Monitoring the action of homeopathic remedies in post-stroke patients in the early recovery period

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Monitoring activity of homeopathic remedies in early rehabilitation period of post-stroke patients

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RESUME

The results of treating patients with ischemic stroke in early recovery period using homeopathic remedy Arnica C6, as well as a method for predicting the efficiency of treatment basing on monitoring of remedy action are presented in details.

Keywords: ischemic stroke, homeopathic preparation, rehabilitation period, monitoring of remedial action.

SUMMARY

The paper presents the results of treatment of patients with ischemic stroke in the early recovery period using the homeopathic drug Arnika C6, and also proposes a method for predicting the effectiveness of treatment of patients based on the method of monitoring the action of therapeutic agents.

Key words: ischemic stroke, homeopathic preparation, recovery period, monitoring the action of drugs.

INTRODUCTION

The problem of medical and social rehabilitation of post-stroke patients in the early recovery period is extremely important. According to the National Association for the Fight against Stroke, 450,000 strokes are registered annually in Russia, and disability due to stroke (3.2 per 10,000 population per year) ranks 1st among pathologies that cause disability. Currently, there are about 1 million people with disabilities who have suffered a stroke in the Russian Federation. At the same time, the cost of the state for one such patient is 1,247,000 rubles. per year (Markin, 2011).

In our country, there is a system of stage-by-stage rehabilitation of post-stroke patients based on the integration of inpatient, outpatient and sanatorium-resort periods, corresponding to 3 levels of rehabilitation (recovery, compensation and rehabilitation). The early recovery period (from 3 weeks to 1.5 months) corresponds to the level of compensation and is associated with plasticity processes in the nervous tissue. Therapeutic modulation of neuroplasticity, i.e. the ability of the nervous tissue to change the structural and functional organization under the influence of various factors can be judged by the formation of new synaptic connections that contribute to the restoration of the functions of brain cells. However, it is not always possible to achieve full compensation. According to V.I. Skvortsova et al., morphological and functional outcome largely depends on the volume and topic of the focus of brain damage, the patient's age, as well as the severity of degenerative and atrophic processes that took place earlier [2]. Therefore, an important condition for the successful rehabilitation of patients is the early start of rehabilitation measures, the continuity of treatment, the ability to simultaneously use different types of restorative therapy.

In our opinion, justified from this point of view is the use, along with the traditional set of allopathic medicines, of the homeopathic preparation Arnica C6. According to N.M. Vavilova, "Arnica is considered a true vascular agent that acts on veins and arteries, and especially on capillaries. It is indicated for disorders of cerebral circulation, apoplexy, hypertensive crises, cerebral atherosclerosis"[3]. A.A. Krylov and S.P. Pesonin believe that Arnika "... is prescribed for the purpose of influencing the consequences of a stroke" [4]. Our

The studies made it possible to state a faster and better recovery of indicators of neurological deficit and psychoemotional state of patients who additionally received Arnica C6, normalization of blood pressure (BP) and pulse, optimization of hematopoiesis processes, as well as the functioning of the coagulation and anticoagulant blood systems, inhibition of the development of atherosclerotic disorders. In addition, the indicators of the level of social adaptation and the quality of life of patients using a homeopathic preparation in the course of treatment turned out to be significantly higher than in patients who received only a standard set of medicines.

The analysis of the conducted studies shows that in order to obtain good treatment results, it is important not only to select the optimal selection of drugs, but also to correct the dose of drugs in the on-line mode. The connection of biologically active points (BAP) of meridians with the corresponding organ system is known [5]. The most modern method for studying the state of BAP is to measure the potential difference between the point and the intact area of the skin. Revealed a correlation relationship between the dynamics of the pathological process and changes in biopotential [6]. For the study of regulatory processes in health and disease, as well as for assessing the effect of drugs on the basis of the V.G. N.N. Burdenko developed a gradient (differential) method for studying the electrical activity of BAP [7]. This method is based on recording the potential difference between the BAP and the intact skin area using silver chloride electrodes. However, more convenient for medical practice is a microprocessor-based temperature recorder designed at the Voronezh Technical University under the guidance of prof. Yu.S. Balashov with the participation of prof. K.M. Reznikov. In our study, a temperature difference recorder was used to control the treatment, and the homeopathic drug Arnica C6 was used as an additional therapeutic agent.

