COMPLEX THERAPY FOR POST-STROKE APHASIA

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Annotation: *Vascular diseases of the brain remain an important problem, being one of the main causes of death and long-term disability among population. The enormous social and economic damage from cerebrovascular diseases necessitates the improvement of medical care for them and makes it relevant to determine prognostic criteria for the restoration of impaired functions. Along with motor, sensory, and coordination disorders, the majority of stroke patients have disorders of higher cortical functions, among which speech disorders occupy a special place. Therefore, we carried out therapeutic treatment using drugs to restore speech functions in patients with neurodynamic speech disorders and neurorehabilitation methods in patients who had stroke.*

Keywords: *post-stroke aphasia, neurodynamic speech disorders, cortical aphasia, speech recovery, speech rehabilitation, Pramipexole*

Topicality of the research.

In recent years, there has been an increase in the number of people who have had a stroke, while at the same time, mortality in this disease has been decreasing (Stakhovskaya L.V. et al., 2013), which is primarily due to the modernization of care for this category of patients. The introduction of new therapies, such as thrombolysis, and the development of specialized care, such as specialized stroke units, contribute to the success of stroke treatment and improved patient survival. As the number of survivors increases, so does the number of disabled people in need of rehabilitation. Currently, approaches to the recovery of patients after a stroke are diverse and include recovery as movement disorders (Ivanova G.E., Litvinyuk Ya.I., 2012; Ivanova G.E., Artemova E.N. 2015; Suvorov A.Yu., Ivanova G.E., 2015) and higher cognitive functions ([Grigorieva V.N. et al. 2006; Ivanova G.E. et al., 2009). However, without the active involvement of the patient in the proposed programs, rehabilitation remains ineffective. Therefore, in recent years, more and more attention has been paid to post-stroke speech disorders, which, both by behavioral and pathophysiological mechanisms, reduce the regression of neurological defects and the functioning of the patient in everyday life (Ullberg T.etal., 2016; ZiaE. et al. 2016). To the greatest extent, this applies to post-stroke aphasia and dysarthria (Withhal A. et al.., 2009; Harris A.L. et al., 2014, Shi Y. et al., 2016). An important task is not only the rehabilitation of a patient who has had a stroke, but also the promotion of his adaptation to new, changed living conditions.

Speech disorders that appear after a stroke reduce the patient's adaptation to a new lifestyle, primarily by adversely affecting the quality and quantity of his social connections (Hoskin S.G. et al., 2000; Kruithof W.J. et al., 2015). In addition, cognitive impairment after a stroke is the main potentially regulated factor that determines the quality of life of this group of patients (Tereshkina, V. A. et al., 2014; White J. et al., 2016; van Mierlo ML et al., 2016) . Post-stroke cognitive impairment increases mortality (Naess H., Nyland H., 2013; Ayerbe L., Ayis S., 2014; de Mello R.F., Santos Ide S., 2015), increase the length of hospital stay (Sugawara et al., 2015), thereby preventing the individual from returning to work (Fride Y., AdamitT., 2015). However, despite the importance of identifying post-stroke cognitive disorders, many of them remain unrecognized (Gyagenda J. et al., 2015).

The purpose of the study : to investigate the effectiveness of the complex treatment for post-stroke aphasia.

Materials and methods: This work is a prospective study of the dynamics of recovery of speech disorders and reorganization of the functional speech system in 78 patients with aphasia, during the first year after the development of ischemic stroke (IS). The work was carried out at the neurological departments of ASMI. The study included 57 men and 21 women aged 29 to 75 years (mean age 55 ± 12.84 years). The state of speech functions was monitored by conducting a neuropsychological examination, which was carried out at the beginning and at the end of each hospitalization of the patient. Verification of the diagnosis, determination of the localization and size of the brain lesion were carried out using magnetic resonance imaging on MRI scanner with a magnetic field strength of 1.5 T.

