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The concept of therapy of patients with sensory-motor aphasia

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Streszczenie. W Polsce co roku udaru mózgu doznaje około 70 tys. osób, każdego roku liczba ta się zwiększa. Udar jest trzecią przyczyną zgonów wśród dorosłych Polaków, zaraz po chorobach serca i nowotworach. Statystycznie liczba osób, które doznają udaru, jest podobna w niemalże całej Europie, jednak w naszym kraju w porównaniu z krajami Europy zachodniej częściej dochodzi do śmierci w wyniku udaru czy trwałej niepełnosprawności. Wiąże się to z kondycją zdrowotną naszego społeczeństwa, z chorobami współistniejącymi, ale przede wszystkim, z trudnościami z szybką diagnozą oraz bardzo małym dostępem do kompleksowej terapii w pierwszym, ostrym okresie zaraz po wystąpieniu udaru. Znaczna część pacjentów po udarze doświadcza zaburzeń mowy i/lub rozumienia, średnio szacuje się, ze co trzecia osoba

po wystąpieniu udaru ma diagnozowaną afazję. Powołanie Narodowego Programu Profilaktyki i Leczenia Udaru Mózgu, który dąży do unowocześnienia oddziałów rehabilitacji neurologicznej oraz tworzenia systemu rehabilitacji neurologicznej w warunkach ambulatoryjnych, ma przyczynić się do lepszego funkcjonowania osób po incydencie udarowym. Obecnie około 70% chorych po udarze pozostaje w niepełnosprawności, co zwiększa prawdopodobieństwo wystąpienia poudarowego zespołu depresyjnego (PSD). Udar mózgu, w powiązaniu z niepełnosprawnością fizyczną, zaburzeniami komunikacyjnymi, trwale zmienia życie, nie tylko chorego, ale również rodzin. Zależność od innych osób, zaburzenia towarzyszące funkcjonowaniu w życiu, obok wspominanej depresji, mogą prowadzić do wybuchów gniewu, spadku poczucia własnej wartości. Właściwe prowadzenie terapii, uzyskiwanie zauważalnych przez pacjenta pozytywnych rezultatów terapii daje szanse na pełne zaangażowanie się w i wiarę w wyjście z tak trudnej sytuacji.

Summary. In Poland, every year suffer a stroke about 70 thousand of people. Every year this number increases. Stroke is the third leading cause of death among adults in Poland, right after heart disease and cancer. Statistically, the number of people who experience a stroke, is similar in almost all over Europe, but in our country in comparison with the countries of Western Europe often death occurs as a result of stroke or permanent disability. This is related to the health condition of our society, with concomitant diseases, but above all, the difficulties with diagnosis quick and very little access to complex therapy in the first, acute phase after the onset of stroke. A significant proportion of patients experiencing post-stroke speech disorders and / or understanding of, on average, it is estimated that every third person after a stroke is diagnosed aphasia. Appointment of the National Program for Prevention and Treatment of Stroke, which seeks to modernize the branches of neurological rehabilitation and the creation of a system of neurological rehabilitation on an outpatient basis, to contribute to the better functioning of the impact of the incident. Currently, about 70% of patients after stroke disability remains, which increases the likelihood of post-stroke depressive disorder (PSD). Stroke, in conjunction with physical disabilities, communication disorders, permanently life-changing, not only the patient, but also families. Dependence on other people, abnormal functioning in the accompanying next of said depression can lead to outbursts of anger, decrease in self-esteem. The proper operation of therapy.

1. Definition and classification of aphasia

Disorders receive and transmit speech, in connection with damage to the brain, called afemią. The creator of the first definition of aphasia is considered Trousseau, who in the second half of the nineteenth century introduced the concept of literature, combining speech disorders only with brain damage [1]. This does not mean that the issues of loss of understanding or transmit speech were interested only in the nineteenth century. Preserved papyrus in hieroglyphics, dating from the Old Empire of the Pharaohs, dates it to three thousand years before the birth of Christ [2], which may indicate interest contemporary research topic speech disorders after brain injury.