Materials and methods

The autonomous temperature recorder contains a differential thermocouple type T (copper - constantan) with a direct current amplifier and a digital thermogram recording unit. The presence of a memory device in the recorder makes it possible to record a thermogram every second with a duration of up to 7 days. The data recorded in the device memory via the RC-232C interface can be transferred to a personal computer for detailed analysis and storage in the database. Galvanic isolation of the device from the data transmission line and autonomous power supply make it possible to use it as a monitor for long-term monitoring of the patient's condition. The device is approved for clinical trials by the Scientific and Technical Medical Council (Protocol No. 15 dated March 25, 1999),

With the help of a special probe used in electropuncture according to the method of R. Voll, and on the basis of topographic and anatomical landmarks, BAP was determined in patients [8]. The main thermocouple sensor was installed on the point determined using the BAP indicator, and the second was placed on the intact skin area at a distance of 1.0–1.5 cm. The dynamics of the temperature difference ΔT was estimated during the time determined by the task. The data obtained were recorded in the form of graphs and tables on a computer screen and entered into formalized maps: the total number of changes in the temperature difference between the BAP and the intact skin area, as well as the number of ΔT changes in frequency, duration, and amplitude, were determined.

The studies were carried out on the basis of the neurological department of the city clinical hospital №7. It involved 60 patients of both sexes: 38 women (63%) and 22 men (37%), aged 45 to 61 years with an ischemic stroke in the early recovery period. The dynamics of the temperature difference ΔT was evaluated within 120 seconds.

The inclusion criteria for patients in the study were: the presence of a confirmed ischemic stroke, the absence of hemorrhagic syndrome of any localization and etiology, trauma, operations in the last 3 months before the stroke, and the desire of patients to cooperate with researchers. The exclusion criteria from the study were: pregnancy, severe liver and kidney pathology, mental illness, therapy-resistant hypertension with blood pressure above 180/110 mm. rt. Art., unwillingness of patients to cooperate with researchers. The diagnosis of ischemic stroke was established on the basis of anamnesis, complaints, neurological examination and was confirmed by computed tomography (CT) and Doppler ultrasound (USDG).

Patients were randomly divided into 2 groups: patients of the first, control group (30 people) received only the traditional set of allopathic drugs used to treat ischemic stroke: antiplatelet agents, nootropics, antispasmodics, anticoagulants, antioxidants. In the described group, consisting of 11 men (37%) and 19 women (63%) aged 47 to 58 years, all patients had the following risk factors for the development of acute cerebrovascular accident (ACVI):

- atherosclerosis - 28 people. (93%);
- hypertension - 29 people. (97%);
- ischemic heart disease –17 people. (57%);
- osteochondrosis - 25 people. (83%);
- diabetes mellitus - 8 people. (27%).

Patients of the second, main group (30 people), along with traditional allopathic therapy, received homeopathic medicine Arnika C6 according to the scheme: 5 grains 3 times a day for 2 weeks. Patients in this group, which consisted of 17 men (57%) and 13 women (43%) aged 45 to 61, also had risk factors for ischemic stroke, such as:

- atherosclerosis - 30 people. (100 %);
- hypertension - 27 people. (90%);
- ischemic heart disease - 19 people. (63%);
- osteochondrosis - 12 people. (40%);
- diabetes mellitus - 4 people. (13 %).

Focal changes in the left hemisphere of the brain during examination were found in 34 people (57%); in the right hemisphere - in 26 patients (43%). The diagnosis of ischemic stroke in this group of patients was confirmed by CT data in 60 patients.

In all patients, the neurological status was assessed in terms of the NIHSS (National Institutes of Health Stroke Scale) - 14 indicators and the Original D.V. Gusev and V.I. Skvortsova (1991) - 13 indicators at admission and before discharge. The following were investigated: the level of consciousness and orientation in time and space, speech and other cortical functions disorders, cranial nerve dysfunctions, the degree of motor, sensory and coordinating disorders, the presence and severity of meningeal symptoms, pelvic organ dysfunctions and tissue trophism were determined.

The dynamics of changes in the indicators of psychoemotional status in the course of treatment was assessed according to the SAN scale (health, activity, mood), proposed by the staff of the Leningrad Medical Academy [10].

The level of social adaptation and quality of life was assessed using the DW Bartel scale (1965) at admission and at the end of treatment. The possibility of self-care of patients included various types of activities: food, dressing, movement, etc. and was determined on a 15 point scale.