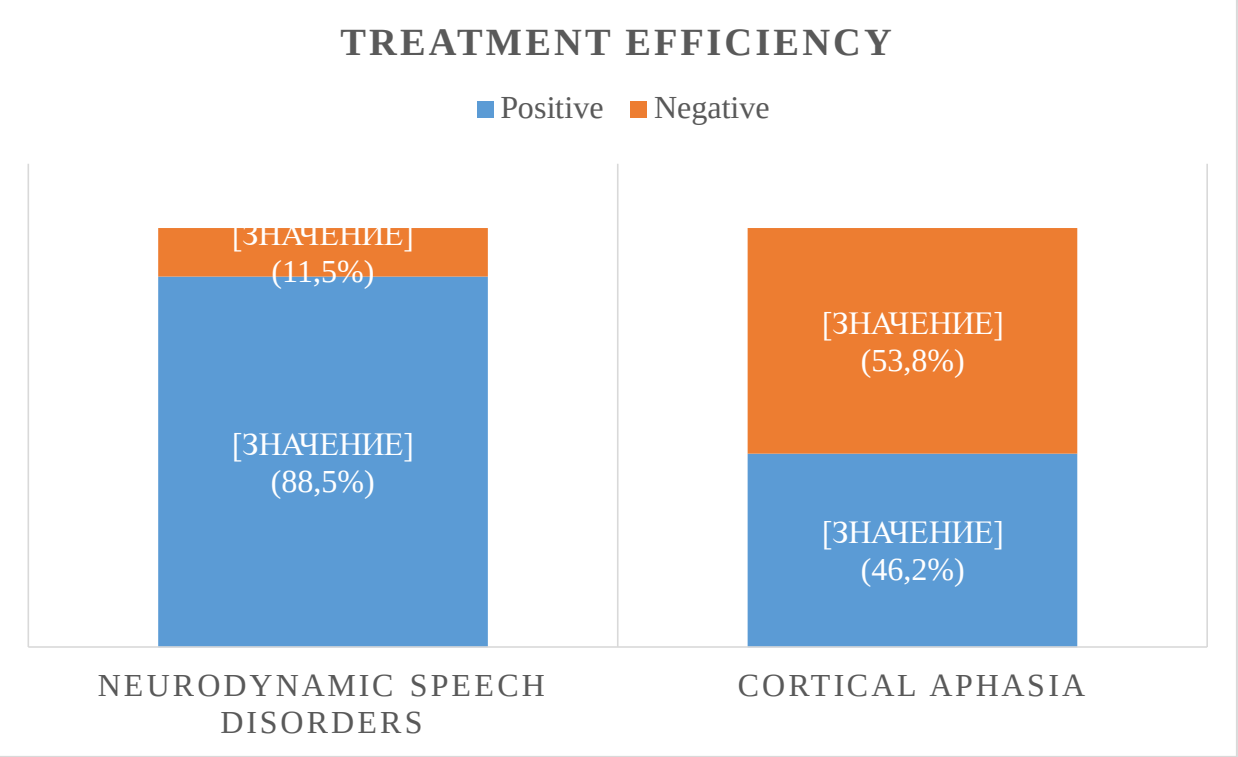
To study the effectiveness of treatment and rehabilitation methods, the patients were divided into two groups: the first group of patients received basic therapy and rehabilitation aid, the second group received complex treatment, including, in addition to basic therapy, a drug containing a molecule of Promipexole (an agonist of dopaminergic receptors).

Results and discussions. The effect of treatment in the group with neurodynamic speech disorders was noted in 69 cases (88.5%), in the group with cortical aphasia - in 36 cases (46.2%); no effect was noted in the group with neurodynamic speech disorders — in 9 cases (11.5%) and in the group with cortical aphasias — in 42 cases (53.8%) (Table 1, Diagram 1).

Table 1

Treatment effect	Neurodynamic speech disorders		Cortical aphasia	
		%		%
Positive	69	88.5	36	46.2
Negative	9	11.5	42	53.8

Diagram 1



Thus, statistically significant differences in the time to achieve a positive effect are shown between the group of patients undergoing rehabilitation treatment using traditional methods (the average time for the onset of the effect is 26.6 days) and the group of patients who, in addition to speech therapy classes according to the classical method, underwent correction of tempo-rhythmic speech parameters (mean time of onset of effect days).

Restoration of speech functions in speech disorders with the use of drug therapy gave the following results. The observed group of patients (n=31), in addition to the course of speech therapy classes according to the usual method, received as a trial treatment a single tablet of Promipex 25 mg. With a positive result of the test (decrease in hypertonicity of the muscles of the tongue, improvement of static and dynamic praxis of the oral muscles, improvement of switchability in speech activity), the patients were prescribed a dose of 50 mg/day for a period of a month. In the dynamics of speech therapy and neuropsychological examinations, computer transformation of speech temporal parameters was performed on the 15th day of treatment and at the end of the course.

The rationale for the use of drugs in this group was the recently completed clinical studies, which showed the effectiveness of the use of dopamine receptor agonists, in particular, bromocriptine, in the treatment of non-fluent aphasia (C. Ashtary et 2006). The positive effect of this group of drugs is associated with the effect on the nerve pathways involved in the activation of spontaneous speech production, and in addition, the direct positive effect of dopamine on the development of speech activity.

