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Medicament Testing in the Diagnosis of Long COVID Syndrome

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Abstract

Long COVID syndrome resulting from SARS-CoV-2 infection has a prevalence of 10%-35% in the population. Numerous studies of the disease are currently being conducted concerning the manifestations of long COVID syndrome; however, there are no data on the use of electroacupuncture diagnosis (EAV) and medicament testing (MT) in assessing this condition. The purpose of the study was to study the possibilities of diagnosing EAV to determine changes in the electrodermal activity of acupuncture points of the meridian test system - EAV in patients with long COVID syndrome, as well as to identify drugs that can influence the altered electrodermal impedance at these acupuncture points based on the results of MT. At present, the physiological basis of this phenomenon is still unknown. This blind, randomized, placebo-controlled trial included 99 patients (aged from 16 to 50) with long COVID syndrome, who were examined with EAV based on measuring the electrodermal impedance of

acupuncture points (APs), followed by testing the RNA polymerase nosode, ribavirin, and dexamethasone at those acupuncture points where a decrease in electrodermal activity was recorded. A reduction of electrodermal activity was observed in APs of various meridians of Voll diagnosis, with this phenomenon being more pronounced in the Nervous Degeneration and Circulation (Voll). The use of RNA polymerase nosode, ribavirin (tablets), and dexamethasone (pills) in the process of MT with positive reaction to testing drugs in specified APs with decreased levels of electrodermal activity in some patients has led to the normalization of indexes of electrodermal impedance in the studied APs. The results of the research suggested the feasibility of using EAV diagnostics to identify the APs of meridians with a decreased level of electrodermal activity, followed by MT using an RNA polymerase nosode, ribavirin, and dexamethasone as drugs, that contribute to the restoration of electrodermal impedance at the APs of the identified meridians in some patients with long COVID syndrome. Further clinical and instrumental studies are needed to evaluate the clinical application of medication testing in assessing long COVID syndrome further.

Keywords
SARS-CoV-2; long COVID syndrome; medicament testing; measurement point; acupuncture point; nosode of RNA polymerase; ribavirin; dexamethasone

1. Introduction

The electrical properties of acupuncture points (APs) draw attention to their ability to be used for diagnostic purposes [1]. Various diagnostic devices for measuring electrodermal impedance have been developed based on the AP electrical properties, among which electroacupuncture, according to Voll (EAV), deserves the most attention [2, 3]. EAV diagnosis is a promising direction of electroacupuncture diagnostics, which combines acupuncture ideas with hardware bioenergetics for disease diagnostics in a non-invasive way. The design features of the EAV device allow the conduct of medicament testing (MT), a method of testing various drugs based on the measurement of altered characteristics of the electrodermal impedance at acupuncture points to select the medicines that are capable of restoring the changed electrodermal activity at the measured APs, as well as the selection of doses of drugs chosen [4].

Long COVID syndrome is an illness whose symptoms linger for weeks, months, or even years of acute coronavirus infection, which cannot be explained by another condition [5]. Patients' complaints are multisystemic and may present with a relapsing-remitting pattern and progression or worsening over time, with the possibility of severe and life-threatening events even months or years after infection [6]. Given the urgency of the problem and the ongoing worldwide study of the evolving disease, we felt it necessary to conduct the present study using alternative approaches to assess this condition for possible development of diagnosis in the future.

2. Data and Methods

2.1 Aim, Design and Settings of the Study

This blind, randomized, placebo-controlled trial aimed to investigate the potential of EAV diagnosis to define the APs of meridians with changed electrodermal impedance and to identify drugs capable of restoring the decreased level of electrodermal activity in the indicated APs in patients with long COVID syndrome. The participants were selected based on the Out-Patient department of the Research Institute of Virology, from where patients with suspected long COVID syndrome were recruited. The diagnosis of long COVID syndrome was based on the patient's complaints and medical history of the diseas (confirmation of previous SARS-CoV-2 infection). Further examination of selected patients using EAV and subsequent MT was carried out at the Avicenna Medical Centre from December 2020 to October 2023, where the patients were divided into two groups using a simple random sampling method. The following were the inclusion criteria: subjects of either gender, aged 16 to 50; the diagnosis was based on the definition of the long COVID syndrome [6]; and patients were willing to sign written informed consent including information regarding the conditions of the application of the EAV diagnostics. Patients who tested positive for HCV Ab, were excluded from the study. The study was conducted by the principles of the Declaration of Helsinki and was approved by the Ethical Committee of the Ministry of Health of R. Uzbekistan (№ 6/8-1549 from 27/11/2020). All enrolled patients signed written informed consent forms for the study.

2.2 Participants

Ninety-nine patients (45 males and 54 females, aged 16-50) were examined at the baseline visit. The examination of patients, registration of complaints, and medical history were conducted before EAV diagnosis and MT with the physician's participation in a general clinical setting of the medical center. The baseline characteristics of the patients are presented in Table 1.

