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Rehabilitation in rheumatoid arthritis

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Abstract

Rheumatoid arthritis is an inflammatory, chronic and progressive connective tissue disease. The causes of this disease are not fully known. About 0. 5 - 1. 5% of the population suffer from RA. This disease is more common in women. The treatment of RA should be comprehensive and include pharmacotherapy, physiotherapy and psychotherapy. It is also important to choose appropriate otropedic supplies. The presented studies indicate a positive effect of complex physiotherapeutic treatment on the reduction of pain and other symptoms of RA.

Admission

Rheumatoid arthritis - RA (Latin: Polyartritis rheumatoidea), called less frequent chronic rheumatoid, is a disease of inflammatory connective tissue, chronic and progressive. This disease affects all body systems, however, its onset and main ailments mainly affects the joints. As the disease progresses, joint cartilage and periarticular tissues are destroyed, which leads to destruction and inhibition of joint function. The consequence of RA is disability, disability and premature death [1].

Etiopathogenesis of RA is not fully understood. The causes of this disease are mainly seen in autoimmune processes. Its appearance is particularly predisposed to a decrease in immunity, stress, childbirth, etc. Genetic predisposition is an important factor (which can be proved by family history) and environmental conditions (lifestyle) [2]. About 0.5-1.5% of society suffers from RA, depending on the population. In Poland, the incidence is approximately 1%. RA occurs in both women and men, but 2-3 times more often in the first group. This disease occurs in children and adolescents (in the form of juvenile idiopathic arthritis) and in adults (most often the incidence is between 40 and 50 years old), including in the geriatric age [3].

Symptoms, complications and diagnosis of RA

The uncontrolled onset of RA causes that there may be many symptoms that are not typical and may not be associated with this disease. For this reason, the diagnosis may initially be difficult. These may include symptoms such as general weakness, fatigue, breakdown, low-grade fever, excessive sweating, decreased appetite, and weight loss. The first symptom that may suggest RA is the pain and swelling of the small joints of the hands and feet (metacarpophalangeal joints, metacarpophalangeal palmar joints, interphalanxial and wrist joints). Na początku choroby nie stwierdza się zmian radiologicznych w stawach. The affected joints are painful and swollen and usually have a symmetrical character. A typical change in RA is the symptom of "swan's neck" and "button-like" fingers. "Swan neck" refers to the fingers II - V is characterized by flexion in the metacarpophalangeal joints, aphasia in

the proximal interphalangeal joints and flexion in the distal interphalangeal joints. This symptom significantly impairs the ability to grip. "Cylinder fingers" are characteristic of the fingers II - IV and are characterized by flexion in the proximal interphalangeal joints and hyperextension in the distal interphalangeal joints. Thumb-nail deformity (arthrodesis of the thumb joints) is resistant to rehabilitation exercises and usually requires surgical treatment. In addition to distortions, pain and swelling in the rheumatoid arthritis, there is often a sign of morning stiffness. Its duration and severity depend on the severity of the disease [3, 4].

In addition to articular changes in rheumatoid arthritis, muscle wasting, tendinitis and sheaths, and rheumatoid nodules may occur. Also, there may be changes in the internal organs. Complications resulting from RA include, for example, carpal tunnel syndrome (due to edema that causes compression of the median nerve), vasculitis, reactive amyloidosis, pulmonary fibrosis, and amyloidosis [3, 4].

Due to the large range of symptoms that are not specific and a number of possible complications of this disease, it is important to have a holistic approach to the patient during the process of its improvement. RA treatment should be comprehensive and include: pharmacotherapy, physiotherapy, patient education, psychotherapy and occupational therapy. The patient should be under the care of a rheumatologist. Treatment should start immediately after diagnosis. The goal is to achieve remission or, if that is not possible, low disease activity. The patient should be monitored by a doctor at least every 3 months. It is also important to accurately collect the interview. Then a subjective examination is performed: watching, palpating, tapping, measuring the range of mobility etc. Subsequent additional tests are ordered: X-ray, USG, magnetic resonance and hematological examinations - OB, CRP, rheumatoid factor and anti-CCP antibodies. In addition to physiotherapy and pharmacology, which are important in the treatment of RA, psychological help should also be considered [1, 3].

Physiotherapy in the field of ergonomics of daily activities

Rehabilitation should last for a lifetime. The patient should follow the physiotherapist's instructions regarding the ergonomics of the position during daily activities. Many patients with RA have problems with activities such as opening jars, buttoning, brushing teeth and hair, shaving, taking care of nails, bathing, vacuuming.

To protect joints from overload and slow down the process of their destruction, it is recommended that patients change the way objects are grasped. The so-called hook grip, in which muscles compressing the joints are slightly involved. Handles requiring a full range of motion in the hand joints (claw and tweezers), are not recommended. In addition, it is recommended to wash the hair in the shower - not over the basin and using a thick grip dryer, hair brushes, shaver, toothbrush, as well as thickened cupboard handles, cutlery. It is advisable to use a toilet seat with a raised base by using special covers [5].

