрольная группа, n = 82, мкА
	До лечения, мкА	После лечения, мкА	Исходно, мкА	Через 15 дней, мкА	
1	10,52 ± 0,62	11,04 ± 0,64***	10,31 ± 0,64	10,20 ± 0,60	9,34 ± 0,66
2	5,96 ± 0,55	7,64 ± 0,59***	5,84 ± 0,57	5,55 ± 0,55	8,45 ± 0,61
3	5,70 ± 0,55	8,14 ± 0,62***	5,59 ± 0,59	5,26 ± 0,53	7,89 ± 0,58
4	6,42 ± 0,56	7,48 ± 0,53***	6,29 ± 0,58	6,32 ± 0,54	8,32 ± 0,59
5	5,68 ± 0,52	7,20 ± 0,58***	5,57 ± 0,54	5,35 ± 0,50	8,76 ± 0,55
6	6,10 ± 0,55	7,25 ± 0,56***	5,98 ± 0,57	5,68 ± 0,53	9,12 ± 0,58
7	7,11 ± 0,58	8,35 ± 0,52***	6,96 ± 0,60	6,96 ± 0,56	7,98 ± 0,61
8	7,02 ± 0,48	8,28 ± 0,37***	6,88 ± 0,50	6,67 ± 0,47	6,46 ± 0,51
9	8,30 ± 0,58	7,48 ± 0,51***	8,13 ± 0,59	7,81 ± 0,55	9,45 ± 0,60

Примечание: *** – $p < 0,001$

conclusions

As a result of LRT of patients with angina pectoris with the use of TA of the heart meridian, a statistically significant improvement in the electrical properties of the involved points was registered with their approaching the parameters of the control group. At the same time, in the comparison group (±), the conductivity, on the contrary, somewhat deteriorated, moving away from the indicators of practically healthy individuals.

The results of the study indicate the possibility of using electrical properties along with clinical symptoms and methods of functional diagnostics for objective confirmation of the effectiveness of LRT.

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