Table 1 Baseline characteristics of the studied groups.

Indicators	Main group (n = 50)	Control group (n = 49)
Sex (female), %	52%	49%
Age, Mean ± SD	35.38 ± 19.28	34.27 ± 17.17
Past SARS-CoV-2 infection	100.0%	100.0%
Concomitant conditions (%)		
Lung diseases (chronic pneumonia, bronchitis)	10.0%	14.3%
Diseases of the central nervous system (asthenia, depression, stroke)	18.0%	12.2%
Cardiovascular pathology (heart failure, coronary heart disease)	18.0%	14.3%
Gastrointestinal diseases (gastritis, enterocolitis)	24.0%	26.5%
Joint diseases (rheumatoid arthritis, osteoarthritis)	14.0%	10.2%

Liver pathology (chronic hepatitis, NAFLD)	16.0%	10.2%
Diseases of the biliary tract (chronic cholecystitis, biliary dyskinesia)	26.0%	20.4%
Allergic conditions (hay fever, food allergies)	16.0%	10.2%
Kidney disease (chronic pyelonephritis, chronic cystitis)	14.0%	10.2%
Pelvic diseases (prostatitis, endometritis)	12.0%	10.2%
Pathology of the thyroid gland (hypothyroidism, autoimmune thyroiditis)	24.0%	24.4%
Pathology of the pancreas (chronic pancreatitis, diabetes mellitus)	14.0%	10.2%
Skin diseases (eczema, psoriasis, dermatitis)	8.0%	12.2%

2.3 Description of the Intervention

In this blind, randomized, placebo-controlled trial, we assigned a 1:1 ratio patients (main and control group) with suspected long COVID syndrome who was further examined by the EAV diagnosis, followed by MT by two experts with 31 and 20 years of experience in EAV diagnosis and MT. The MT was performed with an apparatus for EAV diagnosis called “Vistron” (Kindling, GmbH Medizintechnik) equipped with the EAV Homopath^{R} S software system [7]. The EAV readings of the tested AP were collected and analyzed before and after MT. The MT procedure was described previously [8]. EAV diagnosis was performed according to the manufacturer's standard, including information on conditions related to external factors, the patient, and the physician using the equipment. In the process of EAV testing, we applied the vertical point-finding technique when a slightly moistened diagnostic stylus was pressed vertically on the acupuncture point. EAV testing was carried out in compliance with all requirements: 1 *workplace conditions*- the absence of extraneous sources of electromagnetic and other types of radiation (microwave, X-ray, and others) near the room; no contact of the patient with synthetic coverings on the floor (wooden flooring) and the absence of clothing that can cause static stress- the patient should be dressed in a white cotton robe; air-conditioning room with a temperature set up to 77 degrees Fahrenheit; room air humidity is within 40-60%; the light source must be at least 30 cm away from the patient.2 *patient requirements:* - taking into account the state of the autonomic nervous system, the examination of the patient is carried out during daylight hours, preferably with natural lighting in the room where the diagnosis is being carried out; patients' skin should be healthy and intact and without signs of silicone cream on the hands and feet; the transient resistance of the patient's skin should not be high, as is observed with dry skin on the measured points, or low, as observed with sweaty extremities. Necessary measures are taken to avoid possible measurement errors (humidification or removal of excess moisture); the presence of menses in women on the day of EAV diagnosis is an obstacle to conducting diagnosis.3 *requirements for the physician*- the doctor must wear cotton gloves to avoid direct contact with the patient [3].

2.3.1 Medicament Testing

The essential components of an EAV device consist of the basic apparatus, including a honeycomb (for MT), a diagnostic stylus, a metallic hand electrode (for the patient), and a computer

connected to the EAV device. According to the recommendations accepted in EAV diagnosis, the so-called energy balance in the investigated AP is registered when, during the measurement process, on the scale of the device display, the indices corresponding to 50-65 units of the device display scale are set. The imbalance score below 50 or above 65 indicates *hypoergic* (energy deficit) or *hyperergic* (energy excess) responses, respectively [9].

A prerequisite for MT is a changed (an increased or energy excess or a decreased or energy deficit) level of electrodermal activity at the APs of the studied meridians. The AP's response to the drug being tested during MT is assessed by the reaction of the altered electrodermal activity at the acupuncture point to the placement of the drug into the honeycomb, manifested by a change in the readings of the EAV diagnostic device. It is assumed that if the readings of the EAV device shift in one or another direction when the medication is placed into the honeycomb, the tested drug shows a particular effect on the acupuncture point under study. Table 2 shows the evaluation of the MT results.

Table 2 Assessment of medicament testing results.