The literature gives many documents showing that the problem of brain damage, including the problem of aphasia, researchers curious about since before our era, through ancient Greece, the Roman Empire, the kingdom of the Incas until modern times and modern [3].

In Polish aphasiological literature can find a multitude of definitions of aphasia. From the first most frequently quoted definition, which appeared in the 1966 manual Maruszewski "Aphasia. Problems of theory and therapy "author defined aphasia following as" due to the organic damage relevant brain structures, partial or complete impairment mechanisms for programming the speech act in a human which previously controlled the following steps [4]. "Pąchalska, author contemporary textbook" Afazjologia "defines aphasia as "syndrome indicating disintegration of information processing, which compromise the ability <decoding> and / or <code> various non-language symbols, and / or languages occurring in a given language or cultural environment community communicative induced following an organic injury to the central nervous system [3] ". Domańska and Borkowska define aphasia as a "disorder respective language function, a result of which there is a dysfunction in communication with other people, which in turn leads to social isolation due to disability and loss of social roles [5]."

In the case of aphasia, it is necessary to correct classification of the unit, preferablyzarówna through a single division for the medical, speech therapy, physiotherapy or psychological. [6].

Aphasia classification is as follows [7].

Aphasia motor - kinesthetic (Afferent inward - motor) - dominant disorder are considerable difficulties in feeling and synthesis of experience sensory derived from the organs of speech (apraxia oral), the patient distorts the spoken sounds and words are also parafazje The voice and writing letters, understanding speech is correct, there may be fonematycznym hearing problems.

Aphasia motor - kinetic (Efferent, centrifugally - motor) - the disturbances of the synthesis sequence, ie liquidity and automation movements of articulation, the patient has difficulty moving from one system articulatory to the next, in this type of aphasia appear Perseveration, speech is chanted, individual sounds can be pronounced correctly . Understanding speech is preserved in the speech appear agramatyzmy movement and so. telegraphic style.

Aphasia motor - dynamic- of descent often occurs as a form of aphasia is accompanied by difficulties in planning and formulating longer statements, there may be echolalia, patient statements are schematic, poor in content for information.

Aphasia acoustic - gnostic - characterized by impaired hearing fonematycznego and deep understanding of speech disorders, is characterized by the so-called verbiage. logorrhea typical of neologisms patient due to the lack of control hearing is not quite aware of errors committed by itself language.

Aphasia acoustic - mnestic- is characterized by impaired auditory verbal memory, which causes the updated contents are not permanently, the patient manifests the difficulty in understanding the longer speech, repetition and speaking because of the difficulty in maintaining the sequence of words in the memory; are also neologisms, paronimy (similar sounding words) or metonimy (semantically related words).

Semantic aphasia- the main symptoms of the disorder is the synthesis symultatywnej or simultaneous analysis of the logical-grammatical and semantic same difficulties as defined in complex forms of expression, the compounds of the government, passive or sentences inverse syntactic are also difficulties in synthesis and calling information. Patients have difficulty with orientation in a time direction and reading, writing and counting of [6].

In the era of neuroimaging techniques such as CT, MRI, SPECT notedwife, that not only damage to the fields included in the traditional "areas of speech" cause afatic disorder. In this case we have to deal with other types of aphasia:

Aphasia hybrid- which is associated with damage to the same hemisphere as the dominant hand, often it affects left-handed people, the difficulties manifest themselves as in the case of aphasia or Wernicke Brocki. It characterized by a significant dynamics of withdrawal.

Aphasia subcortical - affects patients with brain damage further comprises subcortical structures (basal ganglia, nerve pathways), divided into: subcortical aphasia motor in which -

seen interference in the creation of expression and repeating the preserved meaning and writing, refers to patients where there is damage to the basal ganglia, the internal capsule and white matter, which causes disengagement between the projection center and Brocki; and subcortical sensory aphasia, which have problems understanding and repeating the preserved ability to spontaneously speaking, writing and reading. Is the result of damage to subcortical fibers radiance auditory and corpus callosum fibers [6].

