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**ТИББИЁТДА ЯНГИ КУН
НОВЫЙ ДЕНЬ В МЕДИЦИНЕ
NEW DAY IN MEDICINE**

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**РЕЗУЛЬТАТЫ ЛЕЧЕНИЯ ПАЦИЕНТОВ С НАЧАЛЬНЫМИ ПРОЯВЛЕНИЯМИ
НЕДОСТАТОЧНОСТИ КРОВΟΣНАБЖЕНИЯ МОЗГА С ИСПОЛЬЗОВАНИЕМ
ЦЕРЕРОЛИЗАТА И ОБЩИХ УГЛЕКИСЛЫХ ВАНН**

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✓ **Резюме**

У пациентов с начальными проявлениями недостаточности мозгового кровоснабжения эндоназальный электрофорез с церебролизатом и общие углекислые ванны оказывают положительное влияние не только на клиническое состояние больных, но и на гемодинамику, биоэлектрическую активность мозга и функциональное состояние центральной нервной системы, что уменьшает выраженность неврологического дефицита.

Ключевые слова: начальные проявления недостаточности мозгового кровоснабжения, церебролизат, эндоназальный электрофорез, общие углекислые ванны.

**MIYA QON TA'MINOTI QOLDIQ BO'LMAGAN DASTLABKI NAMOYON BO'LGAN
BEMORLARNI DAVOLASH NATIJALARI SEREBROLIZAT VA UMUMIY KARBONAT
ANGIDRID VANNALARI**

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✓ **Rezyume**

Miya qon ta'minoti etishmovchiligining dastlabki namoyon bo'lishi bo'lgan bemorlarda serebrolizat bilan endonazal elektroforez va umumiy karbonat angidrid vannalari nafaqat bemorlarning klinik holatiga, balki gemo-dinamikaga, miyaning bioelektrik faolligiga va Markaziy asab tizimining funksional holatiga ijobiy ta'sir ko'rsatadi, nevrologik etishmovchilikning og'irligini kamaytiradi.

Kalit so'zlar: miya qon ta'minoti etishmovchiligining dastlabki namoyon bo'lishi, Tse-rebrolizat, endonazal elektroforez, umumiy karbonat angidrid vannalari.

**RESULTS OF TREATMENT OF PATIENTS WITH INITIAL MANIFESTATIONS OF BRAIN
CIRCULATION INSUFFICIENCY USING CEREBROLYSATE
AND GENERAL CARBONIC ACID BATHS**

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✓ **Resume**

In patients with initial manifestations of insufficient cerebral blood supply, endonasal electrophoresis with cerebrolyzate and general carbon dioxide baths have a positive effect not only on the clinical condition of the patients, but also on hemodynamics, bioelectric activity of the brain, and the functional state of the central nervous system, reducing the severity of neurological deficits.

Key words: initial manifestations of cerebral blood supply insufficiency, cerebrolysate, endonasal electrophoresis, general carbon dioxide baths.

Relevance

Due to the continuing growth of cerebral vascular diseases ("epidemic"), one of the urgent problems of modern neurology is the prevention of chronic cerebral vascular insufficiency. According to epidemiological studies in the general structure of cerebral vascular pathology 68% of the initial manifestations of insufficiency of blood supply to the brain [7, 18, 19, 20]. Active work with this category of patients prevents further development of stroke.

Diagnosis of the initial manifestations of insufficient blood supply to the brain at the first stage is based on subjective manifestations: headache, dizziness, noise in the head, memory impairment, decreased efficiency. The basis for the diagnosis is the presence of two complaints or more, existing for a long time, constantly or frequently recurring (at least once a week for the last three months). The present complaints should most likely have a vascular genesis and should not be due to other causes (head trauma, infections, severe somatic diseases). Initial manifestations of cerebral blood supply insufficiency are a compensated stage of cerebral vascular lesions, clinically manifesting only at increased demand of the brain for blood flow (strenuous mental work, especially in conditions of hypoxia, pronounced fatigue). However, this compensation is not reliable, because it is at a critical level, and the mechanisms of cerebral blood flow self-regulation function in an unstable mode. It should be borne in mind that the initial manifestations of cerebral blood supply insufficiency do not always indicate the early stages of cerebral vascular lesions and may be an expression of incomplete compensation in patients with already formed vascular process. At the initial manifestations of insufficiency of cerebral blood supply there are significant deviations of haemodynamic parameters, which leads to a persistent decrease in performance, creative activity and deterioration of quality of life. [11, 12, 20, 26].

