

ABSTRACT

of the dissertation work of Srailova Kamilla Bekmuratovna on the topic: "Features of complex rehabilitation in ischemic stroke", submitted for the degree of Doctor of Philosophy (PhD) in the specialty 6D110100 "Medicine".

The relevance of this study is that about 60-75% of patients in the Republic of Kazakhstan become disabled in groups 1-3 after a cerebrovascular accident. The number of stroke patients is growing catastrophically and tends to increase further. Of particular importance is the early recovery period, when rehabilitation measures are more effective and contribute to the regression of neurological symptoms. At the same time, the small bed fund of rehabilitation departments, the inaccessibility in hospitalization, when patients have to wait for a quota queue for months, contributes to low rehabilitation of patients and a decrease in the quality of treatment [11]. In particular, it is not known which, in what sequence, at what stage of the disease, in what combination and quantity, with what frequency and duration, numerous non-drug methods and medications should be considered the most effective for the rehabilitation of stroke patients. Many new methods of treatment have been tested and developed on 15-20 patients and are empirical in nature, and they are trying to implement them in practice. This problem is especially relevant for large cities of Kazakhstan, since any large city is a megalopolis, and is a special object of medical, social and socio-hygienic research in connection with the impact on the urban population of a larger number of unfavorable socio-economic and environmental factors, which, in turn, have a pronounced impact on the morbidity of the population [22,23]. The social and economic damage resulting from strokes in Kazakhstan is huge. Researchers from the countries of the Eurasian Union and non-CIS countries widely cover research and treatment methods aimed at implementing primary prevention of strokes in the early rehabilitation period [24-27]. Rehabilitation methods with continuous monitoring of physiological processes of the body, presentation of feedback to the patient, instructions, various stimuli motivating the patient are becoming widespread [28,29]. According to the Ministry of Health of the Republic of Kazakhstan, more than 40 thousand cases of stroke are registered annually in the country.

Morbidity rates in various regions of Kazakhstan are 2.5-3.7 cases per 1000 people, mortality from 1.0-1.8 cases per 1000 people per year (from 20% and above). From 2015 to 2021, the mortality rate in the Republic of Kazakhstan per 100,000 thousand population increased from 100 to 131.5 with a tendency to further increase. About 60-75% of patients in the Republic of Kazakhstan become disabled in groups 1-3 after a cerebrovascular accident. From 1990 to 2019, 101 million cases of stroke were

registered. At the same time, in 2019 alone, 12.2 million cases of the disease were registered, 6.55 million people died in the world.

The purpose of the study. Identification of the phenotypes of finger dermatoglyphics in patients with ischemic stroke as a risk factor and its effect on the nature of the course of the disease using modified rehabilitation methods based on BOS (Biofeedback) therapy, acupuncture, chi-gong therapy.

Research objectives:

- 1) Identification of the phenotypes of finger dermatoglyphics in patients with ischemic stroke as an indicator of the risk of stroke.
- 2) To develop effective rehabilitation methods based on clinical and vegetative manifestations and higher brain functions in patients with ischemic stroke during the dynamics of treatment.
- 3) To determine the effectiveness of the rehabilitation methods developed by us based on BOS therapy, acupuncture, chi-gun therapy in patients with ischemic stroke, taking into account the peculiarities of the phenotypes of finger dermatoglyphics.

The object and subject of the study. The object of the study was 240 patients aged 40-70 years, including 120 male and 120 female patients, after an ischemic stroke in the acute period from 2 neuroinsult departments of the city Clinical Hospital No. 7, Almaty, which were divided into 4 groups, This is 1 group of 48 patients received BOS therapy, 2 group - 56 patients who underwent acupuncture sessions, group 3 64 patients received chi-gong therapy, group 4 and 72 patients made up a control group who received only standard therapy. All patients were divided by age composition into 3 subgroups aged 40-50 years, 51-60 years, 61-70 years and older.