The development of neuroimaging studies (SPECT), also contributed to the classification of atypical subcortical aphasia, which were caused not only damage to the white matter of the cerebral hemisphere, but also damage to the basal ganglia, ie. Thalamic nuclei and the basal forebrain. We divide them into:

Subcortical hilltop aphasia-- the most common language difficulties include: disturbances of naming and understanding, freedom of expression restrictions, in some cases up to afonii and mutism, characteristic is surprising to commit verbal and parafazji of voice and perseveration. Damage to the hills can also cause memory impairment, attention deficit disorder and agnosia

Striatum-associated aphasia - it is characterized by nonspecific disorder renovation words and understand complex disorders of speech, writing micrograph also overlap articulation disorders, prosodic and phonatory, resulting from damage to the striatum, differential diagnosis of aphasia, dysarthria remains in the present dispute.

Cerebellar aphasia- wherein the meaning indicated in the cerebellum of expression and impression of speech, characterized by abnormalities in the formation and grammatical meaning.

Conduction aphasia- central associated with damage to bend coastal or turn angle and results from damaging the connections between the cortex temporal, frontal and parietal (most probably interrupt the bundle arcuate) as well as dysfunctions subcortical structures linking sensory and motor area speech is characterized by impaired repeat the preserved the meaning, spontaneous speech, reading and writing. Problems may occur when calling, the loud reading and recording of the hearing. Auditory self-auditing is maintained, the patient attempts to change the line of expression [1].

Transitional aphasia- it is the inverse of conduction aphasia preserved repetition contrast to the significant deterioration of speech understanding in the form of sensory aphasia. This

aphasia feeling results from damage to the surrounding contact temporomandibular parietooccipital [6].

Primary progressive aphasia (PPA) - is described as a degenerative disease of the central nervous system of unknown etiology and include it fronto-temporal dementia (FTD). May involve cortical areas (Alzheimer's disease), or ganglia (Parkinson's disease and multiple sclerosis). In subcortical dementias common element remains dysarthria, hypophonia, slowdown, monotone intonation, articulation difficulties, and palilalia letter disorders (micrograph). In cortical dysfunction characteristic of a pause, the simplification of the syntax disorders, naming, parafazje semantic reasoning logic disappears appear digress his thoughts and [8]. Develops slowly (5-11), degenerative processes occur in the dominant hemisphere for speech, brain atrophy is asymmetric.

2. Aphasia as a result of stroke

Often, aphasia is the result of a stroke, but it can also cause brain tumors, severe head injuries, infections, poisoning toxins, neurodegenerative diseases, epileptic seizures [9]. In Poland, every year there are 65 to 70 thousand. new cases of stroke, which is the result of a sudden restriction of oxygen to the brain. The World Health Organization defines stroke as a "sudden onset of focal or global dysfunction of the brain, lasting more than 24 hours, niespowodowanych by others, and only vascular causes [10]. Due to the pathological mechanism of stroke can be divided into ischemic and hemorrhagic venous. Ischemic stroke is "(...) closing or narrowing of the vascular lumen inside - or extracerebral blood supply to the brain [11]." Its cause may be embolism from the heart, a large clot or arterial disease of small arteries, caused by coexistence of hypertension, diabetes. Ischemic stroke is the most common form of stroke and affects 70-80% of all cases [11]. Differentiation of the most common types of stroke is possible through the use of computed tomography, which clarifies and distinguishes hemorrhagic stroke from cerebral infarction. In practice, the division of functions strokes:

1. TIA (transient ischemic attaca) - transient ischemic stroke; symptoms are weakly and pass within 24 hours.
2. RIND (reversible ischemic neurological deficit) - symptom last more than 24 h., They disappear after a few or several days.
3. CS (complited stroke) - made ischemic stroke, causing LOSS-lasting symptoms (neuronal death). Symptoms persist, although they can be reduced. Partial regression of symptoms is probably related to blood flow back in the "penumbra" (fireplace surrounds infarct) and the reduction of brain edema.

4. Progressive ischemic stroke (progressing stoke) - in contrast to the previous embodiments, in which the full clinical picture grew suddenly, in this case the symptoms are increasing gradually. They can later give way or decrease, but most remain [12].

