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The sleep quality of patients with insomnia under the influence of subtle energy fields

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ABSTRACT

Background: The article evaluates the current state of insomnia treatment for patients without neurological, psychiatric, and somatic disorders. An important goal consists in developing non-drug therapies for insomnia, possessing no side effects. Following this research direction, we put a special emphasis on non-medicamental methods for correction of sleep disturbance in persons with psychophysiological insomnia.

Methods: Authors propose a method of insomnia treatment in which patients sleep on the specialized Bio Velocity mattresses (the 'activated mattress' therapy). The conditions of patients before and after the treatment are assessed by clinical, psychophysiological, electroencephalographic methods, and by the Voll method, which studies the meridians of organs and systems, including the nervous system.

Results: We show the effectiveness of the therapy by demonstrating improving psychological indicators, EEG data, and the Voll diagnostics data in a group of patients.

Conclusions: The activated Bio Velocity mattresses can effectively be used by patients with the sleep disorders in addition to and, partially, as a replacement of conventional tools and medicine.

Keywords: Activated mattresses, Bio velocity, Energy medicine, Insomnia, Sleep quality, Subtle energies

INTRODUCTION

From 28 to 45% of the world's population have symptoms of insomnia. Women are susceptible to insomnia 1.3 times more often than men, and difficulties in falling asleep occur 1.5 times more often among persons older than 65 years compared to young people.[1,2]

The insomnia treatment traditionally involves hypnotics, most of which cause changes in the sleep structure and negatively affect the wakeful state. Chronic sleep disorders can result from the use of neurotropic and antimalarial drugs, hormones, antiarrhythmic drugs, vitamins, alcohol, transmeridional flights, and travel changing the geographic longitude.[3-8]

Before the beginning of the twentieth century, bromine and opium were used for insomnia treatment. Barbiturates appear for this purpose starting from 1903. In the early 1950s, neuroleptics and antihistamines are preferred.[9,10] Since 1960, benzodiazepine hypnotics of the second generation (diazepam and oxazepam) have been used.[9,10] The third generation of hypnotics was developed in 1980-1990, including the derivative of cyclopyrrolane (zopiclone, or imovan) and the imidazopyridine derivative (zolpidem, or ivadal), which had minimal side effects.[9,10] A new direction is the use of synthetic

analogues of melatonin.[11,12] However, the third generation of hypnotics and melatonin are rarely used, because the clinical effect is still uncertain.[1]

It is important to develop non-drug therapies for insomnia, possessing no side effects.[13,14] In this work, we study how the natural active energy fields of specialized Bio velocity mattresses influence the quality of sleep.

METHODS

The study was carried out in the Policlinic of Sports Medicine of the Russian State University of Physical Education, Sport, Youth and Tourism, Moscow, in collaboration with the small innovative company "Telebiomet" from the Moscow Technical University of Communications and Informatics. 18 patients with psychophysiological insomnia and without concomitant diseases participated in the study. Their subjective state and their clinical and instrumental indicators were assessed.

We tested the quality of sleep that the patients demonstrate on the specialized Bio Velocity mattresses (Malaysia). The ingredients of the mattress cover are composed of a mixture of cotton fabrics and polyester microtexture. After the mattress cover is manufactured, we sprayed a layer of a specialized substance on the mattress cover and left it to dry. The substance consists of the following components:

- Deep sea salt water.
- Maifan stone, which is composed of silicate minerals and multiple micro-nutrients.
- Tourmaline mineral ore.
- Titanium mineral ore.

Two types of the mattresses were used in the experiments. Mattresses of the first type were activated ('activated mattress', AM) in natural energy fields in Malaysia for 1 day.[14] The activation is initiated with the contact of our body heat. Mattresses of the second type were the placebo mattresses (without AM activation), which were used as a control.

The patients with the psychophysiological insomnia included 7 males and 11 females with the age from 22 to 61. All patients were divided into 2 groups of 9 people each. The patients in both groups were informed that AM was activated, but the second group used the placebo mattresses. Each patient was sleeping on a mattress every night during a month.

The following methods were used to analyze the state of the patients during the experiment: electroencephalography, measurements of arterial pressure in the brachial artery, measurements of heart rate (HR), assessment of psychophysiological and physiological state by the Voll method, and the

psychological testing using both standard and novel scales.