Dermatoglyphic examination of the fingers of 320 persons was also carried out, of which: 164 were a group of healthy persons (volunteers); 156 people were a group of patients with ischemic stroke, who were taken from among the studied patients. The healthy group consisted of 164 volunteers of the corresponding age groups who had a history and clinically absent ischemic stroke and hemorrhagic stroke, transient ischemic attacks). Of these, 86 healthy women (52.3%) and 78 healthy men (47.7%). All of them made up three subgroups by age composition: the first subgroup of 40-50 years, 26 men (15.9%) and 28 women (17.1%), in the second subgroup of 51-60 years, 26 men (15.9%) and 29 women (17.6%), in the third subgroup of 61-70 years, 26 men (15.9%) and 29 women (17.6%). The group of 156 patients with ischemic stroke was divided into 3 subgroups by age composition: in each age subgroup aged 40-50 years, 51-60 years and 61-70 years, there were 24 men (15.4%) and 28 women (17.93%). In total, they were 72 men (46.2%) and 84 women (53.8%), a total of 100%.

To determine the effectiveness of treatment by finger drawings, these patients were divided into 4 subgroups: 1. BOS therapy; 2. Acupuncture; 3. Chi-gong therapy; 4. Control group. In each subgroup there were 39 patients in the age ranges of 40-50

years, 51-60 years, 61-70 years. In each of them, men accounted for 18 patients (11.5%), women for 21 patients (13.5%), a total of 72 sick men (46.2%) and 84 sick women (53.8%), a total of 100%.

Scientific novelty of the study:

- 1) The features of phenotypes based on finger dermatoglyphics as risk factor for stroke in patients with ischemic stroke.
- 2) Evaluation of dermatoglyphic parameters in patients with ischemic stroke makes it possible to individually select treatment using the methods of rehabilitation of BOS therapy, acupuncture, chi-gong therapy offered by us and improves the effectiveness and outcome of the disease.
- 3) Based on the phenotypes of dermatoglyphic indicators, it is possible to identify the risk of ischemic stroke in healthy individuals, as well as to predict the course and outcome of the disease using the methods of rehabilitation of BOS therapy, acupuncture, chi-gong therapy developed by us.

The main provisions submitted for protection:

- 1) Dermatoglyphic parameters of phenotypes in patients with ischemic stroke differ from the phenotypes of finger dermatoglyphics in healthy individuals.
- 2) Comparative indicators of dermatoglyphic parameters of phenotypes in patients with ischemic stroke according to the Furugat, Poll, Volotsky, Dankmeyer indices make it possible to prognostically assess the likelihood of ischemic stroke.
- 3) The developed complexes of treatment of BOS therapy, acupuncture, chi-gong therapy gives a positive dynamic of clinical, autonomic neuropsychological manifestations in patients with ischemic stroke.
- 4) The effectiveness of treatment and outcomes of ischemic stroke depend on the characteristics of the phenotype of finger dermatoglyphics and its parameters.

Conclusions

1) Prognostic criteria of ischemic stroke: men from the risk group have phenotypes of index intervals: Furugata 22.7-144.3%, Poll index 0.2-0.6%, Volotsky index 8-18%, Dankmeyer index 0.4-0.97% there is a risk of ischemic stroke. Phenotypes: LW-19.2%, WL-13.5%, 10L-3.9%, ALW-1.9%, W-1.9%, AL-3.9%, in 53.2% of cases from differentiated finger patterns.

2) Prognostic criteria of ischemic stroke: in women from the risk group, the phenotypes of the index intervals: Furugata will be 73.2-92.69%, Poll index 0.2-0.8%, Volotsky index 9-20%, Dankmeyer index 0.2-2.5%. Phenotypes: LW-30.8%, WL-15.4%, 10L-0% (will be absent), ALW-1.9%, W-5.7%, AL-1.9%, which totals 55.7% of the differentiated finger patterns.

3) The effectiveness of BOS therapy is due to the presence of phenotypes LW-10L in 31.2%-33.3%; WL-ALW-17.8%-33.3%; W and AL in 50.0-50.0%; CT LW-10L in 30.8%-33.3%; WL-ALW 13.3%-16.7%; W and AL in 41.7% and 16.6%; The

effectiveness of acupuncture is due to the presence of phenotypes- LW-10L in 21.8% - 16.7%; WL-ALW in 28.8%-50%; W and AL in 8.3% and 16.6%; in the control group, the effectiveness of treatment is due to LW-10L in 12.8%-16.7%; WL-ALW in 40%-50%; W and AL in 0% and 16.6% of cases.