Computed tomography of the brain was carried out on a Tomoxan-cx / g tomograph manufactured by Philips by neuroradiologists at the Voronezh City Clinical Hospital of the Emergency Medicine. The study was also carried out on the basis of the clinical and biochemical laboratories of the City Clinical Hospital No. 7. The authors had complete and reliable information about the progress and results of the research.

The presence of quantitative test methods made it necessary to use a mathematical approach to assess the data obtained; it was based on the recommendations of E.V. Sidorenko [12]. The paired Student's t test was used when retesting patients. In other cases, the nonparametric Wilcoxon T test was used to prove the reliability of changes in one parameter or another [13, 14, 15]. The processing of the material and presentation of the results were carried out on a Pentium III class PC using the SPSS statistical analysis package and Excel 7 spreadsheet in the Windows operating environment.

To assess the effect of the homeopathic drug Arnica C6 in real time, studies were carried out using the method of differential thermometry BAP. In patients of both groups, on days 1 (before the start of treatment), 7 and 14 days of hospitalization, changes in the temperature difference ΔT BAP were recorded at points C7 (Shen-men), Gi4 (He-gu) and E36 (Tszu-san-li) [eight]. The points of the intact skin zone were located proximal to the BAP by 1–1.5 cm outside the vessels. The studies were carried out within 2 minutes and were immediately determined on the computer screen in videographs, for the description of which regulatory characteristics of BAP thermograms were developed, registered in the Register of computer programs (certificate No. 2011611929 dated 2.03.2011). They included the following indicators:
1 - the total number of positive and negative changes;

2 - the number of positive and negative changes in 1 minute; 3 - the
number of positive changes in 1 minute (frequency);
4 - the number of negative changes in 1 minute (frequency);
5 - the ratio of positive and negative changes in 1 minute in frequency (difference in indicators);
6 - the duration of positive changes in 1 minute; 7 -
the duration of negative changes in 1 minute;
8 - the ratio of positive and negative changes in 1 minute in duration (the difference in indicators);
9 - frequency regulation index (quotient of positive and negative changes ΔT BAP -
3: 4);
10 - index of regulation by duration (quotient of positive and negative changes ΔT BAP - 6: 7);

11 - the average value of positive transitions in amplitude for 2 minutes; 12 -
the average value of negative transitions in amplitude for 2 minutes; 13 -
frequency of horizontal segments in 1 min .;
14 - the duration of the horizontal segments for 1 min.
Thus, we determined the total number of changes in the temperature difference between the BAP and the intact skin area, as well as the number of changes in frequency, duration, amplitude, and in horizontal segments.

Results and discussion

A comparative characteristic of the clinical effectiveness of treatment of patients in the early recovery period of ischemic stroke was carried out on the basis of the dynamics of changes in the temperature difference ΔT BAP. According to the results of the study, significant changes in ΔT BAP are observed in patients of the control group when assessing the total number of positive and negative shifts on the 7th day at points C7 and E36, as well as the ratio of positive and negative changes in 1 minute in frequency on the 7th day at points C7 and E36 , and on the 14th day at point Gi4; when assessing the frequency and duration of horizontal segments for 1 minute on the 14th day at point E36. In patients receiving homeopathic medicine Arnica C6, the most significant changes in ΔT BAP are observed when assessing positive and negative changes on day 7 at point E36, on day 14 at points C7 and E36; when assessing the number of positive and negative changes in 1 minute on the 7th day at points C7 and Gi4, on the 14th day at point E 36; when assessing the number of positive changes in 1 minute on 7 and 14 days at point C7, and the number of negative changes in 1 minute on 7 days at points C7 and Gi4, on the 14th day at point C7; when assessing the ratio of positive and negative changes in 1 minute in frequency on the 7th day at points Gi4 and E 36, on the 14th day at all three points; when assessing the duration of positive changes in 1 minute on the 7th day at all three points, on the 14th day at points C7 and Gi4; when assessing the duration of negative changes on the 7th day at points C7 and Gi4, at point C7 on the 14th day, as well as when assessing the frequency of horizontal segments in 1 min. on the 14th day at points C7 and Gi4.