The electroencephalographic (EEG) study was performed by the "Neurosoft" electroencephalograph (Ivanovo, Russia). The standard scheme with bipolar leads (21 channels) and bridged electrodes was used. The following study was performed during the EEG: a background record with open eyes, a record with closed eyes, a test with hyperventilation, and a test with a rhythmic photostimulation. The following parameters were evaluated: the expression of alpha and beta rhythms, slow wave activity, signs of epileptiform activity, the cerebral cortex response to the eyes opening and closing, and the cerebral cortex response to the assimilation of the photostimulating rhythm. These indicators characterize an electrophysiological state of the brain, primarily its cortex, which differs from the normal variants in cases of sleep disturbance.

A study based on an electropunctural diagnostics method (the R. Voll method) was carried out using the "Imedis-Expert" device (Moscow, Russia).[15] This medical-diagnostic complex implements latest achievements in the field of electropunctural diagnostics and therapy, biofunctional diagnostics, bioresonance therapy, and other directions of medicine. During the electropunctural diagnostics, the device measured the electrical parameters of biologically active zones and points, automatically registered the measurements, and performed topical, syndromical, nosological, and local diagnostics.

Based on these diagnostics, the states of various organs (systems) were tracked before and after the AM treatment. The device has the following technical data: measurement current, 6μA at 100kOhm; pulse amplitude range, 0.5-24V; pulse frequency range, 0.1-1200Hz.

The electrophysiological parameters were evaluated by the R. Voll method for the meridians of the following systems: the lymphatic system, the respiratory system, the large intestine, the nervous system, vascular, allergies, the immune system, epithelial and parenchymal degeneration, the endocrine system, the small intestine, heart, pancreas (right), spleen (left), liver, the musculoskeletal system, stomach, connective tissue degeneration, skin, fat metabolism, gallbladder (right), bile ducts (left), kidneys, and the urogenital system. The normal values on all meridians are in the range from 50 to 65 units according to R. Voll.

The psychological testing was performed on the patients by the following standard methods: using the visual analogue scale of self-evaluation, by assessing the dynamics of the sleep quality parameters, by the Spielberger anxiety scale, by questioning their own sleep quality assessment, and using indices of vegetative functions, for which the blood pressure values measured by Korotkov's method and the heart rate were evaluated.

The effectiveness of the therapy was assessed using clinical, instrumental, and psychometric methods before and after 1 month of the treatment. Depending on the sample distributions, the statistical analysis was performed using the parametric Student and Fisher tests or the non-parametric Wilcoxon and Kolmogorov-Smirnov tests, evaluated in the Statistica 10.0 software.

RESULTS

The overwhelming majority (76.5%) of patients associated the onset of insomnia with a psychotraumatic situation (financial difficulties, problems at work and in the family, and other circumstances).

All patients were diagnosed with sleep disorders appeared prominent in the patient's psychophysiological state picture. When analyzing these insomniac disorders, a large number of various somnological complaints were recorded, reflecting the polymorphism of insomniac disorders. However, a single complaint was found primary in most cases, while others were secondary.

The most frequent complaints were the difficulties in falling asleep in the evening (72.4%), frequent nightly awakenings (more than 3-4 times per night) (62.3%), morning awakening difficulties (41.6%), daytime sleepiness (39.6%), no sense of rest after sleep (35.1%), and sudden nightly awakenings with difficult repeated falling asleep (28.3%).

There were no statistically significant differences between the groups, as well as by gender, before the therapy start. The analysis of the relationships between these subjective sleep quality indicators demonstrated that a difficult morning awakening is associated with the duration of falling asleep ($p<0.05$) and with the absence of sense of rest after sleep ($p<0.05$).

Superficial sleep significantly ($p<0.05$) correlated with the lack of rest after sleep. No significant connections were found between the duration of sleep and the sense of rest in the morning. A relationship between the lack of the sense of rest after sleep and subjective feelings in the morning (languor, weakness, irritability, and headaches) has been identified. It is found that an early final awakening is not accompanied by a poor general state in the morning. Subjectively, in most cases patients from this group experienced vivacity and efficiency in the morning. Based on this analysis, it can be stated that a prolonged falling asleep and a difficult morning awakening are associated with the lack of a sense of rest after sleep. On the contrary, a morning feeling is almost unrelated to intrasomnic disorders.

After one month of the therapy, we revealed a significant improvement in the sleep quality based on a visual analogue scale. The studied parameter increased from 3.2 to 7.5 points in the 1st group of patients, and from 3.1 to 3.6 points in the 2nd group (Table 1). The difference in

these values are not statistically significant for the patients from the 2nd group.

