EARLY STAGES OF SPEECH RESTORATION AFTER STROKE IN THE SYSTEM
MULTIDISCIPLINARY APPROACH

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The article deals with the principles and methods of speech restoration in the patients with aphasia, focusing on the importance of a multidisciplinary approach to the patients’ rehabilitation.

Key words: aphasia, dysarthria, impaired swallowing, a multidisciplinary team, early rehabilitation training (early rehabilitation)

The problem of restoring the disturbed speech functions are increasingly attracting the attention of various specialists - neurologists, speech therapists, psychologists, linguists and other researchers. The interest in this issue is dictated by its social and practical importance in relation to the issues of rehabilitation of patients and their employment. The number of patients with the consequences of acute stroke is steadily growing and is now in first place in incidence of diseases in Russia. Even young adults are affected by stokes, which leads to their long-term disability. About 30% of stroke patients die, surviving about 40% have a violation of the higher mental functions, including speech, combined, usually with mental disorders and movement disorders, which in most cases leads to severe disability. In this regard, Russia has constantly increasing the number of cardiovascular centers, clinical rehabilitation departments, research centers engaged in the research and practical problems of organization and replacement therapy in patients with speech disorders.

In the last decade of the twentieth century in clinical neurology new approaches to the treatment of patients in the acute phase of stroke were grounded. Special studies of UK neurologists have shown the feasibility and usefulness of early motor and speech activity of patients in the acute stage of stroke [4]. This is due to the fact that an active, stimulating, and then rebuilding the speech function interference is particularly effective when it begins in the background of spontaneous recovery process, what was written by earlier R.A. Tkachev, E.S. Bain, I.J. Plotnikov. Therefore, rational and pedagogical influence is the more effective the earlier it is started.

Features of patients with aphasia in the early post-stroke put forward a number of special problems for speech therapists: they are in the use of speech therapy techniques, which contribute to the character of a speech disorder in its early stage and promote a rapid pace, and the highest level of recovery of speech functions.

Currently, there are several approaches in domestic aphasiology to recovery of higher mental functions. The most developed system of rehabilitative training in aphasia in our opinion are the principles and methods of recovery of higher mental functions developed by E.S. Bain and L.S. Tsvetkova in St. Petersburg aphasiology-school speech therapists working under the direction of N.N. Traugott. Significant contribution to the questions of aphasiology was also made V.M. Shklovsky and T.G. Wiesel, representatives of the Moscow school.

Currently aim-oriented rehabilitation training of patients with aphasia is based on the concept of the system structure of speech functions. Techniques of rehabilitation therapy differentiate depending on the nature of speech disorders (disorders of the activities of parsers or their interaction). Externally similar manifestations of any defect can be of different nature, depending on the form of aphasia, and therefore require different restoration techniques. In motor aphasia it is necessary, first of all, to restore of the motor-kinesthetic analysis and synthesis of speech elements, and in sensory aphasia - to develop of a sustainable and differentiated perception of speech. Of great importance in dealing with patients suffering from aphasia...
(especially in the early stages of recovery) is the removal of the brake background, disinhibition speech functions. Aphasia is accompanied with agnosia, apraxia and other disorders of higher cortical functions.

It is necessary to emphasize the huge importance of compensatory meaning of reading and writing. A patient with motor aphasia often utters sounds, words, and combinations thereof only after he has written or read them to himself. People who knew several languages before the disease, should firstly restore the native language, as the most habitual since childhood.

Treatment of patients with aphasia is not limited to the usual replacement therapy (medicines, massage, physiotherapy, rehabilitation training, electrofonopedic laryngeal muscle stimulation on the device VocaStim etc.). They tend to require long-term comprehensive rehabilitation by all professionals. Currently, as part of the vascular program the importance of a multidisciplinary approach in the rehabilitation of patients is emphasized. The multidisciplinary approach involves specialized knowledge of each expert included in the multidisciplinary team, the interaction between experts in the evaluation of the patient, the joint statement of the objectives of rehabilitation, planning of interventions to achieve this goal. The multidisciplinary team is a team of qualified professionals to help the patient achieve their rehabilitation goals. Thus, an integrated approach is carried out in cooperation speech therapists and doctors - neurorehabilitators, cardiologists, psychologists, neuropsychologists, psychiatrists - psychotherapists, trainers and doctors in physiotherapy, kinesitherapy physicians, social workers, dietitians, podiatrists and nurses.

The rehabilitation team is central part in conducting the disabled. There is not one specialty, which in itself could provide the full scope of necessary treatment. [4]

According to the results of our observations and data of domestic and foreign authors (M.E. Shokhor - Trotsky, T.G. Wiesel, L.G. Stolyarov, etc..) it can be stated that maximum efficiency is achieved at the beginning of the speech rehabilitation in the first 3 months, during rehabilitation for at least 3 hours each week for 5 months or more. In some cases, a gradual improvement in speech continues in more than 6 months (up to 2 years).

The choice of technology depends on speech rehabilitation period, and the recovery phase of the speech function. The tasks of phase rehabilitation plan are determined individually, by rehabilitation programs corresponding to the nature and degree of speech disorders.

In the early period of acute and replacement work is carried out at a relatively passive participation by the patient in the process of recovery of speech. In the later stages of recovery an active participation in rehabilitation is required from the patient.

