

Beginning of a person's life path after a stroke

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Abstract

Beginning of a person's life path after a stroke. – The paper offers the reader an insight into the complexity of human life after a stroke. It provides basic orientation in stroke, explains the importance of therapeutic care for the affected person and the role of speech therapy. The aim of the research project is to verify the effect of robotic therapy in patients after stroke with spastic paresis of the hand to alleviate spasticity. Another research aim is to improve the gripping functions of the hand during graphomotor exercises with the consequent effect of the development of communication skills in affected individuals with aphasia. It also deals with the role of family members, who are an important part of the team and who are very emotional and physically supportive after a stroke.

Keywords: stroke, person after having a stroke, spasticity, robotic therapy, grafomotorika, aphasia, family

Klíčová slova: cévní mozková příhoda, osoba po cévní mozkové příhodě, spasticita, robotická terapie, grafomotorika, afázie, rodina

Our life journey is often, unpredictable, full of optimism or pessimism, disappointment, pain and anger, but also joy, love and satisfaction. Often we cannot appreciate the beautiful moments we experience, but instead we stress about the little things or fall into depression. We prefer a career over a family, a job over a free time. We cannot relax, enjoy family time or our hobbies. We have little movement, inadequate eating. Complex interpersonal relationships affect our lives, in the family, at school, at work. Only when our body says enough and there are health problems that we underestimated, does the lightning strike. This was described by a colleague who had a stroke during an intense work situation, after experiencing long-term chronic stress. Suddenly, life turns upside down and unpredictable fate strikes not only our loved one, but their family, friends, acquaintances and colleagues.

Finding a new beginning of a life path for people after a stroke is challenging, this essay will examine life not only for the people who have experienced the stroke, but also their family members and their immediate surroundings. The healing process can be affected by the age of the individual, the support of the loved ones, the effort to heal, motivation and personality traits.

In the Czech Republic, after heart attacks and cancer, stroke is the third leading cause of death. Those who survive it often struggle with lasting consequences. Usually, there is a loss of function due to insufficient cerebral flow, where brain tissue suffocates in a limited area. From that moment, it is not possible to move, express oneself and in other cases, to understand speech and along with other unpredictable complications. The people of the

different age groups that are affected must cope with a change in life, not only physical but also psychological. Healing is sometimes very long, demanding and even endless.

A stroke is one of the most common diagnoses found amongst rehabilitated persons who require speech therapy, physiotherapy and ergotherapy. Rehabilitation should help independent walking and aid in the development of learning new techniques to help the person regain self-sufficiency. In addition to targeting movement disorders, speech, cognitive and mental health disorders should also be treated. The most common systemic speech disorder is aphasia, a severe disturbance in word expression, speech comprehension, reading and writing. The disabled, in these circumstances, experience enormous social isolation. The extent of brain tissue damage determines the length and outcome of treatment. Rehabilitation of the handicapped is performed in various outpatient medical facilities (hospitals, rehabilitation institutes, long-term care centers, rehabilitation centers) and non-medical facilities, as well as at home.¹

Statistically, approximately one third of people who suffer from a stroke return to having the same abilities and lifestyle they had before the stroke. Half of those affected by a stroke who are under the age of 65 are able to return to work. More than two thirds of individuals who survived the first year of life after stroke are completely independent of the help of others. Additionally, 70–80 % are able to walk, eat independently and dress. Furthermore, about 80 % of survivors under 40 years of age return to active work. For people who have other serious illnesses such as diabetes and problems with heart and kidney function, convalescence is greatly complicated.² Up to 70 % of people after a stroke recover completely if doctors start their treatment within an hour. A network of stroke centers in the Czech Republic help to reduce the number of stroke victims. It is essential to recognize early warning signs such as slurred speech, unilateral paralysis of limbs and dropping of the corner of the mouth.

