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Is progressive muscle relaxation effective in alleviating psychophysical disorders?

Czy progresywna relaksacja mięśni jest skuteczna w łagodzeniu dolegliwości psychofizycznych?

Summary

Contemporary medicine requires holistic approach to the patient. The more and more attention is paid to involve patients in the process of alleviating symptoms, including psychological aspects of the disease. Conventional methods are supplemented with additional activities as becoming popular relaxation, both physical and mental. This paper covers 20 source materials on the application of this method in various fields of medicine. The objective of this paper is to evaluate the effectiveness of progressive muscle relaxation as an supplementary method in alleviating psychophysical disorders.

Key words: progressive muscle relaxation, mental and physical disorder

Streszczenie

Współczesna medycyna wymaga holistycznego podejścia do pacjenta. Coraz powszechniejsze staje się angażowanie chorego w proces łagodzenia dolegliwości, z uwzględnieniem aspektów psychologicznych choroby. Konwencjonalne metody uzupełniane są o dodatkowe działania, m.in. progresywną relaksację mięśni wg Jacobsona. Poniższe opracowanie obejmuje 20 materiałów źródłowych, dotyczących zastosowania w/w metody w różnych dziedzinach medycyny. Celem pracy jest ocena skuteczności wspomnianej metody w dolegliwościach psychofizycznych.

Słowa kluczowe: progresywna relaksacja mięśni, dyskomfort psychofizyczny

Introduction

A modern approach to the treatment of various medical disorders requires a holistic attitude. In addition to surgical and pharmacological interventions, more and more attention is paid to the possibilities and abilities of patients, in order to activate them in the recovery process. Involving patients in the process of alleviating symptoms, including psychological aspects of the disease, is becoming increasingly common. Conventional methods are supplemented with additional activities as becoming popular relaxation, both physical and mental. Undoubtedly, one of the key techniques constituting a fundamental tool in alleviating psychological and physical stress is progressive muscle relaxation.

Material and methods

Progressive muscle relaxation is increasingly used as a supplement to the healing process in both psychology and medicine (Bertish et al. 2009). The objective of this study was to analyze the possibility of using PMR and its effectiveness in various areas of mental and physical discomfort. This is a review paper which synthesizes the research papers describing different areas in which progressive muscle relaxation has been used. To select useful source materials the database, Pubmed, was used, and the key words were: progressive muscle relaxation, relaxation according to Jacobson, psycho-physical discomfort, pain, psychosomatic ailments.

In the holistic care of patients, some alternative practices, are more likely to be used.

The method which is becoming very popular is relaxation, both physical and mental. Undoubtedly, one of the fundamental tool in alleviating psychological and physical stress is progressive muscle relaxation. The author of the method was Edmund Jacobson (1888-1983), an American physician, who conducted research on the chemical and electrical nerve conduction in the muscles, and showed that physical relaxation largely affects mental relaxation. The essence of the method is alternating controlled tension and relaxation of different muscle groups. As a result of its regular use, a new habit, i.e. the ability to relax automatically muscles, is acquired (Payne 2005).

These methods are intended to strengthen the capacity of the mind to influence the functioning of the body. Each disease is an extremely stressful phenomenon, therefore all methods reducing discomfort are gaining in popularity. Among the diseases and disorders in which PMR is most commonly used are pain, hypertension, asthma, insomnia, and mood disorders such as, for example, anxiety and depression (De Berry 1981)

Among different areas of medicine, cardiac diseases are those which are believed to have an important psychological factor. Even the term psycho-cardiology is being used (Sobczak et al. 2011). Due to this phenomenon it is possible to supplement the treatment with psychological activities which have an obvious impact on physical functioning of patients. This view seems to be shared by the team Sheu et al., who analyzed the effect of progressive muscle relaxation on hemodynamic parameters in patients with hypertension. A 4-week program including daily practice of relaxation at home resulted in an immediate reduction in heart rate (an average of 2.35 beats/min), systolic blood pressure (5.44 beats/min.) and diastolic blood pressure (3.48 beats/min.). The effectiveness of training was long-lasting, as once the trial had finished, the reduced pressure and heart rates were maintained (Sheu et al. 2003).