№	Indicator Readings after Medicament Placement into the Honeycomb	Tested Drug Effect on the AP
1.	No changes	No effect
2.	The indicator stops dropping	Positive reaction
3.	The indicator returns to normal values (50-65CU)	Positive reaction
4.	The indicator shows a more significant dropping	Negative reaction

The arbitrary measurement value (AMV) was used to analyze the MT results. AMV is the result of subtracting the resulting EAV reading (E) and the lower level of the energy balance indicator (50) and is equal to *E minus 50.* If the EAV readings are recorded below 50 units on the scale of the device display, the AMV will be negative. It is recommended only for statistical analysis and data comparison [10].

Having carefully analyzed information on the availability of drugs at the time of the study, we selected the following medications for MT for the main group of patients: the nosode of RNA polymerase (The EAV HomopathR S software), antiviral drug ribavirin (Copegus, Hoffmann- La Roche, 200 mg, tablets), and dexamethasone (0.5 mg, pills) [11]. The nosode of RNA polymerase is a homeopathic preparation made according to the laws of homeopathic pharmacopoeia [12]. For MT, we used the RNA polymerase nosode at 30C dilution. The drug is used exclusively for diagnostic purposes only. During MT, the RNA polymerase nosode was connected to the device-patient circuit, and the test results could be seen on the EAV device display scale. Ribavirin exhibits antiviral activity against a broad range of both DNA and RNA viruses in vitro and is widely used in treating viral infections, where the virus genome is represented by one- or double-stranded RNA. The mechanism of action includes direct inhibition of viral polymerases [13]. To test ribavirin and dexamethasone, the drugs were placed separately into the honeycomb of the EAV device. A positive response to the RNA polymerase nosode and ribavirin, manifested by the restoration of electrodermal activity to normal readings of the EAV device in the studied APs during MT, indicates, in our opinion, the positive reaction of the tested drugs on the electrical activity of the researched acupuncture points,

which is manifested itself by normalization of the indicators of the electrical impedance at the studied acupuncture points (Table 2).

The application of the synthetic corticosteroid dexamethasone was based on its anti-inflammatory properties, and a positive reaction to this drug during MT indicates, in our opinion, the positive effect of this drug on the electrical activity of the studied acupuncture points, which was also manifested in the normalization of electrical resistance indicators at the researched acupuncture points. We compared the data obtained under simultaneous testing of all three process markers: RNA polymerase, ribavirin, and dexamethasone drugs for statistical analysis. For this purpose, in the process of MT, after confirmation of a positive response to each drug separately, further investigation was completed by concurrent testing of all three medications on the measured acupuncture point. In the control group of patients, a placebo (glucose tablets) was used for MT. Patients in both groups were not informed about what drugs were used for MT.

2.4 Statistical Analysis

The statistical processing of data was done using the IBM SPSS Statistics 23 program. To determine statistically significant differences in quantitative data, the Wilcoxon test was used for dependent variables, the Mann-Whitney test was used for independent variables, and Fisher's exact test was used for qualitative values. Intergroup differences were considered significant at $p < 0.05$. Odds ratios (ORs) were calculated.

3. Results

By the start of this study, we did not have sufficient information about long COVID syndrome. This prompted us to conduct a complete patient examination by EAV diagnosis followed by MT, including all Voll's meridians testing in our patients. We used the following acupuncture points (measurement points (MPs) in Voll's interpretation):Ly-1-2*, Lu-10c*, Di-1b*, Ne-3, Kr-8b, Al-1b*, Or-1*, 3E-1b*, He-8c*, Du-1b*, Pa/Mi-1a*(S), Pa/Mi-1a*(D), Le-1a*, Ge-1b*, Ma-44b*, Bl-1b*, Hau-1-3*, F-1b*, Gbl-43b*, Ni-1-3b*, Bl-66*, Pa/Mi-11 [3, 14].

Figure 1 gives information about the complaints presented by patients of compared groups.