It was found that the use of AM significantly improved the morning feelings after sleep and reduced the presence of postsomnic disorders, such as a daytime sleepiness (Table 2 and Table 3).

Table 1: Dynamics of the sleep quality based on the visual analogue scale of self-esteem.

Group	Parameter values	
	Before treatment	**After treatment**
1	3.2±0.23*	7.5±0.38*
2	3.3±0.25	3.6±0.22

*Statistically significant difference between the groups, $p<0.05$.

Table 2: Dynamics of the sleep quality parameters during the treatment.

	Parameter value, %			
	1st group		2nd group	
	Before tr.	After tr.	Before tr.	After tr.
Inability to fall asleep for more than 30 min	70	20*	72	69
Falling asleep 10-15 min after going to sleep	3	22*	3,8	4
Night awakenings (more than 3-4 times per night)	65	12*	62	58
Feeling of non-sleep in the morning	45	10*	46	42
Daytime sleepiness	18	4.2*	19	15

*Statistically significant difference between the groups, $p<0.05$.

We showed a significant decrease in the reactive anxiety level after the treatment in the groups. The average reactive anxiety score in the 1st group decreased from 42.2±1.21 (before treatment) to 36.2±1.78 (after treatment) on the Spielberger scale, which is a statistically significant difference. For the 2nd group, it decreased from 40.9±1.38 to 39.8±1.88 (not statistically significant).

After the course of the AM therapy, the EEG reveals a clearer reaction to the opening/closing of the eyes. A more significant presence of the beta-rhythm in the anterior (frontal) leads is also observed. These changes indicate a more adequate functioning of the cerebral hemisphere cortex. The EEG dynamics are shown in Figure 1 and Figure 2.

After the AM-therapy course, the majority of meridians of organs and systems approach or enter the normal range (50-65 units). This effect also applies for meridians particularly important for the insomnia pathogenesis, such as the nervous system meridian, the vascular meridian, and the meridian of the endocrine system (Figure 3 and Figure 4).

Table 3: The psychophysiological state of patients after the soliton therapy using the bio velocity sleep mattresses.

The values of test parameters for five patients	A	H	H	C	T
What time do you usually go to bed?	23-30	22-00	00-02	24-00	21-30
What time do you usually wake up?	6-50	8-00	10-00	6-00	6-50
Do you think you have good night's rest on wake-up (yes / no) initially?	no	no	no	no	no
Has the depth of sleep increased (yes / no)?	yes	yes	yes	yes	yes
Has the depth of sleep decreased (yes / no)?	no	no	no	no	no
Has the length of sleep increased (yes / no)?	yes, by 30min	yes	no	no	no
Has the length of sleep decreased (yes / no)?	no	no	no	yes	no
Were there awakenings at night (yes / no)?	no	no	no	no	yes
If yes, how often?	-	-	-	-	one time at ~4-00
Has anxiety increased (yes / no)?	no	no	no	no	no
Has anxiety decreased (yes / no)?	yes	yes	yes	yes	yes
Has the mental capacity increased (yes / no)?	yes	no	no	yes	yes
Has the mental capacity decreased (yes / no)?	no	no	no	no	no
Were there any previous headaches (yes / no)?	yes	no	no	no	yes
Have headaches increased (yes / no)?	no	no	no	no	no
Have headaches decreased (yes / no)?	yes	-	-	-	yes
Were there any previous pains in the heart area (yes / no)?	no	no	no	no	no
Has the pain in the heart area increased (yes / no)?	no	no	no	no	no
Has the pain in the heart area decreased (yes / no)?	-	-	-	-	-
Arterial pressure before	120/70	120/80	115/70	130/85	115/60
Arterial pressure after	125/70	125/85	115/70	125/85	115/60
Heart rate before	78	80	75	80	65
Heart rate after	75	75	73	78	65