Psychological and physiological factors as well as cardiac effects in ischemic heart disease were the subject of Witheb and Dixhoorn's studies. Analysis of the impact of various lengths relaxation training, including progressive muscle relaxation showed that among physiological parameters resting heart rate decreased, heart rate during activity increased, as well as exercise tolerance and the HDL cholesterol level, too. Psychological factors also improved. The anxiety level as a state was minimalized, and so was the intensity of depression, also the incidence of cardiac events (arrhythmia and myocardial ischemia) was lower (Dixhoorn, Whiteb 2005).

Attempts to evaluate the effectiveness of relaxation, based on PRMs in patients with an acute phase after myocardial infarction were undertaken by Lowe et al. They com-

pared two experimental groups, one used the Feldenkrais Method and the other progressive muscle relaxation, and a control group. Both interventions were assessed as subjectively effective in improving physical well-being and the quality of life declared as compared with the control group, although the results were not statistically significant (Löwe et al. 2002).

Ability to cope and relieve the discomfort associated with respiratory diseases was verified by Freedberg et al. They found that progressive muscle relaxation according to Jacobson was an intervention that was increasing the patient's sense of control over the intensity of the symptoms associated with asthma. These results suggest that the use and effectiveness of that kind of relaxation is a way of coping with fear in the case of patients with its high and moderate intensity (Freedberg et al. 1987).

Another common respiratory disease characterized by a high level of anxiety and symptoms of shortness of breath, limiting comfortable functioning is COPD - chronic obstructive pulmonary disease. Studies conducted on a group of patients with COPD who underwent a four-week program to learn and practice PRM showed that this method was effective in relieving anxiety, shortness of breath, reducing heart rate after each session, and only the breathing rate per minute remained lower at the end of the study (Renfroe 1988).

The occurrence of various disorders are also associated with mental and physical diseases affecting the motor system, e.g. rheumatic diseases. Scandinavian researchers present an example of patients suffering from rheumatic arthritis who underwent a 10-week training of progressive muscle relaxation (Lundrøgen, Stenström 1999). The study examined the scale of the quality of life dependent on health, the state of muscle function, feelings of pain and physical activity during disease. As a result of participation in the program, patients declared greater self-efficacy and more frequent activity. Their range of movement improved as well as the muscle function of upper limbs six months after the training program. One year after the training program there was no change. The authors suggest that the 10-week program provides short-term effects in individuals taking part in it.

Comparison of cognitive-behavioral therapy, which can include PMR, with standard treatment was conducted in patients with rheumatoid osteoarthritis (Leibing et al. 1999). The following parameters were checked: pain (intensity and emotional reactions), psychological symptoms, coping strategies, and activities undertaken during the illness. The improvement was achieved in the strategies of coping with pain, emotional stability, also the motor impairment was reduced.

Osteoarthritis is a common disease among the elderly, giving many unpleasant sensations of pain and functional limitations. In his study Baird examined frequency of pain and mobility limitation in female patients suffering from degenerative arthritis who participated in a progressive muscle relaxation program with visualization. After completing the 12-week relaxation program, in the experimental group there were a reduction in pain intensity and an increase in the subjects' mobility, while in the control group there were no significant changes (Baird 2004).

Since older people suffer from many ailments, they feel great psycho-physical and social stress. This issue has been the subject of de Berry's analysis. A group of women

aged between 65 and 84 years were divided into two groups: one participating in a 10-week training program of muscle relaxation, and the other was a control group. The factors selected for study were: anxiety, perceived muscle tension, sleep disorders and headaches. The final survey which took place 10 weeks after the end of the analysis showed a significant improvement in the verified factors (De Berry 1981).

Rheumatic disease is accompanied by changing emotional states, depression, sleep disorders, eating disorders, fatigue, lack of concentration and decisiveness. Holistic treatments for this condition include in addition to pharmacological interventions, a number of psychological measures, as well as progressive muscle relaxation.

The importance of psychological intervention in rheumatic disease was emphasized by Astin et al. Numerous variables were checked: pain symptoms, coping strategies, functional disability, mental and self-efficacy; all of them improved significantly after the application of progressive muscle relaxation (Astin et al. 2002).