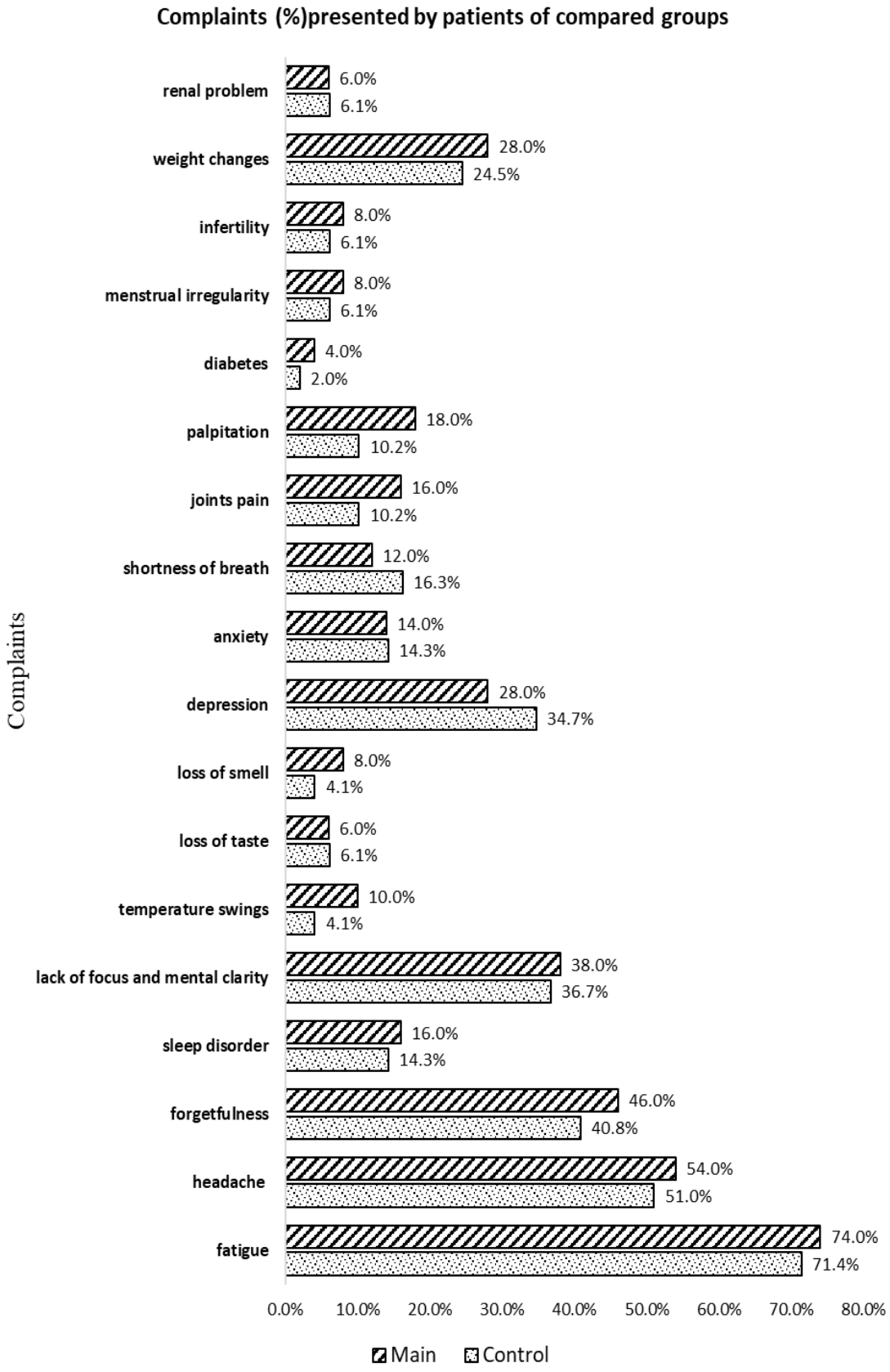

Figure 1 Distribution of complaints (%) in patients from 16 to 50 with long COVID syndrome.

Patients with long COVID syndrome presented a wide variety of complaints, but the leading complaints patients were represented by disorders of the nervous system, which together accounted for 50% of all complaints of patients and were introduced by: headache, forgetfulness, sleep disorder, brain fog, loss of test, loss of smell, temperature swings, depression, anxiety.

At studied MPs, the pre-test readings of the EAV device were recorded at less than 50 units of the device's display scale and were interpreted as *hypoergic responses*. These data reflected the indication of the final movement of the EAV device indicator and were the result of a maximum deflection of the EAV indicator followed by its drop. In all cases, and an indicator drop within 10-12 units of the device display scale was registered and evaluated according to the accepted "Interpretation of the results of the indicator drop" [8].

Figure 2 illustrates the data on the identified meridians with decreased levels of electrodermal activity in MPs in patients of reproductive age with long COVID syndrome detected in the process of EAV diagnostics before MT (pre-test results).

Figure 2 Results of EAV testing in compared groups (pre-test data)