4) The indicators of the Volotsky and Dankmeyer indices do not have a special diagnostic value in determining the effectiveness of treatment, since they have the same values. The Poll index for BOS therapy and chi-gong therapy is 35.7% and 28.6% and is higher than in the acupuncture groups of 21.4% and the control group of 14.3%; there is a high Dankmeyer index in the acupuncture group of 30.8% than in other groups. Other indicators of phenotypes have an average value in the range of 16.7%-28.8%;

5) in healthy men, loop patterns on the fingers will be the following values: LW-10.9%, WL-0% (will be absent), 10L-9.1%, ALW-3.1%, W-1.8%, AL-1.8%, which will total 26.7% of the differentiated finger patterns and in healthy women, these indicators will occur in the following ratios: LW-48.3%, WL-10.9%, 10L-3.1%, ALW-3.1%, W-1.8%, AL-6.1%, which in total amount to 73.3% of the differentiated finger patterns, indicating the absence of predisposition to ischemic stroke;

6) in the group of patients with ischemic stroke, there is a gender difference: there is a different ratio of phenotypes of drawings in quantitative ratio in women more than 53.8% than in men 47.9%. The ratio of phenotypes in healthy men and women not only have a different ratio of loop patterns, but also in quantitative composition exceeds 73.3% in women than 26.6% in men; (Appendix C).

Practical significance of the work:

1) Evaluation of the phenotypes of dermatoglyphic parameters in patients with ischemic stroke have important prognostic values for identifying predisposition to ischemic stroke in healthy individuals.

2) The developed modified treatment complexes make it possible to select differentiated rehabilitation with a high degree of efficiency of BOS therapy up to 32.8%, acupuncture up to 35.9%, chi-gong therapy 32.3% in the treatment of patients with ischemic stroke.

3) The proposed treatment complexes allow to improve the quality of life and increase the rehabilitation potential, with the possibility of a differentiated approach to the rehabilitation of patients with ischemic stroke.

4) The modified treatment complexes offered by us, used in patients with ischemic stroke, are effective, economical, low-cost, contribute to the restoration of impaired functions of patients, increase the level of their social and household adaptation and, accordingly, the quality of life, and also reduces the medical and social burden on the healthcare system and others.

Approbation and implementation of research results.

The main results of the study were presented at the following conferences.

- 1) At the International Interdisciplinary Online Conference, "Topical issues of clinical neurology, neurosurgery, neurophysiology", dedicated to the 90th anniversary of KazNMU, the 85th anniversary of the Department of Nervous Diseases of KazNMU. Almaty, 2019. Traditional methods of treatment and rehabilitation (chi-gong therapy, acupuncture) of ischemic stroke. Performance.
- 2) At the scientific and practical conference of students, young scientists and teachers "Akanov readings: the role of PHC in achieving universal coverage of services" Almaty, April 24-25, 2019. Features of complex rehabilitation in the recovery period of ischemic stroke. Performance.
- 3) At the Congress on Cardiology 11., June 5-7, 2019. NAO "National Medical University" (RK, Almaty). Ischemic stroke, prospects of treatment and rehabilitation. Performance.
- 4) At the X Russian Scientific and Practical conference with international participation "Innovative technologies in the field of neurology and related specialties", October 15, 2019. New approaches to the rehabilitation of ischemic stroke. Performance.
- 5) At the international scientific and practical conference "Modern Medicine: new approaches and current research", October 22, 2020, the city of Grozny. Indicators of well-being, activity, mood in the treatment of ischemic stroke by the BOS method. Performance.
- 6) At the All-Russian online conference with international participation "Fundamental and clinical aspects of medical and non-medical rehabilitation", October 21, 2020, Ulyanovsk, Ulyanovsk State University. Traditional methods of treatment and rehabilitation (chi-gong therapy, acupuncture, BOS therapy) of ischemic stroke. Performance.
- 7) At the III International Congress "Continuing Medical Education in the Republic of Kazakhstan" "Modern approaches to diagnosis, prevention, treatment and rehabilitation of covid-19" 26-27 Karasha/November Almaty, 2020. Rehabilitation measures in the treatment of ischemic stroke. Performance.
- 8) At the I-th Russian-Kazakh Neurological Forum "Modern aspects of neurology: problems and solutions". Association of Neurologists of Kazakhstan. Kazakh National Medical University named after S.D. Asfendiyarov, February 12-13, 2021. Dermatoglyphic features in patients with ischemic stroke. Performance.
- 9) At the extended meeting of the department "Nervous diseases", Protocol No. 9, dated 12.04.2022.
- 10) At the scientific commission on the scientific direction "Therapeutic diseases", Protocol No. 11, dated 05/31/2022.