The difficulty in patients with RA is also undoubtedly dressing. This action requires the execution of many complex movements of the limbs and the spine. To put on socks, tights, shoes, various auxiliary equipment is recommended [5].

When reading books and newspapers, make sure that your forearms are based on the table top. Using a computer mouse, place a pad under the wrist to minimize distortion within the wrist [5].

Patients, due to pain, often take positions that bring them short-term relief, but are disadvantageous due to a defective posture. An example is contracture in the knee joint consisting of bending in the hip joint (which relieves the knee-thigh joint). In addition, excessive flexion of the ankle occurs in this compensation. These symptoms lead to functional shortening of the lower limb (fixed contracture in the joints) and secondary spinal curvature. An important task of the physiotherapist is to draw the attention of the patient to the consequences of taking the wrong positions [5]. Beata Żuk et al. Say that during the acute period it is recommended to lie on the side with painlessly profiled cushion under the cervical spine. When lying on the side, it is recommended to lay rollers between the knees, which prevents excessive internal rotation and adherence in the knee joints. An incorrect position is lying down with bended knee joints. In order to compensate for contractures in the hip joints, it is recommended to lie in front [5].

Changing positions from lying to sitting also requires educating the patient. According to the above the author of the first phase should turn to the side not painful (or less painful). Then the patient should slide his legs off the bed, supporting the forearm all the time. Then push away from your forearm and hand slowly to sit up. When sitting, the feet should be fully supported against the ground, and the hands should rest on the palms on the thighs or on the lateral support. Due to the great difficulty in maintaining the correct sitting position (tightened shoulders, head receding, shoulders at the same height), it is recommended to use a

sensoromotor cushion on the chair, which forces the so-called. "Active sitting". Getting up from a chair is best to start from leaning forward, successively swing the torso, push back with your hands, which allows you to stand upright. In the patient's learning of these activities, a mirror will help during the therapy to see errors and correct them on a regular basis [5].

Kinesitherapy in RA

Kinesitherapy in rheumatoid arthritis plays a very important role in both treatment and prophylaxis. The tasks of kinesitherapy in RA include: nutrition of articular cartilage, maintenance and increase of the range of motion in the joints, elimination of existing and prevention of the formation of new contractures in the joints, maintenance and enhancement of muscle strength. The kinesitherapy program should be individually selected for each patient, depending on the age, functional status of the patient and modified depending on the disease projection [6].

Periods of exacerbation of the disease often lead to limitation and even cessation of rehabilitation. Use appropriate positioning positions during this period. Passive, self-assisted, isometric and breathing exercises are recommended several times a day. Do not exercise in the morning due to morning stiffness and you should limit walking so as not to overload the joints of the lower limbs. In the state of acute arthritis, short-term immobilization can be used, which allows rapid withdrawal of the inflammatory process and pain, but may cause joint stiffness. The remission period of RA is characterized by an increase in the intensity of kinesitherapy. The aim of physiotherapy in this period is to improve the function, restore the state before the exacerbation period, and learn new movement patterns. Intensive and aerobic exercises of moderate and high intensity are used during this time. According to Van Rensenburg's research, linking these exercises with exercises stretching and strengthening muscles, which were performed 3 times a week for 3 months, significantly influenced the functioning of myocardium statistically [7]. It is recommended to do aerobic exercises for 30-60 minutes at least 3 times a week. In physiotherapeutic procedures, resistance exercise is also important in RA patients. Resistance exercises, used regularly, have an effect on decreasing muscle cell apoptosis, improving the functioning of the circulatory system. In patients with RA, PNF, pool exercises, balance-improving exercises, tai-chi, kinesiotaping or other activities such as cycling or walking] can also be used. [8, 9, 10, 11, 12]

In the treatment of RA, loosening exercises are also important because patients often feel anxiety about making any movements in painful joints and reflexively tense muscles. One of the conditions of successful therapy is patient education, how should consciously relax muscle groups. General loosening of the patient can be obtained, among others through postures, appropriate music, breathing exercises or treatments using heat, massage and hydrotherapy.

One of the tools to assess the condition of joint surfaces and cartilage is the **Seyfried test**. The first grade of joint damage in the Seyfried test includes patients who are able to perform smooth motion in full range with submaximal resistance. In these patients, resistance exercise can be used with half the maximal load and a gradual increase in the number of repetitions and other physical activity in the form of, for example, long walks on flat terrain. In the case of pain relief, an orthopedic supply can be used in the form of sticks or crutches. In the second stage, the patient will move in the full range of motion without resistance, and already low loads will limit the range of motion and pain. Patients with this degree of injury use free and unloaded exercises with graded resistance. Patients who have been diagnosed with a third degree of joint damage in the Sayfried test perform slowly movements but are not fluid. Smoothness of movement can be obtained by relieving the limb being examined. In this phase, the patients exercise in relief, and to achieve improvement in muscle strength, a small resistance can be used. Elbow spheres are recommended for walking to relieve. The last, fourth step, characterizes people who are unable to make a move, only a small amount of motion can be obtained due to the strain relief. In this case, assisted, relieved and passive-active exercises are used.