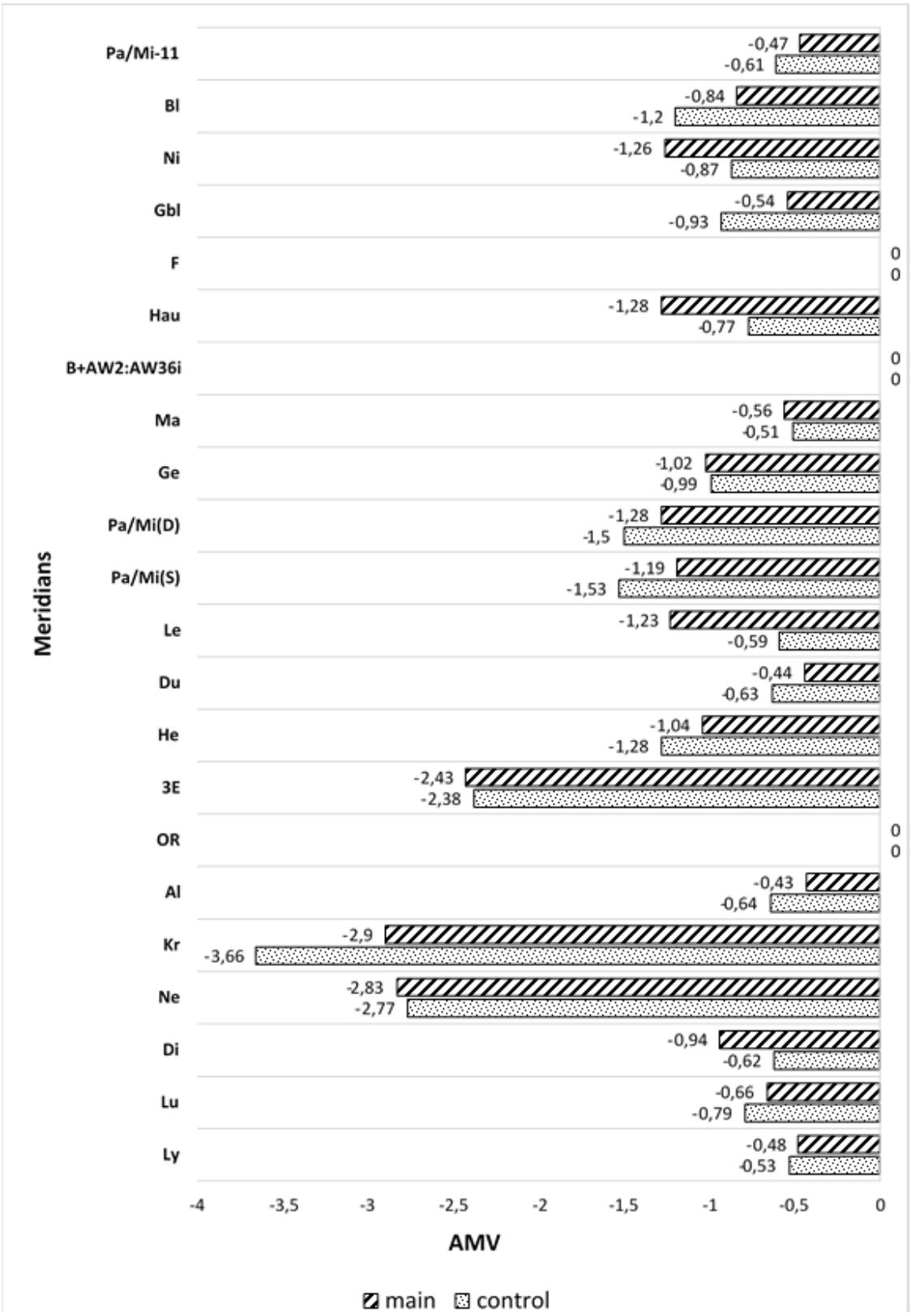

Figure 2 Results of EAV testing in compared groups (pre-test data).

EAV pre-testing readings of meridians are plotted with means and standard errors. Abbreviations of meridians are: Ly-Lymphatic system, Lu-Lungs, Di-Colon, Ne-Nervous degeneration, Kr-

Circulation, Al-Allergy vessel, OR-Cellular Metabolism, 3E-Endocrine system, He-Heart, Du-Small intestine, Le-Liver, Pa/Mi-Pancreas(D)/Lien(S), Ge-Joints, Ma-Stomach, Bi-Connective tissue degeneration, Hau-Skin, F-Fatty degeneration, Gbl-Gallbladder, Ni-Kidney, Bl-Bladder (German classification, Voll). The decrease in electrodermal impedance in the investigated MPs occurred in 18 meridians on hands and feet. The most significant number of cases of decreased electrodermal activity in the MP was observed on the meridians of nervous degeneration (Ne-3 MP) and circulation - Kr-8b MP. The data obtained as a result of MT(AMV) on the meridian of nervous degeneration and the circulation meridian are presented in Figure 3.