The impact of speech therapy in people affected with aphasia is the subject of detailed research.³ From my own experience I know how important it is to read, sing with the affected person, repeat the days of the week and months of the year, view photos of family members and gradually introduce memories from childhood, starting to participate in hobbies, attending pleasant events and activities with relatives. A loving, positive and patient approach is important.

The aim of this research project is to verify the influence of graphomotorics on the development of communication abilities in people after a stroke with a severe degree of

¹ Cf. HERZIG, Roman. *Ischemické cévní mozkové příhody*. Praha: Maxdorf, 2008; FEIGIN, Valery L. *Cévní mozková příhoda: prevence a léčba mozkového iktu*. Praha: Galén, 2007.

² FEIGIN, Valery L. *Cévní mozková příhoda: prevence a léčba mozkového iktu*.

³ Cf. BASSO, Anna, MACIS, Margherita. Therapy efficacy in chronic aphasia. *Behavioural Neurology*, 2011, 24 (4), pp. 317–325; CHERNEY, Leora R., PATTERSON, Janet P., RAYMER, Anastasia M. Intensity of aphasia therapy: evidence and efficacy. *Current neurology and neuroscience reports*, 2011, 11 (6), pp. 560–569; BHOGAL, Pervinder, BOOTH, Thomas, PHILLIPS, Alexandria J., GOLDING, S. J. Radiology in the undergraduate medical curriculum – Who, how, what, when, and where? *Clinical Radiology*, 2012, 67 (12), pp. 1146–1152.

aphasia. A special role is played by the pedagogy diagnostics of fine motor skills,⁴ which is carried out in probands at the beginning of the research.

Based on the results, the following is the methodology of graphomotor development, namely the development of neuromuscular coordination, visuomotor, sensorimotor and support of writing skills.⁵ The graphomotoric test is composed of ten aspects, it is time-limited, the quality of shape imitation is evaluated and line continuity and speed are monitored. The graphomotoric test is given to both research groups of probands at the start of the research period, after 6 months and after 12 months.

Using the Extended Barthel test (Extended Barthel Index /EBI/)⁶ and Cognitive Function Test – Mini Mental State Exam (MMSE)⁷ and the resulting changes in quality of life (QOL) of persons with strokes, we will also focus on basic therapeutic procedures in aphasia, including activation, symptom-specific and consolidation⁸ of the assessment of self-sufficiency in daily life activities with motor function as the focus. Qualitative research is represented by an analysis of medical documentation, video recordings and interviews with family members.⁹

We come into contact with the target group of planned research in the Regional Hospital Kladno a. s., in the rehabilitation department, in the Rehabilitation Institute Kladruba, where we have been working with interdisciplinary teams for two years. We are interested in approaches and therapies that can improve the quality of life of stroke patients.

We study rehabilitation and special pedagogical approaches that lead and can lead to an improvement in the impaired function of their hand, to the correction of impaired communication ability, mental and emotional state and to their general health, thus contributing to their return to work and social life. The research is carried out in two research groups of probands. In the first basic research group, there are twenty people aged 50 to 75 years who are diagnosed with ischemic stroke (iCMP) after the first five weeks of rehabilitation at the Kladno Regional Hospital. In this group, robotic rehabilitation has been added using Gloreh Professional II, because robotic assisted rehabilitation is the current world trend and in the Czech Republic in antispastic therapy with promising results.

⁴ Cf. OPATŘILOVÁ, Dagmar, ZÁMEČNÍKOVÁ, Dana. *Možnosti speciálně pedagogické podpory osob s hybným postižením*. Brno: MU, 2008.

⁵ *Ibid.*; OPATŘILOVÁ, Dagmar. *Pedagogická intervence v raném a předškolním věku u jedinců s mozkovou obrnou*. Brno: MU, 2010.

