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Rehabilitation after ischemic stroke in the elderly

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Abstract

Introduction

The article is an attempt to assess the effectiveness of various physiotherapeutic methods in people after ischemic stroke in the elderly, because rehabilitation has been shown to be an indispensable element of the treatment of these people. The range of methods used is a broadly understood concept, and this article will present the most effective reports from the world of physiotherapy on how to rehabilitate patients after a stroke.

Aim

The aim of the article is to characterize given methods as therapies, to indicate applications in rehabilitation and to assess their effectiveness.

Methods and materials

The most commonly used methods for patient improvement are NDT-Bobath, a Kabat proprioceptive pathway method (PNF). The basic therapy for the elderly after an ischemic stroke should be carried out with support for motor imagining. This article uses pilot and review works from 1986-2017.

Results

The presented methods of improving NDT Bobath, PNF and motor imagery are more effective in the treatment of people after ischemic stroke in the elderly than traditional methods of treatment. Research that was used for the purposes of this article conducted in the years 2009-2015 prove the effectiveness of these methods.

Conclusions

Based on the research carried out so far, the effectiveness of the given methods on the process of rehabilitation of a patient after a stroke can be confirmed. The use of both basic therapeutic and supportive methods at the same time gives beneficial results than using them alone.

Key words: rehabilitation, stroke, neurorehabilitation

INTRODUCTION

A stroke is the under World Organization for a clinical syndrome characterized by a sudden onset of a focal, and sometimes also generalized brain dysfunction, the symptoms of which persist longer than 24 hours or until death and has no purpose. 80-85% of all ischemic strokes.

Stroke third in time with full deaths in development after cardiovascular disease and cancer.

Factors leading to pathological processes, while ischemic stroke is arterial or complete blockage of blood supply to the brain, the effects lead to hypoxia, the effects lead to damage to nerve cells [1,3].

The most important ischemic stroke is disability or weakness, sensory disturbance, involuntary movements, chorea movements, sensory and motor aphasia, maladjustment disorder [1,2].

Rehabilitation of people after ischemic stroke.

Rehabilitation of a person after ischemic cerebral stroke can take place already in acute disease [4,5]. In the early stage of rehabilitation, the chances of recovery are accelerated and other problems related to immobilization, such as bedsores, respiratory system diseases, are exposed [4].

During the early rehabilitation period, one obtains from discussion in the forum of actions, hence the risk of later complications from movement. Complications such as:

- contractures
- limitation of space in the joints,
- spasty or laxity [6].

Rehabilitation is based on kinesiotherapy. In patients with paralysis, the Proprioceptive Neuromuscular Facilitation (PNF) (PNF) [7] and the NDT Bobath (NDT, Neuro-Developmental Treatment), derived from the neurodevelopmental theory, are used [8,9]. An additional form of motor improvement is the use of the motor imagining method in rehabilitation [14].

The aim of this article is to review and characterize the above-mentioned methods of rehabilitation in people after ischemic stroke and to evaluate their choice.

For this purpose, the method, concepts and techniques of given methods were presented, and then their therapeutic value in physiotherapy was presented.

Proprioceptive Neuromuscular Facilitation (PNF)

PNF, or proprioceptive priming, is a method that is returned by physiotherapists when working with patients after ischemic stroke.

The PNF method is based on the philosophy of the therapist's positive attitude towards the patient. The therapy should be painless, there should also be intensive training with extensions, diversified by the change of activity and activities that the patient will perform. The patient's goal is related to the activities of everyday life. Dressing up. During operation, control during the design of PNF, motor properties occupied during stroke areas. The therapist's cash movements are functional levels, i.e. paid daily services. The patient exercises paralyzed and healthy limbs, which affects the transmission of impulses through the nerve pathways.

Due to the variety of techniques and movement patterns, PNF allows individual work with the patient, taking into account the stage of the disease and what is important for the patient. In the work of the PNF method, it is possible to combine the individual movements into one whole, and thus the whole body is involved in the therapy.

Movement patterns:

- depression of the scapula
- blade elevation
- pelvic depression
- pelvic elevation
- pattern for the upper limb
- pattern for lower limb from abduction to rotation of parts, from addition to internal rotation

In 2009, Wolny et al. Assessed the effectiveness of PNF in the late period of the post-stroke method. There were 64 participants in the group, they were divided into groups A and B. In group A, the group of patients was improved with traditional methods. In group B, the rehabilitation program sought individual kinesiotherapy based on the PNF method. The use of PNF in improving the pp stroke method in the late period significantly influenced the improvement of quality and everyday activities. This goal can be achieved both through traditional forms of improvement, as well as selected methods of PNF patterns, greater efficiency.

Fedak et al. Assessed researchers on the basis of posturographic research. The study group consisted of 32 stroke patients who underwent a 12-week PNF rehabilitation method. Their results concluded that the results of physiotherapy relate to the improvement in standing position in patients after stroke, which is confirmed by the results of posturographic examination.