A hemorrhagic stroke occurs much less frequently, the cause aneurysm rupture is the most common, ukrwotocznienie teaches iatrogenic effects such as thrombolytic therapy for ischemic stroke [13]. "It causes a stroke, or to the space between the brain and skull [14]".

We can distinguish three clinical forms of cerebral hemorrhage: acute, subacute, chronic. Characters are prognostic determinant. Recognition gives them the ability to predict the further course of the disease. Acute form - the worst prognosis, but it is not common, does not exceed 50% of brain hemorrhage. Unfortunately, almost always ends in death. Usually begins without symptoms herald. A sudden loss of consciousness, hemiplegia, eyeballs return fire in the direction of hemorrhagic. Rapidly growing brain stem failure, along with her disorder of consciousness, death occurs after a few hours, rarely after a few days. Figure subacute - occurs in approximately 30% of cases. Symptoms also appear nagle- severe headache, vomiting, neurological deficit. The course is not as turbulent as in the acute form. After a few days of apparent improvement may suddenly deteriorate. There are growing signs of intracranial narrowness. In this form, death occurs within a few days of getting sick. The chronic form - with Computer Tomography is detected more often now than even a few years ago. Clinically, this figure can often mistaken for ischemic stroke. Cerebrospinal fluid is often transparent, because there is no beat blood intrathecally. Syndrome enhancement of intracranial pressure is mild. Fireplace bleeding in CT sometimes even for an experienced clinician surprise. This form of hemorrhage occurs in 20 -30% of patients with cerebral hemorrhage. Most patients survive, and some of them can return to work. After a few days of apparent improvement may suddenly deteriorate. There are growing signs of intracranial narrowness. In this form, death occurs within a few days of getting sick. The chronic form - with Computer Tomography is detected more often now than even a few years ago. Clinically, this figure can often mistaken for ischemic stroke. Cerebrospinal fluid is often transparent, because there is no beat blood intrathecally. Syndrome enhancement of intracranial pressure is mild. Fireplace bleeding in CT sometimes even for an experienced clinician surprise. This form of hemorrhage occurs in 20 - 30% of patients with cerebral hemorrhage. Most patients survive, and some of them can return to work. After a few days of apparent improvement may suddenly deteriorate. There are growing signs of intracranial narrowness. In this form, death occurs within a few days of getting sick. The chronic form - with Computer Tomography is detected more often now than even a few years ago. Clinically, this figure can often mistaken for ischemic stroke. Cerebrospinal fluid

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Risk factors that increase the possibility of stroke include: chronic cigarette smoking, chronic alcoholism, drug addiction, age (the risk of stroke is doubled every 20 years), male gender, family factors and genetic, hypertension, heart disease, previous incident TIA or stroke, an elevated hematocrit, diabetes, elevated fibrinogen levels [13].

Not every stroke causing aphasia or dysarthria afatyczne. However, as shown by a recent study carried out by computed tomography notes the high percentage of deviation from the classical clinico - anatomical relationships. Studies indicate often compounds the lack of clinico - anatomical or discrepancy between the type and location of damage. The occurrence of aphasia is still the greatest impact is the location of damage, but you should still take into account other correlates such as age, education, type of stroke, whether it is original or another stroke. Polish studies both global and which indicate the frequency of aphasia, stroke as 31-39% [15].

3. Disorders associated with aphasia

In many cases of aphasia are accompanied by disturbances of higher mental functions, such as apraxia, agnosia, agraphia, alexia, Acalculia, which have an important impact on the immense conducted therapy and achieve positive results. Skipping such important elements in the work with the patient afatycznym, will cause far worse effects in the treatment or even inhibit it, not allowing the patient to obtain satisfactory results. Agnosia is the inability to identify and / or interpreting of sensation: auditory, visual, sensory [2]. In the case of visual agnosia, the patient has difficulty identifying familiar objects, colors, human faces (prosopagnosia). In the case of auditory agnosia, the patient has difficulty identifying sounds, words. Tactile agnosia prevent recognition of objects, without visual inspection (asterognosia). Another agnosia, which affects patients after brain damage is a disturbance in the orientation directions, Laws, then left on the map, on the clock, the orientation of the body schema.