Thus, when analyzing the dynamics of changes in the temperature difference, the most stable and reliable results were recorded at point C7 on the 7th and 14th days in terms of frequency (indicators 3 and 4) and duration (indicators 6 and 7) ΔT BAP, and the indicator of the amount positive changes in 1 minute at point C7 on the 7th day of the study was 34.7% higher than the same indicator before treatment; the indicator of the number of negative changes in 1 minute at point C7 on the 7th day of the study was higher than the same indicator before treatment by 36.6%; the indicator of the duration of positive changes ΔT BAP on the 7th day of observation was higher than the same indicator before treatment by 41.7%; the indicator of the duration of negative changes ΔT BAP on the 7th day of observation was higher than the same indicator before treatment by 30.9%.

Determination of the total total score of the severity of neurological deficit on the scales

NIHSS and Original before and after treatment, the dynamics of changes in psychoemotional status and the level of quality of life confirms the different effectiveness of treatment of patients in the control and main groups (Tables 1 and 2). Analysis of indicators of changes in neurological status revealed that the severity of neurological deficit changed in patients who received only standard allopathic treatment (the indicator decreased by 60.9% (p <0.001) on the NIHSS scale and increased by 14.3% (p <0.001) according to the Original In patients who additionally received the homeopathic drug Arnica C6, the indicators of restoration of impaired functions were more dynamic compared to the control group and decreased by 69.2% (p <0.001) according to the NIHSS scale; according to the Original scale, they increased by 30.3% (p <0.05). The results obtained indicate a more pronounced positive dynamics in the recovery of neurological deficits in the group receiving the homeopathic preparation as compared to the control group. Such a correction can significantly reduce the size of the cerebral infarction, lengthen the period of the "therapeutic window", expanding the possibilities for thrombolytic therapy, and protect against reperfusion injury.

Table 1

Dynamics of neurological deficit, psychoemotional status and quality level
life (M ± m) in patients of the control group (points)

Шкалы	До лечения	После лечения
NiHSS	11,53 ± 0,76	4,51 ± 0,36**
Оригинальная	34,25 ± 2,51	39,15 ± 2,35*
Самочувствие	23,15 ± 1,93	51,41 ± 3,37**
Активность	25,54 ± 2,37	54,22 ± 3,27**
Настроение	24,52 ± 2,52	53,90 ± 3,03**
Bartel	45,3 ± 2,77	57,5 ± 3,42**

*p < 0,05; **p < 0,001

table 2

Dynamics of neurological deficit, psychoemotional status and quality level
life (M ± m) in patients receiving Arnica C6 (points)

Шкалы	До лечения	После лечения
NiHSS	11,71 ± 1,25	3,61 ± 0,42**
Оригинальная	32,70 ± 2,29	42,60 ± 2,80**
Самочувствие	19,9 ± 1,95	52,8 ± 3,27**
Активность	21,7 ± 1,92	55,03 ± 2,16**
Настроение	19,8 ± 1,93	55,9 ± 3,18**
Bartel	50,3 ± 1,14	84,8 ± 1,76**

**p < 0,001

In the group of patients receiving standard treatment, the state of health improved 1.2 times (by 122.1%; p <0.001); mood - by 1.2 times (by 119.8%; p <0.001) and activity - by 1.1 times (by 112.3%; p <0.001) compared with the beginning of treatment. Patients receiving homeopathic medicine Arnica C6 more positively assessed their condition upon discharge from the hospital: their mood improved 1.8 times (by 182.3%; p <0.001), activity increased 1.5 times (by 153.6 %; p <0.001), and the state of health improved 1.7 times (by 165.3%; p <0.001) compared with the data on admission.

The level of social adaptation and quality of life was assessed using the Bartel scale in patients of all groups at admission and 14 days after the course of treatment. In patients of the control group, the indicators on the Bartel scale improved by 26.9% (p <0.001) by the time of discharge from the hospital; in the group of patients receiving a homeopathic preparation, the level of social adaptation increased compared with the beginning of treatment by 68.6% (p <0.001).

conclusions

Thus, the inclusion of the homeopathic remedy Arnica C6 in the treatment program for patients with ischemic stroke optimizes the treatment process, reduces the manifestations of undesirable drug action and improves the quality of life, which reveals the dynamics of neurological deficit, psychoemotional state of patients, the level of their social adaptation and quality of life. The effectiveness of treatment of patients with ischemic stroke in the early recovery period

can be predicted on the basis of the method of monitoring the action of therapeutic agents, in particular, the homeopathic drug Arnica C6 on the 7th day of treatment, by examining the dynamics of the temperature difference at the point C7 of the heart channel in terms of the frequency and duration of changes in ΔT BAP.

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