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*Speech re-education in patient with motor aphasia
in collaboration with family*

Circulatory system diseases are the main life risk diseases among Polish citizens and the citizens of other developed countries. In the majority of European countries mortality due to circulatory system diseases has been reduced since the mid of the seventies. At the same time in Poland the epidemic of these diseases has increased, particularly of those affecting masculine population. The main reason of death is the increase in the incidence of atherosclerosis and particularly ischaemic heart disease and vascular encephalopathies.

A chief problem and the symptom of this type of disease is aphasia, or a disordered verbal contact with others. The term aphasia (Greek: a-fasis – aphasia) has attracted interest of many scientists. There are many definitions of aphasia developed by specialists of various disciplines dealing with man and his higher psychical functions.

For over a hundred years of the history of studies on aphasic disorders no special classification has been developed which could be commonly accepted. Presentation of various proposals concerning the typology of the disorders can be found in the works of M. Taylor-Sarno.

The oldest and still widely used division was made by K. Wernicki. He distinguished sensor aphasia and motor aphasia. He based his research on the disturbance of neurological mechanisms. Quite early it has been realised that aphasia was not only connected with motor disorders or sensor disorders but it has more complex character. First of all the difficulties in expressing oneself do not necessarily have to be directly connected with motor activity disorders of speech organs. On the other hand, in case of so-called sensor aphasia the disturbance is not of the reception but rather the understanding of a statement no matter whether it was received through auditory passages or visual passages. Next, T.H. Weisenberg and K.E. Mc Bridge suggested the substitution of the term motor aphasia by expression aphasia and the sensor aphasia by a receipt aphasia. They wanted in this way to emphasise the fact that we mainly deal with the disorders in transmitting and receiving a statement.

The next attempt at classification of aphasic disorders was based on more objective criterion, i.e. the rate of speech. And so, two basic kinds of aphasia were distinguished: nonfluent aphasia characterised by considerable slowing down of speech rate and fluent aphasia – characterised by a quick rate of speech. Also the location of brain injury is not a sufficiently selective criterion because neuropsychological data indicate that there is no direct connection between the structure and such a complex function as the speech is. Only in 1915, an English neurologist H. Jackson indicated that the

site in brain injury is the place of the destruction and not the localisation of a definite function.

Aphasia is first of all the disturbance of the ability of using the language both in interpersonal relations and in internal procession of information. These skills are not identical in various people and this is conditioned on the one hand by different individual experiences; and on the other – by the differences in the structure of their brains. Thus the type of aphasia should be treated as some kind of general model within which various kinds of individual variants connected with the size and localisation of brain damage, fitness and the age of patient may appear.

In neurological practice a relatively great popularity was given to T.H. Weisenberg and K.E. Mc Bridge's classification that was based on the clinical analysis of speech disorder syndromes. The authors distinguished the following kinds of aphasia: motor aphasia (expression) – connected mainly with difficulties in speaking; sensor aphasia – when the disorder affects mainly understanding of the statement; mixed aphasia – when the disorders concern both speaking and understanding of a statement; amnesic aphasia – consisting in selective disorders of calling; global aphasia – when both speech and understanding of a statement is completely absent (4).

The influence of the disease on the functioning of a family is widely described in the medical literature and in social sciences. Diagnosis of the disease means usually an emotional discord and is a difficult test for the whole family system. The stress caused by the disease influences the interactions inside the family as well as the relationships with the environment. This crisis results in some changes of family functioning. Those changes, though to varying degree, concern all of the family functions. Here are some of them: a) material-economic function of the family means lowering of the material standard of living; b) changes taking place due to the disease concerning the contacts of the family with the environment and the way of spending free time that are part of the recreational-social function; c) emotional-expressional function of the family significantly gets changed under the influence of the disease of a family member.

The analysis of the literature concerning aphasia as the nosologic unit and its influence on the patient's health and family functioning implies that there are many new problems for treatment, rehabilitation and nursing care.

OBJECTIVE

The aim of the paper was the speech therapy, which was to lead to maximum integration of the patient with the society by solving the problem situation of the patient, i.e. the lack of verbal contact and family education in carrying on and continuation of the therapy .

METHOD

The presented paper is an example of speech therapy and family education in managing the patient with motor aphasia following the stroke. With relation to the present disorders the following diagnostic questions have been put forward: – what are the current verbal abilities of the patient? – how maximum integration of patient with the society can be achieved?