NDT Bobath (neurodevelopmental treatment)

NDT BOBATH (Neuro-Developmental Treatment Bobath), the creators of the children's rehabilitation method and Bobath for adults were Berta - a physiotherapist and Karel Bobath - a pediatrician and surgeon. They assumed that the prevalence of problems related to the problems of the nervous centers is a problem related to the pathology of postural reflexes, spatial coordination and environmental control [10].

Overnight inhibition of posture patterns is the place to tighten muscles as well as active movements. Braking is changing the position of the head, pelvis, shoulder joints, hip joints and wrist, foot and fingers. [10,11] The therapy should be carried out in a painless manner, individual assistance to the patient depending on his abilities and limitations.

The adult Bobath concept is played on some terminology:

- *placing* - repetition of movement after the therapist, programs for consolidating incorrect movement norms
- *guiding* - requesting N to execute motion requests to show the access activity
- *keep* - stopping a given movement for a few seconds, used in the case of reduced muscle tone
- *alignment* - correct positioning of individual body segments in relation to each other in a straight line
- *approximation* - development of the inflow of sensory stimuli to the joint through pulsating movement
- *fixing* - abnormal movement made by the patient
- *associated movements* - unconscious movements by the patient's sides, caused by stimulation of motor units

The method is described in 4 stages of exercise, everything depends on your health:

The first stage, early stage, is applied immediately after the onset of illness, when paralysis and paresis are characterized by flaccidity, here attention is paid to putting the patient in different positions. It is recommended to change positions every 2 hours. Also important at this stage are exercises including classes, walking, improving the upper and lower limbs, and compensating exercises.

In the second period, the spasticity aggressor at this time, rehabilitation of the patient consists in the fact that he passes through the patient exercises in a sitting and upright position, gradually moving to walking.

The third stage is focused on locomotion and exercises for the upper limbs.

The fourth stage is a continuation of the improvement of the hand function.

Mikołajewska in 2013. She examined 60 patients after ischemic stroke. She assessed the results of rehabilitation using the Bobath method in gait reduction. Patients showed very good results in terms of walking speed, pace and two-step length. She also noticed positive changes in her health through gait parameters and treatment. [12]

In 2015. Garcia et al. Conducted experiments of the rehabilitation stage of the Bobath method in 24 patients after stroke. A portrait of Bobath rehabilitation was applied for 3 weeks individually during 45-minute meetings with a therapist. Improvement results when walking on short distances, over a variety of surfaces and around obstacles. [13]

Motor imagination

When it is possible to perform a movement, i.e. to induce muscle tension, difficulties, is painful or simply impossible to perform, the therapy should be supported by the use of the movement imagining technique, later called mental training or movement simulation. The concept behind this is the activation of the brain's control centers for imagining and planning movement such as the pre-motor cortex, primary motor cortex, motor field and prefrontal cortex [14]. During the physical movement of the movements and the motor simulation of the stroke to excite these brain centers. The possibilities offered by such adjunctive therapy depend primarily on the location and extent of brain damage resulting from a previous ischemic stroke.

Before starting the mental training for training, that the patient understands, the therapist talks to him and is able to focus attention on the activities performed. In order to define the patient's understanding of the concept of motor imagery, commands should be given using words such as: *"finding to imagine that you are reaching for the cup", "[...] comb your hair with a comb", "[...] you open the cupboard"* [14] because the goal of therapy is to restore the lost functions and activities of everyday life or to partially facilitate the provision of them. Thanks to these commands, the patient is able to imagine a specific movement and it is on this that he focuses his full attention, although physically not politely in this movement, be happy.

Movement simulation can be developed by adding other senses, namely, you can recommend imagining the fractal and sound of a given object, the sound that accompanies it. It stimulates the offer of the brain centers.

Patients after ischemic stroke often suffer from disability in the form of paresis. Research that has been used, researching, researching that has been used, researching, researching, researching, researching, researching, researching, researching, researching, researching, reading the pages of a book and holding a pen [15].

Puncture condition who have lost their gait input, hold and balance after a stroke. In a pilot study by a group of researchers, it was proved that adding movement simulation to training gives higher test results in gait rehabilitation and maintenance of powers. The results of the study in the control group, where only physical training was carried out, and in the research group, where for physical training, the research group, where physical training took place. Test measures used for Berg Balance Scale, Timed Up and Go test, technical test, as well as Four Square Step test [16].

Research on the experience of using a phantom hand from 2012, a stroke during imagining a motor stroke to induce an active parietal cortex during physical exercise [17].

Previous studies confirming the results of research and the use of physical research results from the application of alternative research on this research, which may better match the results of research on this research, in order to be able to better illustrate and explain the meaning of therapy [18]. In addition, it is worth seeing studies on the phenomenon of neuroplasticity after stroke and the correlation between physical and mental training in women, to give this supportive therapy greater clinical significance.

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