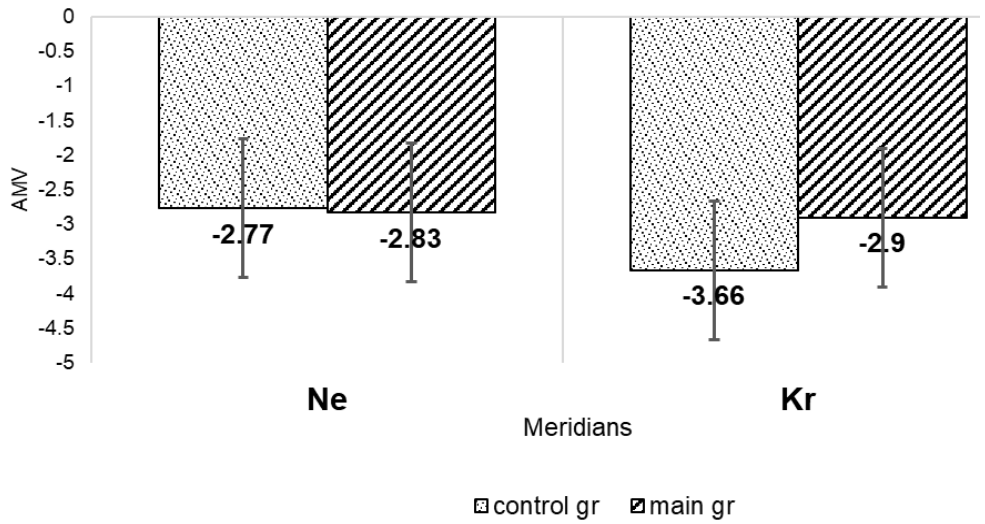

Figure 3 Results of EAV pre-testing readings on the MPs of Ne and Kr meridians.

In our opinion, the predominant number of patient complaints related to signs of nervous system damage (50%) coincides with the most significant number of cases with decreased electrodermal activity on the MP nerve degeneration meridian (Ne). This statement requires further research.

Table 3 presents the data obtained from the results of EAV reading in pre- and post-medicament testing of the compared groups of patients.

Table 3 Results of positive response to medicament testing in the compared groups of patients.

Meridians	Control group			Main group		
	n	pre-test	post-test	n	pre-test	post-test
Ne	31	-3.73 ± 2.24	-3.04 ± 2.94^^	28	-3.87 ± 1.66	5.65 ± 1.14^^^***
Kr	37	-3.84 ± 3.86	-4.42 ± 2.74	37	-4.84 ± 2.82	5.89 ± 0.37^^^***
3E	4	-4.25 ± 0.65	-4 ± 0.41	10	-3.11 ± 1.45*	5.87 ± 0.18^^**
He	7	-4.69 ± 3.37	-3.4 ± 3.09^^	5	-2.0 ± 0.0*	5.82 ± 0.33^**
Le	21	-2.77 ± 0.97	-2.6 ± 2.91^	22	-3.48 ± 1.74	5.8 ± 0.27^^^***
Pa/Mi(S)	14	-2.61 ± 0.74	-3.52 ± 0.63^^^	16	-3.6 ± 1.62*	5.46 ± 1.48^^^***
Pa/Mi(D)	7	-2.97 ± 0.82	-1.71 ± 3.46	10	-3.96 ± 1.61	5.76 ± 0.22^^**
Ge	7	-3.93 ± 1.21	-4.3 ± 1.36^^	6	-4.23 ± 1.16	4.18 ± 4.26^**
Hau	11	-4.2 ± 3.17	-4.26 ± 2.92	5	-3.46 ± 0.75	2.82 ± 4.09^**
Ni	15	-2.61 ± 1.6	-5.27 ± 11.22	10	-2.32 ± 1.8	4.57 ± 2.42^^***

Bl	8	-2.83 ± 0.79	-3.25 ± 0.76^	7	-4.33 ± 1.35**	4.14 ± 4.25^^**
Pa/Mi-11	8	-2.65 ± 0.65	-2.84 ± 0.58	12	-2.56 ± 2.84	5.81 ± 0.21^^***

Note: *-P < 0.05, **-P < 0.01, ***-P < 0.001 - statistical significance to the corresponding indicators of the control group; ^-P < 0.05, ^^-P < 0.01, ^^^-P < 0.001 - statistical significance about pre-test indicators.

The presented data demonstrate a significant difference in the indicators obtained in the compared groups. Thus, in the main group of patients on the MPs of the following 12 meridians: Ne, Kr, 3E, He, Pa/Mi(S), Pa/Mi(D), Ge, Ma, Hau, Ni, Bl, Pa/Mi-11- as a result of MT with the proposed drugs, a restoration of post- readings indicators is observed in comparison with pre- readings data. At the same time, there is also a significant difference in the data obtained as a result of MT according to post-reading data in the compared groups (P < 0.001).

In some of the patients studied, we observed a negative response to the tested drugs in the main group of patients(Table 4). The decrease in electrodermal impedance in the investigated MPs occurred in 15 meridians on hands and feet. We associated this fact with the presence of concomitant diseases in the examined patients, where also, according to the results of the EAV pre-test examination, a decrease in electrodermal activity at the studied acupuncture points was observed. However, MT with the proposed drugs, carried out in these patients, was accompanied by the negative responce to the tested drugs, which manifested itself in a further accelerated indicator drop of the EAV device(Table2).

Table 4 Results of negative response to medicament testing in the compared groups of patients.