Today, there are many good, effective medications that can correct the changes in the body, but they are not always available or the method of administration is not comfortable [4]. Using physiotherapeutic methods of drug administration, it is possible to eliminate these difficulties to some extent. Thus, under the action of electric current, drugs under endonasal administration penetrate through the nasal mucosa, travelling perineurally and along the lymphatic pathways, enter the subarachnoid space liquor and have an effect primarily on the hypothalamus [3, 14, 15].

Cerebrolysate is a preparation of bovine brain tissue; it contains 22 amino acids and biologically active peptides that cross the blood-brain barrier and directly reach nerve cells [13]. Cerebrolysate improves metabolic processes in brain cells, activates protein synthesis in neurons, improves haemodynamics. Increases the resistance of brain tissue to intoxication, hypoxia, hypoglycaemia. Widely used in neurological practice by intramuscular administration. In the treatment of cerebrovascular diseases, including the initial manifestations of insufficient blood supply to the brain, nootropic drugs are widely used. They are administered orally, by injection and physiotherapeutic methods [1, 2, 23, 27]. Borisova N.A. et al. proposed a method of cerebrolysate treatment by endonasal administration (patent No. 22200033 dated 18.01.01).

We offer treatment of initial manifestations of insufficient blood supply to the brain by endonasal electrophoresis with cerebrolysate. As a source for electrophoresis of cerebrolysate we use galvanisation apparatus "Potok-1". Gauze turundas heavily soaked in 1 ml of 5% solution of cerebrolysate (diluted in 15 ml of distilled water at room temperature) are inserted into both nostrils of the patient, their free ends are placed over a small oilcloth on the upper lip, a conductive plate 1.5 by 2 -3 cm in size is placed on them, connected to the terminal of the apparatus. The lower edge of the cloth is folded over the conductive plate to prevent its contact with the body. And all this is fixed with several turns of bandages. The second electrode, with an area of 80 - 100cm², is placed on the back of the neck. The first three procedures - current strength of 1 mA, for 12 - 15 minutes. Subsequent

procedures - current strength of 3 mA, for 15 - 20 minutes. The first six days the drug is administered from the anode, the next six days from the cathode. The number of procedures is 12 - 14. By alternation of poles the transport of differently charged components of the drug into the brain tissue is achieved [1, 2, 23, 27].

Contraindications to treatment with endonasal electrophoresis with cerebrolysate: 1). High blood pressure (more than 160/100). 2) Heart rhythm disorders. 3) Acute and chronic renal pathology. 4) Individual intolerance [1, 2, 27].

The method is effective, comfortable, economical and does not cause adverse reactions. Under the action of electric current, drugs in endonasal administration penetrate through the nasal mucosa, travelling perineurally and through the lymphatic pathways, enter the liquor of the subarachnoid space and have an effect, primarily on the hypothalamus. Thus, a pronounced and prolonged neurophysiological action is provided due to the creation of a kind of drug depot in the brain structures [1, 2, 23, 27].

Therapeutic and recovery mechanisms of such technologies of balneotherapeutic rehabilitation as radon, iodobromic and carbon dioxide baths are used in angina pectoris, IBS, metabolic syndrome, postinfarction rehabilitation of patients after cerebral stroke or myocardial infarction. According to various research views, they have antioxidant, sedative, homeostasis-regulating, antiaggregant, antihypoxant, metabolic, hypolipidemic, etc. effects in cerebral vascular diseases [6, 8, 9, 22, 24].

We offer treatment of patients with initial manifestations of insufficient blood supply to the brain with endonasal electrophoresis with cerebrolysate and general carbon dioxide baths. The method is effective, comfortable, economical, does not cause adverse reactions.