In the acute period of speech therapy sessions the tasks of speech therapist are to establish contact with the patient, in the neuropsychological examination designed to identify his speech, intellectual capacity, the residual capacity of higher mental functions, the study of emotional and volitional. During this period, speech therapy classes must be of predominantly psychotherapeutic character. At the beginning a class must be held in a whisper. In our work we use modern educational technologies, methods of audio-visual stimulation with the multicultural component.

By the end of the third week after stroke in most cases, the basic form of aphasia emerges and early recovery period (up to 6 months) starts, when the work is under way with a particular form of aphasia. [5]

The early stage of recovery methods include:
- Stimulating listening comprehension (in various forms of aphasia);
- Disinhibition of expressive aspect of speech in the afferent and efferent motor aphasia (automated voice ranks, proverbs, songs, phrases with tough context, the incentive character of the speech task, turns of speech samples needed for the elementary communication, reading poems and short sentences);
- Methods of prevention agrammatism (telegraphic style) - stimulating the use of verbal language in the responses;
- Techniques to stimulate the global reading and writing [3, 5].

In the later, residual stages of speech therapy the compensation mechanisms are more actively used; speech function is not restored to its previous form, but changes its structure.
At all stages of speech rehabilitation an emotional factor is crucial. The patients need to be constantly encouraged in conversations, in the formation of positive motivation to employment, the right attitude to themselves.

Speech recovery requires more time than improvement in overall condition of the patient. During the first two years after a stroke or traumatic brain injury, it is desirable that the patient is regularly engaged in hospital (1-2 months.) And in the clinic -every 2-3 months of training is a short break (1-2 months.). The total duration of speech therapy sessions is 2-3 years.

According to our observations, patients with speech disorders account for about 44.7% of the total number of patients during the observation period from 2008 to 2011. Despite the change in the number of patients (89 patients in 2008, 422 - in 2009, 624 and 735 patients in 2010 and 2011 respectively), the ratios of patients according to the forms of speech disorders are relatively stable. The most common speech impairments is dysarthria in symptomcomplex of which swallowing disorder is included. According to the results of our survey, dysarthria is observed in 61.42% of patients with speech disorders. The most common violations are minimal dysarthric disorders (30.67%), mixed forms of dysarthria is observed in 26.45% of patients. Less common "pure" are bulbar and pseudobulbar dysarthria forms (9.96% and 6.96%, respectively). S.P. Markin indicates that dysarthria developed in 13.4% of cases and is more common with swallowing disorders [2]. According to different authors, from neurogenic dysphagia in acute stroke 25 to 65% of patients from the number received in-patient treatment are suffering. [1]

Our observations show that the aphasic disorders were observed in 34.44% of patients with speech disorders, which roughly coincides with the data of S.P. Markin (from 39.5% aphasia develops) [2]. Associated disorders including aphasia and dysarthria, are found in 13.34% of patients with speech disorders. According to I.V. Damulin, swallowing disorders are observed in almost 30% of patients in the acute phase of stroke (within 1 week of stroke).

Patients with complex forms of aphasia, according to our observations prevail among aphasic disorders (14%). The least common form of aphasia is a semantic aphasia (1.34%). Afferent motor aphasia occurred in 2.15% of patients. Dynamic aphasia was observed more frequently (2.77%). Patients with sensory (acoustic-gnostic) aphasia, make up 2.82% on the number of patients with speech disorders. Acoustic-amnestic aphasia occurs in 3.37% of patients. More than other forms (6.33%) efferent motor aphasia was observed.

At the discharge from hospital and the completion stage of rehabilitative training, we used 4 evaluation forms of rehabilitative training results (by ES Bein):

1. " Significant improvement": ability of making free oral and written statements with some elements of agrammatism and with very few errors in writing (13.41%).

2. " Improvement": the ability to communicate using phrases, making simple series of texts on simple pictures, the relative recovery of reading and writing ability, and in sensory aphasia also an overall improvement in the perception of the texts while hearing. The number of patients is of the dominant character and makes up 50.83%.  

3. "Slight improvement": an ability to communicate using single words, improvement of speech understanding, recovered in varying degrees, reading and writing skills (20.97%).

4. "No change": lack of positive dynamics in the state of speech functions (14.78%).

Thus, the timely completion of rehabilitation training under certain conditions (by VM Shklovsky):

1) the earliest possible start of rehabilitation; 2) continuity; 3) the intensity; 4) the duration; 5) the complexity of medical, psychological and pedagogical process; 6) the differential and syndromic diagnosis of violated AP Functions; 7) adequate, differentiated application of rehabilitative training programs corresponding to certain forms and stages of the disease; 8) systematic monitoring of somatic, neurological and mental condition of the patient, their brain structures and functions of AP; 9) the forecast of the appropriateness of these or other forms of rehabilitation; 10) the solution of socio-psychological, social, and domestic labor problems; 11) the involvement of the rehabilitation process all family members at all stages of the disease, creates the preconditions for the maximum recovery of speech functions, which is possible only in the interaction of a multidisciplinary team of experts.
Thus, speech therapy work in aphasia is a long and laborious process that requires the cooperation of the patient and his doctor, a speech therapist and other specialists of multidisciplinary team. The restoration of speech should not be held empirically, but by qualified serious professionals. In connection with this selection of patients for intensive rehabilitation treatment and training is important. The prognostic significance of the individual factors affecting the efficiency of the recovery (age, premorbidity level, motivation, signs of left-handedness, somatic diseases and their dynamics) should be taken into account.

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