Awarded:

1. At the International interdisciplinary Online conference, "Topical issues of clinical neurology, neurosurgery, neurophysiology", dedicated to the 90th anniversary of

KazNMU, the 85th anniversary of the Department of Nervous Diseases of KazNMU, Almaty, 2019 with a Diploma of the 1st degree.

2. Diploma of the 1st degree, participant of the project "The best young scientist 2020" among the CIS countries, national movement "Bobek", September 28, 2020

Published works on the topic of the dissertation.

1 article-in a publication indexed in the Scopus information database, Scopus Cite Score 2020–1.9, percentile 56%.

6 articles - in publications recommended by the Committee for Ensuring Control in the Field of Education and Science of the Republic of Kazakhstan.

7 articles in collections of foreign international conferences (including foreign ones).

5 abstracts in the collections of foreign international conferences (including foreign ones).

2 articles in other scientific publications.

1 patent.

The results of the study were implemented: in the educational process of internship in the specialty, 05B130100 "General Medicine" direction "General practitioner" and residency in the specialty 7R09137 – Neurology, including children. "Neurology in the hospital" KazNMU named after S.D. Asfendiyarov.

Patent for invention No. 35290 "Method of treatment of patients with central facial nerve neuropathy in the early and late recovery period of ischemic stroke" dated 09/24/2021.

Practical recommendations of the dissertation research have been introduced into clinical practice and are used by:

-specialists of neuropathologists of neurological and stroke departments No. 1 and No. 2 of the State Clinical Hospital No. 7, in the scientific and practical activities of TASHMI Tashkent.

Scientific results, conclusions, practical recommendations of the dissertation work are used:

-in the educational process of the Department of Postgraduate education of internship and residency of KazNMU;

- in the practice of traditional medicine doctors;

-specialists of neuropathologists of neurological and stroke departments No. 1 and No. 2 of the State Clinical Hospital No. 7.

Personal contribution

Dissertation, directly participated in the collection of material, in the diagnosis, determination of tactics for the management and treatment of patients with AI. As part of the dissertation work, all studies with data interpretation, therapeutic measures and monitoring in dynamics, removal of dermatoglyphic indicators, manual calculation and interpretation of the results obtained were carried out directly with the participation of

the author. In addition, the dissertation conducted an assessment of neurological and neuropsychological status using appropriate scales. The author independently conducted a literary search on this problem, collecting a database, primary processing of the material, interpretation of the results obtained. The dissertation conducted the development and modification of treatment regimens for acupuncture, BOS therapy, chi-gong therapy; independently conducted treatment sessions, participated in statistical analysis. The dissertation was written by the author independently, with the formulation of the main provisions, scientific novelty, conclusions and recommendations.

Based on the results of the dissertation work, the following were developed: patent No. of the security document 35290. IPC A61H 39/00 (2006.01), A61H 39/08 (2006.01). Method of treatment of patients with central facial nerve neuropathy in the early and late recovery period of ischemic stroke, educational and methodical manual "Hemorrhagic stroke. Modern approaches to treatment"; educational and methodical manual "Ischemic stroke"; Textbook "Strokes. Modern methods of treatment", "Dermatoglyphics in pharmacology and neurology"; monograph "Stroke. Analysis of outcomes", "Expert assessment of unfavorable course of neurological diseases".

The volume and structure of the dissertation. The dissertation work is presented on 209 pages. The structure is represented by the following sections: normative references, definitions, a list of abbreviations and designations, introductions, materials and research methods, 6 chapters of own research, discussions, conclusions, a list of practical recommendations, a list of sources used, appendices. The dissertation is illustrated with 29 tables, 14 figures. The bibliographic list contains 330 sources.