Korabiusz Katarzyna, Stecko Monika, Wawryków Agata. Multiple sclerosis - an overview of the most commonly used methods of physiotherapy. Journal of Education, Health and Sport. 2020;10(8):408-412. eISSN 2391-8306. DOI http://dx.doi.org/10.12775/JEHS.2020.10.08.049
https://apcz.umk.pl/czasopisma/index.php/JEHS/article/view/JEHS.2020.10.08.049
https://zenodo.org/record/4007117

The journal has had 5 points in Ministry of Science and Higher Education parametric evaluation. § 8. 2) and § 12. 1. 2) 22.02.2019.

Received: 01.08.2020. Revised: 05.08.2020. Accepted: 29.08.2020.

Multiple sclerosis - an overview of the most commonly used methods of physiotherapy

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Abstract

Multiple sclerosis (Latin sclerosis multiplex, MS) is a chronic demyelinating disease that requires comprehensive and continuous physiotherapy. Its most common symptoms are spasticity, balance disorders, ataxia, tremors, limited range of joint movements, decreased muscle strength, neurogenic bladder dysfunction, dysphagia, and speech disorders. The aim of this study is to describe the most commonly used methods of physiotherapy that are used in multiple sclerosis, based on the available literature.

Key words: SM, multiple sclerosis; functional rehabilitation; physiotherapy; spasticity

Introduction

People suffering from multiple sclerosis require the care of a multi-person team of specialists, which includes a neurologist, physiotherapist, urologist, physiotherapist, occupational therapist, psychologist, community nurse and carer. Each member of this team performs an independent patient assessment to create a program to improve the patient's quality of life. Comprehensive rehabilitation should include both movement problems, as well as psychological and social problems reported by the patient. The aim of improving the mobility of patients with MS is to improve their muscular strength and general physical condition, to compensate for coordination disorders, to maintain the full range of active movements in the joints, to normalize muscle tension, to maintain balance, to prevent muscle atrophy, and to counteract fatigue [1].

It should be emphasized that there is no uniform method of rehabilitation of patients with multiple sclerosis. It is assumed that this rehabilitation should be comprehensive and deal with motor, psychological and social problems. It should be carried out continuously, but the patient should not be exhausted by the applied physiotherapeutic methods [2].

The main motor problems include muscle weakness (paresis), increased muscle response to stretching (spasticity), balance disorders, ataxia, dysarthria, fatigue, limited mobility in joints, pain and micturition disorders [3].

Social and psychological problems manifest themselves in the form of low self-esteem, anxiety, depression, cognitive disorders, concentration disorders, inability to relax in stressful situations. Additional stress is caused by problems with self-service, frequent need to change jobs and acceptance of needed help related to disability. Properly conducted psychotherapy should take place at every stage of the disease. It is indispensable in controlling shock after diagnosis, it helps to cope with exacerbation of the disease and helps in the period of increasing disability, deteriorating material and social status [4].

The intensity of rehabilitation depends on the period of the disease - the stronger the relapse, the lower the intensity of exercise. In the chronic period, the best place for rehabilitation treatment is the patient's home. Physiotherapeutic techniques and methods should be selected individually and take into account the general and neurological condition of the patient and his ability to cooperate [5].

Daily rehabilitation should also include the recognition of the sense of the position of one's own body - standing or sitting, and even lying down, because the disturbances of deep sensation, so common in multiple sclerosis, hinder all phases of rehabilitation. You should remember about daily breathing exercises, and in patients who have problems with urinary incontinence, you should also pay attention to training the muscles of the buttocks. Avoid overheating your body while exercising. Elevated temperature can increase spasticity and worsen fatigue. Therefore, exercise in a cool, well-ventilated room, and alternate dynamic exercises with breathing and relaxation exercises (eg at a rhythm of 15–10–15 minutes) [6]. To achieve the intended goal, the patient should be fully aware of the reasons for his disability. The complete picture of disability is established with the help of functional tests performed before the start of therapy; they are also a test of its effectiveness [7].

The physical exercises included in comprehensive rehabilitation include:

- stretching exercises to increase muscle flexibility and range of motion in joints and to reduce spasticity;
- dynamic exercises, increasing muscle strength, improving tissue nourishment by strengthening the muscular-vascular pump, improving the overall condition and endurance and immunity of the body;
- breathing exercises, increasing the efficiency of the respiratory system, relaxing and increasing the effectiveness of dynamic exercises;
- balance exercises, improving balance, facilitating self-control over the body and stability while moving;
- coordination exercises, improving coordination of movements, which facilitates movement and eliminates excessive energy consumption caused by lack of coordination;
- active exercises, which should be performed with unloading (either in a relieving position or in a weight-block system), should be repeated by the patient, not allowing fatigue to build up [8].

The most frequently used form of rehabilitation of choice is functional rehabilitation with three-dimensional movements simultaneously. Thus, the most advisable methods seem to be the use of proprioceptive neuromuscular facilitation (PNF) or Neurodevelopmental Treatment (NDT Bobath) methods. These methods can be used interchangeably [9].
In proprioceptive neuromuscular facilitation (PNF) and NDT Bobath (neuro developmental treatment) methods, the basis of therapeutic action is restoring the natural human movement [10].

The primary purpose of PNF is to improve impaired function. According to this concept, the patient is seen as a whole, and the therapy uses strong and healthy regions of the body. In PNF, patterns of complex movements are used, and in this way, the treatment carried out allows for full use of the body's reserves, motivating for further action and ensuring painless work. PNF enables exercises in various positions, also on a mattress, improves gait and enables the exercise of facial muscles, as well as the functions of breathing, chewing and swallowing. It should be emphasized that in this method it is the patient who determines the scope and limits of the action, and thus sets further goals of this therapy [11].

The purpose of the NDT Bobath method is to understand the physiological development of a person. The therapist teaches the patient the global movements observed in everyday life, thus preparing him to perform specific activities, for example, changing the position of the body in a lying, sitting and standing position. According to the authors of this method, each movement pattern has its own postural system from which it can be initiated, carried out and effectively controlled. Thus, for the movement to be correct, it must be in the correct body position. All movement patterns are discussed with the patient before starting movement to avoid spontaneous pathological compensation [12].

Learning about everyday activities is essential in rehabilitation. It depends on the possibilities of the patient's environment.

The therapist should facilitate the disturbed functions of the patient by using techniques that teach movement, coordination, stabilizing, relaxing, analgesic and other treatments. Often, even a slight improvement in function is enough to mobilize the patient to further effort [13].

Currently, it is assumed that during the MS relapse, the patient most often remains in the hospital, and his rehabilitation is limited to individual exercises, which should include: frequent changes in the patient's body position in bed (every 2-3 hours), breathing exercises (exhalation), careful limited passive exercises, self-service exercises in bed. It is important in the rehabilitation of people with multiple sclerosis to prevent fatigue with effort, unpleasant fatigue or accompanying sweating, shortness of breath, pulsation in the temples, headaches and muscles, redness or soreness of the skin or sleepiness. Rehabilitation is contraindicated in relapses, inflammation, circulatory failure, severe exhaustion, and disturbed consciousness. It is important in this disease that rehabilitation should start as early as possible, as it is easier to prevent contractures than to eliminate them [14-15].

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