To answer the questions hypothetical solutions and forms of management have been adopted: - current verbal abilities of the patient are considerably reduced as compared to the premorbid state, i.e. without speech disorders;

- taking into account the beneficial factors, such as patient's age and clinical manifestation of the disease, by early beginning of speech re-education a considerable improvement of verbal functions can be achieved;
- family education on the maintenance of the results of speech therapy and development of an adequate attitude towards the problems of aphasic patient is foreseen.

In the process of verification of the above-mentioned hypotheses the following methods were used: analysis of the documents, qualitative case analysis, and interview with the patient's family.

The analysis of documents implies that the patient was 49 years old with secondary technical education, active professionally, married, and on December 12, 1999 he experienced a stroke. Then he was hospitalised in the Provincial Specialist Hospital in Lublin in the Department of Neurology with the neurological diagnosis confirming a medium size right-side hemiparesis with motor aphasia. CT imaging proved the ischaemic focus in the brain in the region of vascularisation of the left medium artery of the brain. USG test of vertebral and carotid arteries confirmed impatent left rear internal artery. In the remaining arteries the parameters of flow were without any significant haemodynamic disorders. It was proved that the vertebral arteries were patent with correct direction of flow (towards head).

Verbal activities were tested basing on the experimental-clinical tests according to the scheme of W. Ł u c k i neuropsychological test. Examination of verbal functions included: understanding of speech for carrying simple tasks, understanding of metaphors, phonematic hearing; automated speech (i.e. days of the week, sequences of numbers); repeating of: vowels, consonants, opposite syllables, word series, sentences; naming of real objects, objects in the pictures; telling a history, i.e. starting and producing of a statement, writing, reading; oral praxis. Testing of oral praxis means the evaluation of the skills for performing quick and precise movements of speech organs (e.g. showing and withdrawing of the tongue).

RESULTS

Testing of verbal functions was carried out during the third week following the stroke. At the time of defining the plan of speech re-education, the patient agreed to participate in the tests because he understood the purpose of that.

The patient maintained understanding of speech, automated speech, repeating of sounds, syllables and words and up to maximum three elements in a sentence and reading. The disorders were noticed in calling (of anomia character, i.e. difficulties in finding the proper words) and reporting speech as well as in writing in the form of elision, i.e. omitting of letters. The reported speech disturbances were seen in the fact that the patient could not start his statement.

Testing of oral praxis showed tongue inclination to the right side, limitation of its movement and falling of lips in the right corner. The patient's speech was incomprehensible, he articulated words with difficulty. He made a verbal contact eagerly within his possibilities. The patient's speech was incomprehensible and it resulted from the limitation of tongue movement, i.e. impossibility to protrude the tongue. The patient could walk well with the assistance of an elbow cane. The motor activity of the right hand was good as far as simple movements were concerned, writing was possible with the right hand, however there were considerable limitations of movement of the right upper and lower limb. The information provided by the patient's family indicated that the patient (husband) had felt tired after work and went to bed. In the evening he complained about his inability to move his right hand and his right leg and he started to speak incomprehensibly. The ambulance was called then. The report of the family indicated that the patient had had many hobbies, i.e. motorcars, gardening, walking with his dog and that he had not experienced any serious diseases. However, he smoked a lot, more than 30 cigarettes daily.

The obtained results of tests and biopsychosocial model of disease and treatment (i.e. a patient is the subject) were taken into account for planning the speech therapy and re-education of speech basing on a joint pedagogical and neurolinguistic method was suggested as the treatment method. In pedagogical method a great role is given to multiple exposure of the stimulus, which is reproduced by the patient in order to strengthen the exercised form. Neurolinguistic method – directly stimulating – it stimulates the patient to undertake attempts at communication by creating appropriate therapeutic situations, e.g. asking for help.

Speech therapy was carried out for 8 weeks. The sessions lasted maximum 25 minutes. Additionally the therapy period was divided into sub-periods with considering the weekly division. During the first and the second week there were exercises of oral praxis (horizontal and vertical movements of the tongue, exercises of lips) and stimulation within the first block of brain functioning. During the third and the fourth week there were introduced exercises for the right hand graphomotor functioning. The fifth and the sixth weeks – exercises in active vocabulary, which was strengthened in writing. The seventh and the eighth week – reading of short texts and discussing them.

During the therapy the patient's family actively participated in the carried out activities. The patient's wife repeated the exercises that had been performed on that day and she utilised the hints given by the therapist.