Neurology is another area in which the effectiveness of progressive muscle relaxation has been studied, and where actually it is applied. One of the studies included patients with idiopathic Parkinson's disease: it compared two methods of relaxation - massage and progressive muscle relaxation. In the first group stress hormone levels significantly decreased, whereas sleep quality and daily activity improved. Among the analyzed factors in the group with muscle relaxation, both the dopamine level (paradoxically, the disease is characterized by low levels of dopamine) and the level of the stress hormone, i.e. epinephrine, increased, which means that some patients could perceive their participation in relaxation training as stressful (Hernandez-Reifa et al. 2002).

In other studies, also carried out in patients with Parkinson's disease, it has been found that behavioral therapy which may include progressive muscle relaxation led to improvement in the efficiency and reduction in the postural muscles gait in patients with moderate disease (Müller et al. 1997).

The disease interferes with both physical and mental functioning. The aim of the study was to evaluate the effect of relaxation, as a component of neuropsychological rehabilitation program, on possible reduction in mental health and behavioral disorders, as well as possible improvement in the assessment of cognition in people with Alzheimer's disease (Suhr 1999). Common disorders are irritability, agitation or anxiety. The results show a significant improvement in mental functioning, lower incidence of behavioral problems, improvement in memory and in language fluency, that is determinants of cognitive state. The authors indicate the usefulness of this type of intervention for people with mild to moderate dementia.

Research in the field of psychiatry has been the a objective of Milrod's et al studies, who compared the effectiveness of psychodynamic psychotherapy and progressive muscle relaxation in a group of patients with panic attacks participating in a 12-week program. The results demonstrated the prominent role of psychotherapy in reducing the incidence of symptoms (Milrod et al. 2007).

Progressive muscle relaxation is also used in the case of schizophrenia (Wen-Chun Chen et al. 2009). According to Chen Wen-Chun, the relaxation is a potentially effective method reducing anxiety in people with schizophrenia. Effectiveness depends on the mental state of patients and duration of the intervention.

Undoubtedly, one of the most difficult experiences for patients is pain associated with the disease. The applicability of progressive muscle relaxation and visualization as a means of soothing the intensity of cancer pain was studied by Kwekkeboom et al. For both types of interventions the levels of pain and the stress related to it diminished, and at the same time the sense of control over symptoms increased. In addition, the subjects who underwent a guided imagery declared a greater imaginative ability, more positive expectations and fewer comorbid symptoms than in the group practicing PMR (Kwekkeboom et al. 2008).

The use of progressive muscle relaxation to relieve the non-cancer pain has been the subject of Viljanen's et al. research. They verified the effectiveness of progressive muscle relaxation in reducing chronic neck pain. Subjects underwent two interventions - dynamic muscle training and muscle relaxation. Rated variables were associated with the range of motion, pain intensity, disability of the cervical part of spine, and ability to work. In none of the three groups - dynamic muscle training, relaxation and control - there were no significant changes in the analyzed factors, although those who underwent muscle relaxation reported a slight improvement in the range of motion, especially flexion-rotation and lateral cervical spine. None of the performed interventions significantly influenced the status and functioning of the patients (Viljanen et al. 2003).

Discussion and conclusions

Modern medicine requires a multidimensional patient care. Medical interventions are not limited to surgical or pharmacological actions, but extended with approaches involving the participation of the patient to relieve pain in the recovery process, including psychological components. A meta-analysis performed in this study concerned the use of progressive muscle relaxation according to Jacobson in a variety of disease entities, in the years 1982-2012. Most of the cited articles do not present the method as an isolated technique used in a variety of diseases, but as co-existing with other measures of psychophysical dimension, such as music therapy and cognitive-behavioral therapy (Baird 2004; De Berry 1981; Astin et al. 2002). Flaws in the studies are due to the classification of PMR. Some authors claim that this activity is a component of cognitive-behavioral therapy (Leibning et al. 1999), others treat it as a behavioral approach (Müller et al. 1997) and some other sources compare all these methods as different actions (Astin et al. 2002).

Another controversial issue is effectiveness. Some papers report high efficacy and long-lasting effects of progressive muscle relaxation. Others have doubts due to insufficient duration of studies (Wen-Chun Chen et al. 2009; De Berry 1981; Lundgren, Stenström 1999). It seems obvious that taking advantage of the possibilities and involving patients in the recovery process and pain alleviating therapies are promising perspectives. Therefore the problem requires further study and analysis, which should include more precise classification of measures, selection of the subjects and the length of experiments.

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