Physiotherapy in RA

In the comprehensive treatment of patients with RA, many authors report that apart from pharmacotherapy and kinesitherapy, physical therapy plays an important role. However, it should be remembered that physical therapy is aimed at alleviating the symptoms of the disease, and does not eliminate its causes. It is an additional method of rehabilitation. Its tasks include:

- preparation of tissues for various forms of kinesitherapy (warming up, elasticity),
- minimizing the pain complaints that accompany a patient with rheumatoid arthritis,
- anti-inflammatory effect, especially in the acute phase of RA, when the inflammatory

proces is at a high level,

• regulation of muscle tone that is contractured in RA

Studies on physical therapy in RA mainly affect its impact on pain.

Based on a study conducted in the period from November 2008 to February 2009, a group of 40 patients in the Specialist Hospital and the Rehabilitation Center in Jasło states that the ordered physical therapies are: cryotherapy, ultrasound, laser, low frequency magnetic field, iontophoresis, DD and TENS currents In this study, Renata Skalska-Izdebska et al. Observed a decrease in pain levels in patients undergoing physical therapy. In addition, edema and duration of morning stiffness have decreased in patients with RA. The mean pain score for the entire study group before physiotherapeutic treatment was 5.5 in the 10-point VAS scale. After physiotherapeutic procedures, the average pain dropped from 5.5 to 2.9 points. In almost half of the patients (45%) the pain subsided completely or was scored 1 point. The highest efficiency was assigned to ultrasound (92%) and laser therapy (91%). After applying diadynamic currents, pain complaints decreased in 83% of patients. Cryotherapy helped 80%, TENS 75%, and magnetotherapy 70%. In addition, after the applied physiotherapeutic treatment a decrease in morning stiffness was noted. Before the procedures, 97.5% of respondents complained about it, and after the therapy, this disorder completely subsided in 15% of patients, ie 7 people [13].

Orthopedic supplies in RA

Orthopedic supplies in RA are also an integral part of the comprehensive treatment of this disease. The use of sourcing is aimed at preventing and correcting deformities, reducing pain, relieving and stabilizing, preventing falls and stiffening after surgery. Orthopedic supplies should be individually selected for each patient, depending on their current condition. In the treatment of RA, the most frequently used are orthoses and auxiliary equipment. Different types of orthoses, e.g. in the form of apparatuses or scales, are used in the case of a rheumatoid hand. At the beginning of the disease they are used in prophylaxis, and in the further course of the disease they perform stabilizing and corrective functions, and constitute immobilization after surgery. Among the scales, it is possible to distinguish between resting and functional shells. The wrist stabilizer is also of great use, and it is helpful when performing a forceful action. The knee joint stabilizer, which has an adjustable range of mobility, is the most commonly used orthopedic equipment for the lower limbs. Its task is to

prevent knee joint instability and progressive degenerative changes, but also to correct the gait stereotype. Orthotics are also used to relieve and stabilize the cervical spine [14].

Foot deformities that occur in the majority of RA patients affect the lower limb joints and may affect the normal gait stereotype, which is why an important element is the selection of appropriate footwear and orthopedic insoles. The shoe should have a resilient, elastic and wide sole, should be larger, not too narrow.

RA patients use auxiliary equipment in the form of elbow crutches, axillary balls, balconies and others. The equipment is selected individually for each patient and depends, among other things, on his age and functional status [14].

Summary

In patients afflicted with rheumatoid arthritis, physiotherapeutic treatment is an important element of both comprehensive treatment and prophylactic measures. Physiotherapy aims to alleviate the symptoms of the disease, prevent its progress and educate the patient.

One of the elements of the rehabilitation procedure in the treatment of RA is to teach the patient the principles of ergonomics in daily activities to protect the joints from overload and their destruction.

Kinesitherapy should be individually programmed for each patient and depends on the age, functional status of the patient and the disease projection. During periods of exacerbation, he or she should carry out rehabilitation with low intensity, and in some cases even stop it, while during periods of remission physiotherapy should be more intense. In the treatment of RA, general exercise, aerobic, isometric, relaxation, breathing, strengthening, self-assisted and passive exercises are used.

The treatment process of RA also applies physical therapy and orthopedic supplies. The condition of the patient is positively influenced by: cryotherapy, ultrasound, laser, low frequency magnetic field, iontophoresis, DD and TENS currents. The orthopedic supply is most often used in orthoses and auxiliary equipment, which are to include relieve, stabilize appropriate body structures and prevent falls while walking.

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