Note: in both static and dynamic measurements, 'yes' is positive, 'no' is negative, '-' means no change.
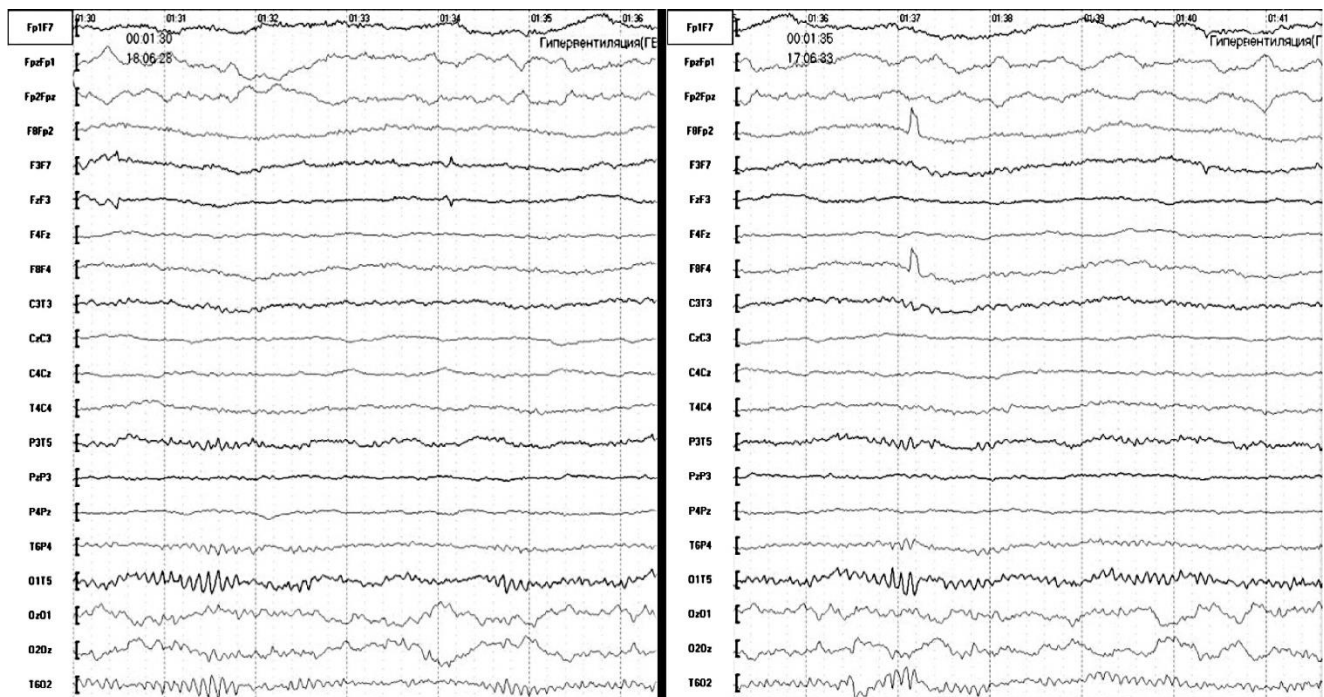