Meridians	Control group			Main group		
	n	pre-test	post-test	n	pre-test	post-test
Ly	7	-3.39 ± 0.9	-3.67 ± 1.27	9	-2.96 ± 2.08	-4.71 ± 1.22^^
Lu	9	-3.59 ± 1.06	-2.82 ± 2.94	11	-3.29 ± 0.8	-4.66 ± 0.74^^
Di	13	-3.55 ± 0.91	-3.96 ± 0.85^^	8	-3.89 ± 1.73	-4.33 ± 1.61
Ne	7	-3 ± 0.64	-2.91 ± 0.83	7	-3.57 ± 0.75	-4.66 ± 1^**
Al	7	-3 ± 0.4	-3.27 ± 0.55	10	-3.2 ± 0.75	-4.67 ± 0.81^^***
3E	11	-3.27 ± 0.81	-3.85 ± 0.4^	9	-2.83 ± 0.89	-4.23 ± 0.85^^
He	10	-3.41 ± 0.96	-3.59 ± 1.12	8	-4.1 ± 0.86	-5.28 ± 0.9^^**
Du	8	-2.71 ± 0.7	-3.19 ± 0.88	9	-3.49 ± 0.97*	-5.04 ± 1.06^^**
Le	9	-3.08 ± 0.49	-2.41 ± 3.01	6	-3.23 ± 0.39	-4.58 ± 0.38^**
Pa/Mi(D)	9	-2.92 ± 0.72	-3.11 ± 0.96	7	-2.79 ± 2.24	-4.76 ± 0.94^^**
Ge	10	-2.92 ± 0.53	-3.07 ± 0.9	3	-3.33 ± 1.01	-4.1 ± 0.79
Hau	6	-2.73 ± 0.58	-2.92 ± 0.38	7	-3.06 ± 0.42	-4.5 ± 0.5^^**
Gbl	7	-3.79 ± 0.86	-3.86 ± 1.61	13	-3.72 ± 1.15	-4.75 ± 1.25^^
Ni	8	-2.83 ± 0.33	-3.06 ± 0.62	5	-3.18 ± 0.56	-4.5 ± 0.5^**
Bl	7	-2.67 ± 0.47	-3.07 ± 0.42^	8	-3.74 ± 1.3*	-5 ± 1.49^^**

Note: *-P < 0.05, **-P < 0.01, ***-P < 0.001 - statistical significance to the corresponding indicators of the control group; ^-P < 0.05, ^^-P < 0.01, ^^^-P < 0.001 - statistical significance about pre-test readings.

Table 4 reflects the results of MT with a negative response to MT with the proposed drugs.

Our data confirm the need for further research into the phenomenon of the medicament testing method.

4. Discussion

From the beginning, the outbreak of a new coronavirus infection, SARS-CoV-2, aroused interest due to an unusual course, significantly distinguishing it from the clinical course of the previously known coronavirus infection [15]. Lopez-Leon presented data on the incidence of various disease symptoms in long and acute COVID-19, where fatigue was the most common symptom [16]. Our patient's main complaint was fatigue, which was not controlled by any medication. This symptom resembles chronic fatigue syndrome (CFS), and possible causes of CFS include viruses, immune dysfunction, endocrine-metabolic dysfunction, and neuropsychiatric factors. The infectious agents related to CFS include Epstein–Barr virus, cytomegalovirus, enterovirus, and herpesvirus [17]. In our patients, the main complaint was fatigue: in the main group, it was 74%, and in the control group, it was 71.4%. Moreover, the most significant number of cases with decreased electrodermal activity was observed at MP on the circulatory meridian. There may be a connection between these two events. Hong showed that lymph meridian MPs can be diagnostic tools for respiratory conditions [10]. We believe that a decreased level of electrodermal activity at specific MP of the circulation meridian that we use in our study can also serve as a diagnostic tool for symptoms of fatigue in patients with long COVID syndrome. This observation requires further research.

Of interest is the data obtained in the main group of patients with a negative reaction to medicament testing, when during the testing process, there is a further drop of the indicator of the EAV device in response to the tested drug. The mechanism of this phenomenon is unclear; however, in our opinion, it confirms the need for further research into the phenomenon of medicament testing.

The approaches used in modern medicine and Chinese medicine differ, among other things, in the different descriptions of the processes occurring in the human body. According to Chinese medicine, pathological processes are described as either energy excess conditions, which are related to inflammation, or energy deficits (hypo-energy status), which are associated with the concept of degenerative processes. This feature of Chinese medicine is the basis for the application of various methods of electropuncture diagnostics, including EAV diagnosis.