General carbon dioxide baths are therapeutic effects on the patient immersed in carbon dioxide mineral water. In carbon dioxide mineral water each of the factors acting on the body - mechanical, thermal and chemical - has its own specific features. On the skin immersed in such water patient acts two-phase environment water-gas. Gas bubbles detached from the skin surface irritate low-threshold mechanoreceptors of the skin, as a result of which a flow of afferent impulsation is formed to the higher structures of the brain, determining the formation of sensations of "tactile massage". Due to a significant difference in the indifferent temperatures of water (35-36 ° C) and carbon dioxide (12-13 ° C) is heating gas in the bubbles. They form a thermo-protective gas layer on the patient's body, which hinders direct heat exchange between mineral water and the body by heat conduction. The heat flow into the body from carbon dioxide water is 1.4 times greater than that from fresh water. The resulting increase in the action of the thermal factor is manifested in the appearance of the patient's feeling of "heat". Change in the functional properties of thermosensitive structures of the skin leads to perversion of all types of skin sensitivity. The patient has an illusion of heat in carbon dioxide water of 32 ° C and above and the illusion of cold at a water temperature of 25-30° C [16, 17].

We have treated 84 patients with initial manifestations of cerebral blood supply insufficiency using endonasal electrophoresis with cerebrolysate in combination with general carbon dioxide baths. Each patient before and after treatment was thoroughly examined clinically with assessment of general condition, neurological status with scoring of the state of autonomic nervous system according to Vein A.M. [5]. It was carried out: examination of haemodynamic parameters of rheovasography and rheoencephalography on the computer rheograph "Rheo - Spectrum" of the company "NeuroSoft"; ultrasound Dopplerography and transcranial Dopplerography of the main arteries of the head were performed on ultrasound Doppler systems "Sonicaid Vasoflo 4" (Oxford Sonicaid, England) and "Companion" (EME-Nicolet, Germany - USA); ultrasound Doppler scanning was performed on ultrasound scanner "Sonoline SL 450" (Siemenes, Germany). For registration of brain biopotentials we used a 16-channel encelograph (Hungarian production). The classification of Zhirmunskaya E.A. was used to evaluate the results obtained. [10]. The initial data before treatment for most parameters in patients with initial manifestations of cerebral blood supply insufficiency differed significantly ($p=0.05$) from the results obtained in the control group: impaired blood filling of cerebral vessels and venous outflow according to rheoencephalography, disorganisation of alpha rhythm and presence of slow waves on electroencephalograms; impaired orthostatic stability of cerebral blood flow; metabolic reactivity of cerebral vessels, cerebral autoregulation according to ultrasound Doppler. The degree of expression of deviations was more pronounced depending on clinical manifestations.

During endonasal electrophoresis with cerebrolysate and general carbon dioxide baths the patients showed: decrease in the severity of headaches, dizziness, sleep disturbance, increase in work capacity ($p=0,05$); improvement in the severity of alpha - rhythm, decrease in the severity of delta and beta rhythms; normalised blood flow and tone of cerebral vessels, improved venous outflow according to rheoencephalography ($p=0,05$); according to Doppler data positive effects were registered in the form of expansion of compensatory possibilities of cerebral blood flow, the state of regulation system improved in the form of increase of cerebral blood flow reactivity to metabolic influences, increase of orthostatic stability. These data lead to the conclusion that in the initial manifestations of cerebral blood supply insufficiency it is most appropriate to use drugs that have a positive effect on regulatory mechanisms (such as cerebrolysate).

Conclusion

Catamnestic study with a depth of up to 1 -3 years showed the persistence of the therapeutic effect. The proposed method of treatment by endonasal electrophoresis with cerebrolysate in combination with general carbon dioxide baths for patients with initial manifestations of cerebral blood supply insufficiency has a positive effect on hemodynamics, bioelectric activity of the brain, favourably affects the functional state of the central nervous system, reduces the severity of neurological deficit, which allows its wider use in medical practice. It can find wider application both at the sanatorium-resort and outpatient-polyclinic stage of medical rehabilitation.

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