Apraxia is a dysfunction occurs in patients after traumatic brain injury, a disorder which involves performing volitional, conscious, purposeful movements, concerns the complex movements and not automatic, learned. According to industry insiders, a neurologist A. Kertesz apraxia defines as "... movement disorder requiring the skills of planning and implementation of subsequent components of the trained movement disorders caused by not understanding or shock." There are ideational apraxia, where the patient loses the ability to use tools to perform tasks; ideo- motor apraxia where it is impossible to performing complex motor tasks; apraxia oral prevents or hinders the lighter embodiments traversing articulation. The group includes difficulty in drawing, dysgraphia / agraphia, which manifest difficulties in writing or abolishes the function [6]. Acalculia concerns the difficulty in understanding the structure of the number, spatial organization and perform mathematical operations; alexia / dyslexia relates reading disorders often occurs analogously to speech disorders, often remains in the form of read global [6]. Problems with reading may be due to hemianopsia, patients may be aware of the loss of vision can read slower, have difficulty finding another word in the text [16]. Bypass assembly

(neglect) sided (hemiplegia), it is more common disorder of increasing the difficulty systematically overlooking or perceive the half of the side opposite to the damaged hemisphere.

4. Therapy of patients with aphasia

According to the guidelines of the Helsingsburg Declaration, determining the rules to be implemented by the end of 2015 dealing in stroke therapy in patients presenting with aphasia, should begin immediately after the stabilization of vital functions [14]. An important determinant in the therapeutic process is the intensity of speech therapy. In the realities of our country, very few patients have the opportunity to participate in the long-term, immediate speech therapy and thus a quick return to participate in social life, which is the primary therapeutic target and from which it follows reintegration mental patient. The positive effects of therapy do not arise only from the time spent in the office, but also depends on factors such as: methodology (theoretical basis of therapy), perceptivity, personality and motivation of the patient; competence and personality therapist; cooperation of family and friends. [3]

A therapist working with the patient afatycznym must follow certain rules of conduct rehabilitation:

- the principle of individualization, where the therapist is required to choose the exercises to the type and depth of disorders, must use the commands understandable for the patient;
- base grading the problem in which the individual semantic and grammatical categories represent different degrees of difficulty for patients with different types of aphasia [3].

Depending on the type of aphasia therapy should be carried out according to the strategy developed by the afazjologów conduct a multitude of programs and working methods gives therapists the ability to create individual programs of work with the patient. Be aware of the factors that determine the effectiveness of the therapy: the depth of the disorder, disease duration aphasia type, age, sex, size, and location of the damage should not be construed, however, as the exponents destiny possible to obtain the effects of therapy [3].

"Stages therapy for aphasia: motor - kinesthetic (afferent)

Basic defect - somesthetic agnosia

1. Differentiation auditory speech sounds (exercises hearing fonematycznego)
2. Passive exercise dictionary for a specific material.
3. Exercise of the active vocabulary to word and pictorial material.
4. Analysis and synthesis of syllable words.
5. The analysis and synthesis phones (literal) words.
6. Rebuilding articulation patterns based on visual and auditory analyzer.

7. Exercises articulation of words and syllables opposition.
8. Control auditory spoken words and sentences.
9. Prosodic exercises.
10. Exercises oral praxis.

The steps of therapy for aphasia: aphasia motor - kinetic (efferent)

Primary defect - disorders synthetic sequence

1. Exercises in pronouncing automated texts.
2. Classes in the isolation of any elements within the auto.
3. Restoration schemes sentences based on syntactic pattern visual declarative sentences, and asking imperative.
4. Exercises accommodation syntactic and semantic verbs.
5. Verbalized their own activity.
6. Breaking agramatyzmów movement.
7. Exercises fluxing articulation of words and sentences.
8. Prosodic exercises.
9. Exercises dialogue.
10. Exercises narrative.