Studies on electrodermal measurement of acupoints have shown a relationship between changes in acupuncture point electrical impedance and several clinical conditions and that experimentally induced physiological stress and subsequent recovery correlate with changes in acupuncture point electrical activity [18, 19].Electrodermal impedance measurement was used to screen various conditions, including cystic fibrosis, chronic pelvic pain, lung cancer, gastrointestinal bleeding, and assessment of a person's emotional state [20-25]. The correlation between changes in the electrodermal activity of APs and respiratory conditions and the electrodermal activity of APs of different meridians of the EAV diagnosis with running exercise has been demonstrated [10, 26]. The results of a non-invasive MT method for determining the daily doses of sofosbuvir in patients with chronic hepatitis C infection are described [8]. This study is pioneering in a better understanding of the potential of MT to select different drugs to influence the decreased level of electrodermal activity at MPs in patients with long COVID syndrome.

EAV diagnosis differs from other electro-acupuncture diagnostic methods in that a direct current with a sub-threshold value and high internal resistance of 5.5-11.25 mA with a maximum voltage of 1.2 V is applied to the studied acupuncture point using a diagnostic stylus. The current supplied by the stylus of the device interacts with the electrical potential of the acupuncture point, and the result of the interaction is reflected on the display of the EAV device. Today, the most widely recognized in EAV diagnostics is a four-pin stylus with a fixed measuring tip of the device because it creates the most minor errors during the measurement process.

The nature of the physiological basis of electropuncture diagnostics and its component, medicament testing, has not yet been revealed. However, some scientists have expressed the idea that medicines in the human body realize themselves not only at the pharmacological level but also at the level of their inherent electromagnetic radiation [27]. The basis for such a statement was the achievements of quantum mechanics - the physical basis of which is wave-particle dualism, according to which any material object - particle or wave - has both wave and corpuscular properties [28].

It is suggested that at the moment of applying a threshold electric current to the acupuncture point with decreased indicators of electrical activity, it is not able to hold the measuring current used to it, and the arrow of the device, having reached the maximum value, deviates towards zero, i.e., makes a reverse course. The final stop of the EAV device indicator is observed at the moment of reaching the electrical compensation of the acupuncture point to the electric current supplied through the device's stylus. We assume that when a drug is placed in the honeycomb of the EAV device, the molecules of the chemical elements in the pill begin to activate and fluctuate. Activation of drug molecules occurs under the influence of the threshold electric current flowing through the active electrode wire, which supplies current to the diagnostic stylus of the device and is connected to the honeycomb of the EAV apparatus. The vibration of drug molecules contributes to the formation of a specific field. This field interacts with the electromagnetic field created by the movement of electrical charges along the wire of the diagnostic stylus. In this case, it must be assumed that there is a summation of the fields formed by the vibration of drug molecules and the electromagnetic field supplied to the diagnostic stylus. When contacting acupuncture points, the total effect of the fields, realized using a diagnostic stylus upon contact with an acupuncture point, can be seen on the device display as the result of medicament testing. The study of the spectral characteristics of the molecules of chemical elements included in the composition of pharmacological drugs is the basis of the method of IR spectroscopy in pharmacy. It is based on the absorption of electromagnetic radiation in the infrared range by the molecules of the drug under study, in which the vibrational and rotational states of the medicine's molecules are excited [29].

Nosodes, part of homeopathy, were developed exclusively for diagnostic purposes and are actively used in bio-resonance medicine [30]. Bioresonance medicine is a modern branch of medicine that uses electronic records of various drugs, including homeopathic medications, nosodes, organ-specific drugs, and others, and it has become widespread in some countries of the world [31]. Electronic records from medicines are created using hardware and technical means that ensure the copying process [32]. Recently, publications have appeared concerning the study of the properties of various nosodes, namely, hepatitis C nosode and Mycobacterium nosode [33, 34]. Our previous data on the use of MT in the diagnosis of hepatitis B and hepatitis C viruses [8,35] have enabled us to apply this method to the diagnosis of SARS-CoV-2 using the disease markers: nosode of an RNA polymerase, ribavirin, and dexamethasone because RNA polymerase plays a vital role in

the regulation and replication of SARS-CoV-2 [36,37]. Ribavirin previously demonstrated its efficacy in treating SARS-CoV in 2002 and MERS-CoV in 2012, and dexamethasone confirmed its effectiveness in treating COVID-19 in the RECOVERY trial [38,39]. It is suggested that the combination of specific nosode in complex with known traditional allopathic drugs in the process of MT promotes the restoration of the decreased level of electrodermal activity on MPs in some patients with long COVID syndrome.

5. Conclusions

The results of this research suggested the feasibility of using EAV diagnostics to identify the APs of meridians with a decreased level of electrodermal activity, followed by MT using an RNA polymerase nosode, ribavirin, and dexamethasone as drugs that contribute to the restoration of electrodermal impedance at the APs of the identified meridians in some patients with long COVID syndrome. Further clinical and instrumental studies are needed to evaluate the clinical application of MT in assessing long COVID-19 syndrome further.

Author Contributions

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Competing Interests

The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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