Most of the patients in the discussed group at the time of our study had already completed repeated courses of speech rehabilitation and, according to the conclusion of speech therapists, had limited opportunities for further recovery. In the neurological status of this group of patients, there were symptoms characteristic of the subcortical-frontal

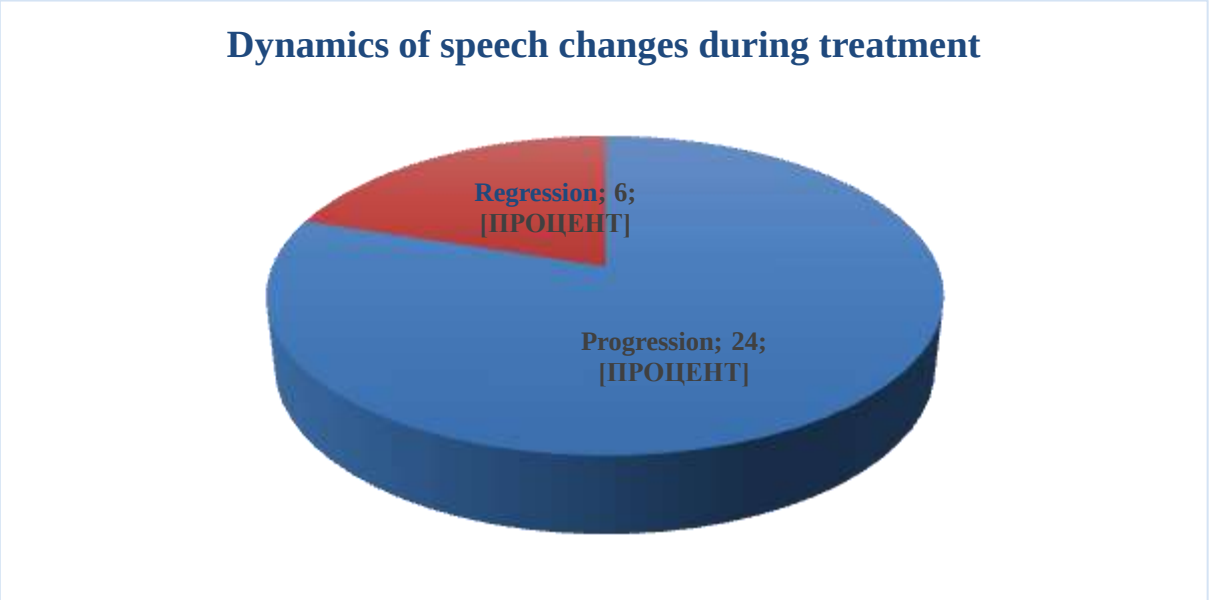
localization of the stroke focus, indicating the presence of the syndrome of vascular parkinsonism: facial hypomia, increased muscle tone according to the extrapyramidal type, slowness of movements, speech, etc.

Neuropsychological testing at the end of the course of therapy (speech therapy correction + Promipexol) in the study group of patients revealed improvement in dynamic oral-articulatory and manual praxis, the phenomena of inertia in speech and thought activity decreased, the number of perseverations in the speech and motor spheres decreased, the phenomena of exhaustion during doing the tasks decreased. According to the speech therapist, in 24 out of 30 observations, the severity of speech disorders decreased from severe and moderate to mild severity (according to the method of L. S. Tsvetkova, 1985). In 6 patients, the speech defect completely regressed (Table 2, Diagram 2).

Table 2

Neuropsychological testing (according to the method of L. S. Tsvetkova, 1985)		
Speech defect	abs	%
Progression	24	80
Regression	6	20

Diagram 2



Thus, rehabilitation of speech after stroke is an inevitable part of comprehensive program for restorative speech training. At the same time, it must be noted, that the ability to speak will not return to a person spontaneously - this can only be achieved by daily trainings with specialists according to an individual program, depending on the speech pathology. The methodology and duration of trainings are determined individually.

Restoration of speech after stroke is carried out in combination with adequate drug therapy. Restorative training lasts 20-45 minutes (depending on the degree of fatigue of the patient). If, while working with a speech therapist, a patient has headache, shortness of breath, weakness, increased blood pressure and other negative manifestations, the trainings should be reduced to 10 minutes.

Much attention is also paid to the formation of positive emotional state of the patient, the choice of the motivation form for classes and the patient's social adaptation.

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