The steps of therapy for aphasia: aphasia motor - dynamic

Primary defect - disorders inner speech.

1. Exercises in controlling the correctness of the courts in terms of semantic, grammatical and pragmatic.
2. Exercises timing statement in the course of reading aloud and reciting.
3. Restoration of the logical links within a complex sentence coordinate and subordinate.
4. Exercises accommodation syntactic and semantic verbs.
5. Exercises within the meaning of metaphors make sense in relationships phraseology and proverbs.
6. Exercises in the planning of narrative expression.
7. Formation of species narrative.
8. Exercises in generalizing, synthesizing, categorizing and reasoning.
9. Exercises in the diagnosis of emotional and contextual meanings.
10. Prosodic exercises.

The steps of therapy for aphasia: aphasia acousto - gnostic

Basic defect – hearing phonematic problems

1. Exercise thinking on material non-verbal language.
2. Exercises to meanings sounds natural.
3. Exercises in recognition of the global importance of different speech melody and intonation.
4. Exercises in recognition of the global importance of speech a few sentences on the pictorial material.
5. Delimitation of the text on the part of the intonation and accent with the participation of the visual analyzer.
6. Analysis and Synthesis syllable words and sentences, assigning meanings to words and sentences.
7. The analysis and synthesis (literal) words.
8. Correction phonetically distorted statements with the participation of the auditory and the visual analyzer.
9. Differentiation patrominic auditory words.
10. Differentiation auditory speech sounds (exercises phonematic hearing) syllables in opposition.

The steps of therapy for aphasia: aphasia acousto - mnestic

Primary defect - impaired auditory verbal memory

1. The reconstruction of objects of visual patterns, exercise visual analysis and synthesis.
2. Reconstruction of the words in the conceptual structure for a particular material.
3. Rebuilding the relationship between the concept and the designate.
4. Rebuilding the relationship between the concept and the name.
5. Rebuilding relationships lexical semantic field.
6. Rebuilding the semantic relations in the lexical (antonyms, synonyms).
7. Exercises in the reconstruction of the content and form longer statements.
8. Exercises in the update of words based on semantic criteria.
9. Exercising in the words of renovation based on formal criteria.

The steps of therapy for aphasia: semantic aphasia

Primary defect - disorders synthesis

1. Rebuilding the body schema and spatial orientation.

2. Exercises within the meaning of prepositional phrases in the visual sensory material.
3. Exercises orientation of the clock and map.
4. Reconstruction of visual patterns of letters and numbers.
5. Exercises in lexis, graphics, calculi.
6. Classes of compounds within the meaning of the syntax for the visual material.
7. Reconstruction of understanding and structuring comparative syllogisms, sentences with inversion, and double negation.
8. Exercises in the reconstruction of the content and form longer statements.
9. Validation and correction of complex sentences, disturbed in terms of grammatical and semantic.
10. Exercising in the renovation of words according to the criteria of semantic and formal [18]. "

Working with patients with aphasia, is a huge challenge and a great responsibility for a speech therapist, we can say that we are largely responsible for further life and functioning of the patient. Proper diagnosis and correct treatment of aphasia conducted, gives the patient a chance to recover lost function, which is the reception and transmission of speech. The smaller the degree of disability, the ability to communicate, the less chance of the occurrence of such frequent problems with the emergence of post-stroke depression syndrome. It is true that the huge success of therapy depends on the patient himself, but I think that thorough diagnosis, proper methodology, adapting the relevant techniques and tools, but above all commitment, us as speech therapists and faith in the success of therapy is an indispensable measure to obtain progression by the patient.

We work in different places, often we do not have expensive computer programs or assistance, but it does not relieve us of the responsibility we accept when a patient goes to us, that the world often crumbled to pieces.

More and more people suffer a stroke, almost 30% of these patients will have problems afatycznej. Occupation neurologopedy is a challenge for us, even speech therapists. We chose a profession that throughout the period of professional activity obliges us to raise the qualifications and track the latest scientific discoveries that can be used on the ground Neurologopedic therapy.

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