Figure 1: EEG of patient P. before (left) and after (right) one-month AM treatment.
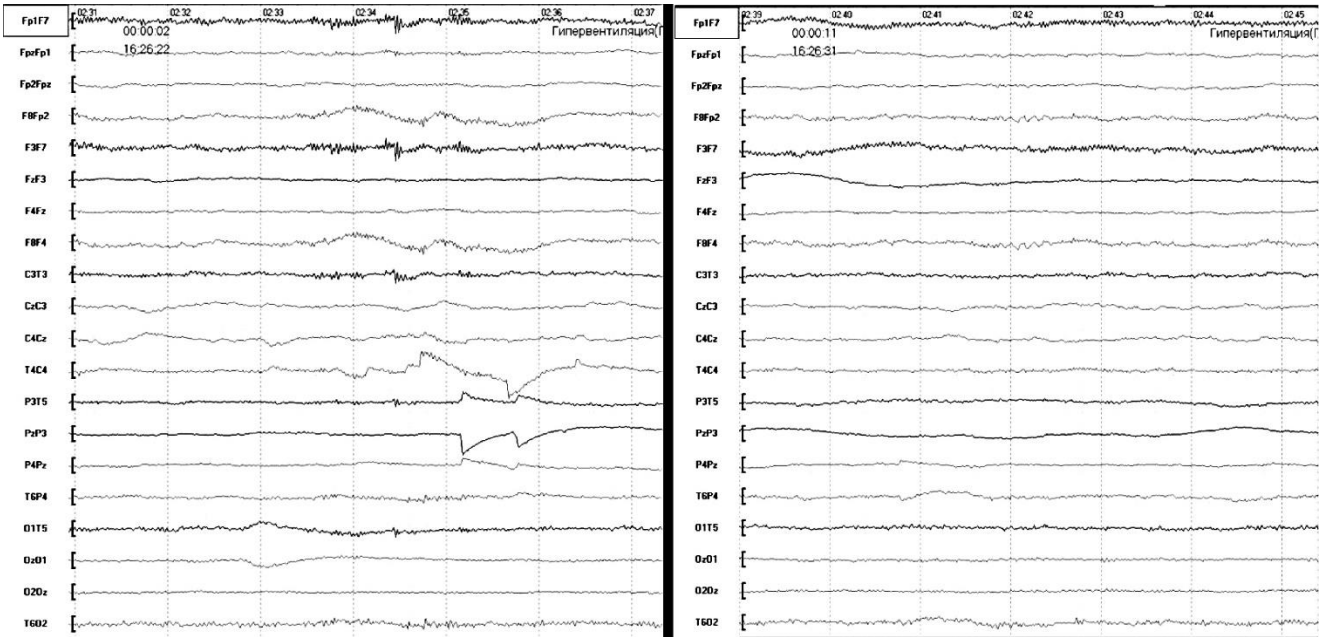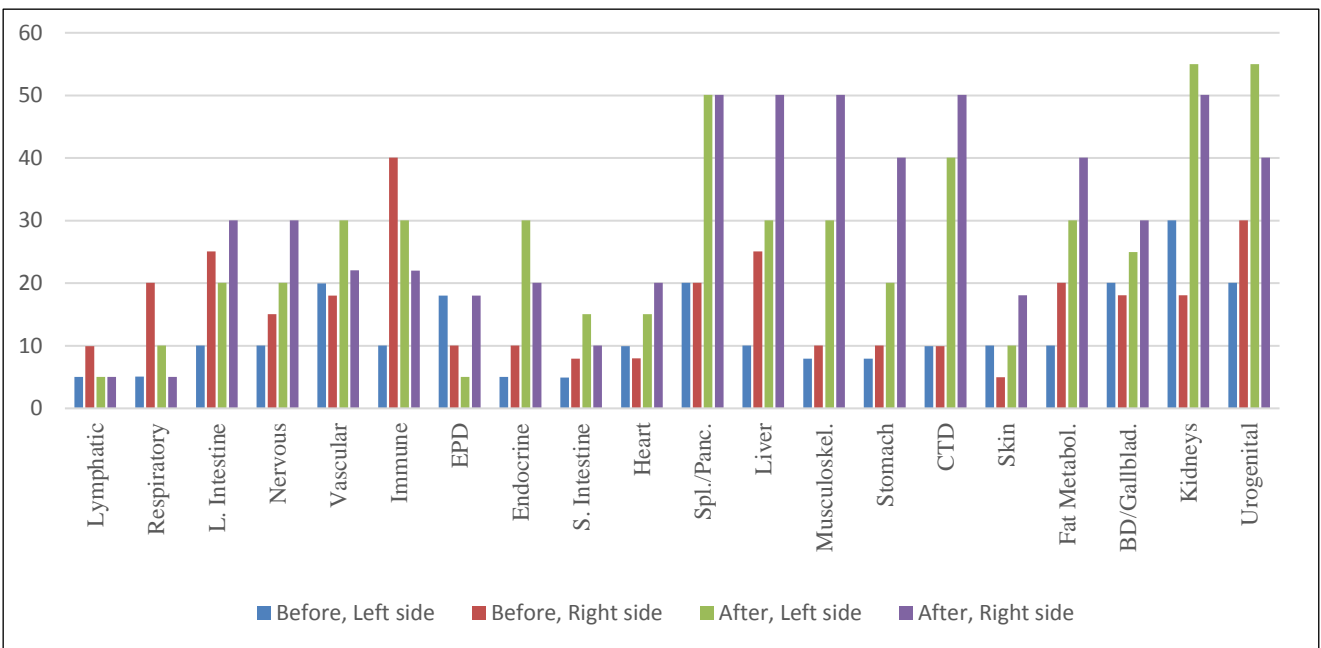
Figure 2: EEG of patient O. before (left) and after (right) one-month AM treatment. The low-frequency artifacts in the left panel stem from the movement of electrode wires; they do not affect the EEG evaluation.

The horizontal axis lists various systems of the organism, with the following abbreviations and shortenings: large (L.) and small (S.) intestines, epithelial and parenchymal degeneration (EPD), spleen/pancreas (Spl./Panc.), connective tissue degeneration (CTD), and bile ducts/gallbladder (BD/Gallblad.)

Figure 3: The impedance data of the control measuring points by the Voll method in patient A before and after the AM-therapy course.