The performed speech re-education was based on the realistic strategy, i.e. for the patient to be able to continue independently on his own and in such a way as the practised skills were useful for communication to the most extent. The therapy resulted in a good verbal contact of the patient with the environment in giving names of things and expressing the needs. The patient's speech was clear (without any disorders) and comprehensible for the environment. The rate of speech was $V = 3.9$ syllable/sec. It was calculated by the formula: speech rate $V = \text{number of syllables} / \text{second}$.

For comparison, the speech rate of "normally" speaking man, i.e. without any disorders for a phonic sequence containing about 100 syllables is 4.0-4.5 syllable/sec for reported speech. This comparison of numbers implies that patient's speech rate is close to the speech rate before the stroke.

DISCUSSION

The problems connected with the social adaptation of people with aphasia require widespread dissemination of the information about aphasia and the related problems. However, their influence on those patients' family life was not studied. It is often assumed that the family adapts to a new situation with time. It was also noted that about one third of the families of stroke patients stated that "they could not adapt themselves yet" in spite of the fact that 2.5 years had passed from the stroke. Evidently the families of aphasia patients experience a great stress. It was confirmed that aphasia disturbs family life or just disorganises it completely. The families realise their own life and sudden occurrence of difficulties in communication, connected usually with decrease in income, caused considerable changes in the quality of life.

Many facts indicate that the problems connected with patients' re-integration grow with time. The difficulties with communication with family result in the fact that the closest family members feel confused and cannot correctly interpret the needs expressed by the patients.

Additionally, also the way of spending free time by the whole family gets disrupted. Also the roles played so far by the individual family members get changed. This leads to many emotional problems in the family.

In the family of the patient discussed in this paper the change of roles has taken place, i.e. from the person who provided the family with financial resources to the role of person benefiting from the

family means. Such change of position in a family is stressing for a professionally active man. Furthermore, the situation is worsened by the fact that the man has limitations with realisation of his interests.

CONCLUSIONS

The continuation of exercises with the family was recommended. The suggested exercises are the following ones:

1. Practising of oral praxis should be continued for at least four weeks.
2. Jointly reading with the patient of short texts from daily newspapers.
3. Brief reports (in several sentences) of the fragments having been read (paying attention to formulation of simple sentences).
4. Doing shopping together and encouraging the patient for asking about necessary products.
5. Solving of crossword puzzles within the patient's abilities.
6. Describing of events that have taken place during the day.

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SUMMARY

The presented paper is an example of family education in managing the patient with motor aphasia following the stroke.

The neurological diagnosis confirmed a medium hemiparesis on the right side. During the third week following the stroke, the re-education of speech was taken up basing on the new style of working with patient, i.e. biopsychosocial model of illness and treatment. In this aspect patient is the subject and the therapy is addressed to the patient taking into account his system of values with reference to the illness. The aim of the study – speech therapy – was achieving a maximum integration with the society by solving the problem situation of a patient, i.e. the lack of verbal contact. Speech therapy

was performed for 8 weeks and it applied pedagogic and neurolinguistic methods of therapy. The sessions were held every day for maximum 25 minutes. At the final stage of speech re-education the patient had a good verbal contact with the environment.

Reedukacja mowy u pacjenta z afazją motoryczną we współpracy z rodziną

Prezentowana praca to przykład edukacji rodziny w postępowaniu z chorym z afazją motoryczną po udarze mózgu. W rozpoznaniu neurologicznym potwierdzono średniego stopnia niedowład połowiczny prawostronny. W trzecim tygodniu od wystąpienia udaru podjęto reedukację mowy, opierając się na nowym stylu pracy z pacjentem, tj. biopsychospołeczny model choroby i leczenia. W tym ujęciu pacjent jest podmiotem, a terapia jest adresowana do chorego z uwzględnieniem jego systemu wartości w zakresie odnoszącym się do choroby. Celem pracy - terapii mowy było doprowadzenie do maksymalnej integracji ze społeczeństwem poprzez rozwiązanie sytuacji problemowej chorego, tj. brak kontaktu werbalnego. Terapia mowy prowadzona była przez osiem tygodni i zastosowano w niej metody pedagogiczne i neurolingwistyczne. Zajęcia odbywały się codziennie w czasie do 25 minut. W końcowym etapie reedukacji mowy pacjent miał dobry kontakt werbalny z otoczeniem.