⁶ PROSIEGEL Mario, BÖTTGER Stefanie, SCHENK Thomas et al. Der erweiterte Barthel-Index (EBI) – eine neue Skala zur Erfassung von Fähigkeitsstörungen bei neurologischen Patienten. *Neurologie und Rehabilitation*, 1996, 2, pp. 7–13; POKORNÁ, Andrea. *Barthelové test a další objektivizující škály v ošetrovatelství* [online prezentace]. Praha: ÚZIS ČR, 7. 11. 2017 [cit. 2019-09-01]. Dostupné z WWW: https://www.uzis.cz/res/file/akce/20171107-klasifikon/2017-11-07-16_pokorna.pdf.

⁷ FOLSTEIN, Marshal F., FOLSTEIN, Susan E., MCHUGH, Paul R. Mini-mental state: A practical method for grading the cognitive state of patients for the clinician. *Journal of Psychiatric Research*, 1975, 12 (3), pp. 189–198.

⁸ HUBER, Walter, SPRINGER, Luise, WILLMES, Klaus. Approaches to Aphasia Therapy in Aachen. In HOLLAND, Audrey L., FORBES, Margaret M. (eds.). *Aphasia Treatment: World Perspectives*. Boston: Springer, 1993, pp. 55–86; CSÉFALVAY, Zsolt. *Terapie afázie – Teorie a případové studie*. Praha: Portál, 2007.

⁹ HENDL, Jan. *Kvalitativní výzkum*. Praha: Portál, 2016.

The effect of robotic therapy in patients after a stroke with spastic paresis of the hand on alleviating spasticity and improving the grasping functions of the hand during graphomotor exercises will be verified with the consequent effect of developing communication skills in people after a stroke who have a severe degree of aphasia. The second control research group consists of twenty individuals aged 50–75 years diagnosed with ischemic stroke (iCMP) after the first five weeks of rehabilitation at the Kladruby Rehabilitation Institute without using robotic hand spasticity rehabilitation. The results of the research will answer the following research questions: whether robotic therapy in patients after a stroke with spastic paresis of the hand will alleviate spasticity and improve the grasping functions of the hand during graphomotor exercises; and whether the graphomotor exercises will affect communication skills of people diagnosed with a stroke.

The journey back to everyday life is extremely challenging and requires great will, love and patience from the individual after CMP and their immediate surroundings. Family members ideally cooperate with the entire interdisciplinary team that seeks to reintegrate the individual after a stroke into normal life. It is necessary to perform an initial examination, assess the condition and estimate the individual's potential for improvement. The most important thing is to set realistic goals with a person after the stroke and create individual therapy plans. Family support for the disabled is extremely important in this period.¹⁰

After suffering from a stroke people have the option of either resigning their life to their medical condition and becoming a lifelong patient, sometimes because none of their family and relatives can help them. The second option is that they accept their disabilities and return to an active life, of course with achievable goals that will motivate the person after the stroke. Often there are wishes that they want to fulfill as soon as possible, such as dedicate themselves to children, grandchildren, drive a car again, attend theater performances, engage in their favorite sport or work in the garden. But it must be an achievable goal, or at least one that is as close as possible. However, without the help of family members, the return of a person after a stroke to normal life is very difficult.

Meeting of people after a stroke in clubs, community centers, neurorehabilitation centers seems to be an effective way to help people at present. Here they solve similar problems that make it difficult for them to return to normal life, share their experiences, help each other, motivate and support each other. Group therapy appears to be very beneficial for individuals after strokes. There are also specialists in speech therapy, ergotherapy and psychotherapy. The feeling that these people after a stroke are not alone motivates them to take the next important step.

The aim is to find a new beginning of a life course for a person after a stroke.

Live every day!

¹⁰ ŠVESTKOVÁ, Olga. Neurologie pro praxi: základní principy současné neurorehabilitace. Neurologie pro praxi [online]. Klinika rehabilitačního lékařství 1. LF UK a VFN Praha, 2013, 14 (3), 136–139 [cit. 2019-08-31]. Dostupné z WWW: https://www.neurologiepropraxi.cz/artkey/neu-201303-0006_Zakladni_principy_soucasne_neurorehabilitace.php.

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