DISCUSSION

We have studied the influence of the AM-therapy on patients with insomnia symptoms.[1-8] This therapy serves as a candidate for a non-drug method for treating patients with sleep disorders.[9,10] The presented results demonstrate a clear difference in the reaction to the treatment of the patients from the two groups. Some qualitative and quantitative characteristics of sleep disorders shows positive dynamics during the AM therapy for the first group of patients. Positive changes in the second group are due to a proper sleep hygiene and the placebo effect. At the same time, the changes in the second group are not statistically significant. The AM-therapy has a significant positive effect on insomnia

symptoms. It also helps to reduce anxiety and improves mood.

In addition, we report a decrease in the number of night awakenings, the daytime sleepiness reduction, and the sleep quality improvement. It is important to mention that the effect of the AM-therapy appears quite early, helping

patients to fall asleep within 15-30 minutes. These findings are supported by the EEG results, which demonstrate more adequate functioning of the cerebral hemisphere cortex, and by the results from the study by the Voll method, which indicate normalization of the most meridians of organs and systems, including nervous, endocrine, and cardiovascular.
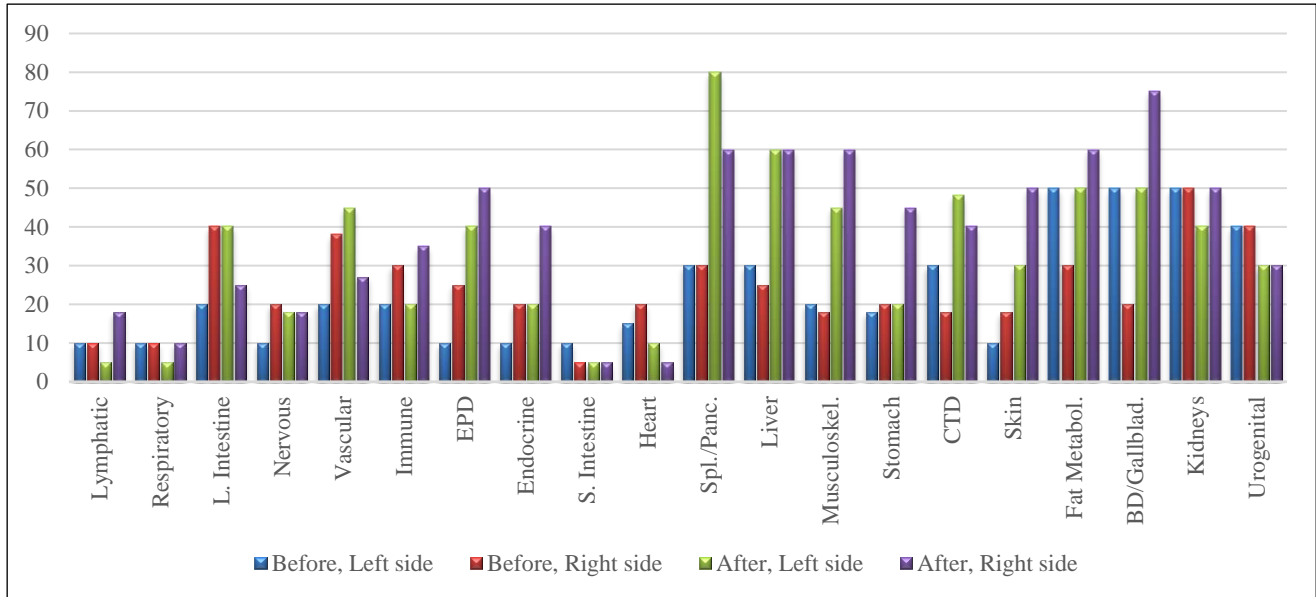
The horizontal axis lists various systems of the organism, with the following abbreviations and shortenings: large (L.) and small (S.) intestines, epithelial and parenchymal degeneration (EPD), spleen/pancreas (Spl./Panc.), connective tissue degeneration (CTD), and bile ducts/gallbladder (BD/Gallblad.)

Figure 4: The impedance data of the control measuring points by the Voll method in patient T before and after the AM-therapy course.

One limitation of the presented results is in a moderate number (n = 18) of patients in the study. This number can be considered sufficient for applying statistical tests considered in our study, but definitely more statistics should be collected in order to make the main conclusions robust. We are looking forward to extending the variety in the future.

The AM-therapy is helpful for reducing symptoms of insomnia. Along with the sleep hygiene, it can help to effectively monitor this condition, avoiding various types of medication that has a muscle relaxant, synaptic effect on patients with similar insomnia symptoms. The activated Bio Velocity mattresses can effectively be used by patients with the sleep disorders in addition to and, partially, as a replacement of conventional tools and medicine.[13,14]

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