

EVALUATION OF THE EFFECTIVENESS OF PHYSIOTHERAPY BASED ON THE LOCATION OF THE JOINT CHANGES IN RHEUMATOID ARTHRITIS

Agnieszka Krawczyk-Wasielewska

Chair of Rheumatology and Rehabilitation Poznan University of Medical Science, Poland

Ewa Mojs

Railway Spa Hospital, Ciechocinek, Poland

Roksana Malak

Chair of Rheumatology and Rehabilitation Poznan University of Medical Science, Poland

Przemysław Keczmer

Chair of Rheumatology and Rehabilitation Poznan University of Medical Science, Poland

Piotr Kalmus

Department of Psychology, Poznan University of Medical Science, Poland

Dariusz Łucka

Chair of Rheumatology and Rehabilitation Poznan University of Medical Science, Poland

Włodzimierz Samborski

Chair of Rheumatology and Rehabilitation Poznan University of Medical Science, Poland

Abstract

Rheumatoid arthritis (RA) is a chronic connective tissue disease. Typical first signs of diseases are pain and edemas of small hand and foot joint, but sometimes first symptoms regard less typical place like one big joint. Pain became the barrier for normal functioning patients with RA, therefore wide range of physical therapy is needed.

The aim of this study was evaluation of pain reduction in physical therapy on diseases changed joint.

The study involved 50 patients with RA, where mean of age was 47,5. In this group following physical therapy techniques were used: cryotherapy, ultrasound therapy, laser therapy, electrical stimulation TENS, iontophoresis, diadynamic and magnetic therapy.

In studied group first signs of diseases were similar like in literature. The presented results indicate pain reduction on all treatment filled joint. Used physical therapy techniques were more effective on hand joints then on foot joints.

Keywords: Rheumatoid arthritis, physical therapy, pain.

Rheumatoid arthritis (RA) is a chronic, progressive inflammatory process that leads to the destruction of joint tissues, distortion and dysfunction of joints. The disease has the form of remission and exacerbation. The changes are irreversible and deepen during subsequent episodes, leading to disability and dependence on the help of others. The process always begins within synovial joints (hypertrophy, inflammatory infiltration), which is the inner layer of the joint capsule, that produces the synovial fluid for painless movement of the articular surfaces against each other. The disease may result in changes in many organs and systems [1].

The first symptoms of RA are usually developed between the ages of 30 and 50. Despite this, the excessive lengths of the disease, cause that the consequences of the disease

are observed frequently in the elderly. It is believed that more than 5 % of women over 75 years of age are afflicted with this disease. The frequency in women (three times more often) is explained by the influence of the sex hormones. Typical symptoms for early rheumatoid arthritis are pain and swelling of joints symmetrical metacarpophalangeal and proximal interphalangeal phalangeal, often metatarsophalangeal joints. Threading the joint pain, accompanied by morning stiffness (that takes more than an hour) are typical. Inflamed joints may be swollen. A characteristic feature of RA is symmetrical joint involvement. RA can start as less typical changes on a large joints (usually the knee). As the disease progresses changes concern the increasing number of joints in the direction from the periphery to the center line of the body [2].

Most patients with synovial changes has also systemic symptoms, which are determinants of the inflammatory reaction (grade fever, night sweats, loss of appetite, fatigue, malaise, weight loss). In about 10-15 % of cases, the beginning is acute. Although the disease is associated with a history of infection, trauma or stress, psychosocial well motivated, symptoms occur suddenly, without obvious cause. During the course of the disease produced RA distortion characteristic resulting from the destruction of the hands articular stabilization of disorders of joints and tendons displacements [3].

The basis of the procedure with the patient taking medication that inhibit disease or drug therapy. Rehabilitation is a supplement to pharmacotherapy and should be applied consistently. This type of therapy is to restore the patient efficiency in everyday life. Even taking the treatment, up to 7% of patients after five years is invalided, and after ten years it concerns already 50% of patients, most of them are not able to take work [4]. That is why it is very important to take rehabilitation as early as possible, to help patients adapt to already occurred and prevent further distortion. In rheumatoid arthritis, are used both physical treatments, as well as treatment of motion (kinetic therapy). Physiotherapy is recommended for patients with RA include thermotherapy, laser bio-stimulation, ultrasound, TENS electrostimulation [5].

Aim of the study

Evaluation of the impact number of occupied arthritis and the type of joint on the effectiveness of physiotherapy

Material and method

The research material was a group of 50 patients (36 women and 14 men) diagnosed with rheumatoid arthritis (based on diagnostic criteria proposed by the American College of Rheumatology). The criterion for determining membership in the patient group were subacute phase or phase remission and age between 20 - 75 years of age (mean age 47.5 years). Patients were covered by treatment group, in which in addition to physical therapy continuously used pharmacotherapy.

Respondents were asked to complete the questionnaire before treatment and after two weeks of hospitalization. The survey concerned the place and the way the onset of symptoms, the existing changes and distortions, painful joints and the same physical therapy.

Patients were used from 2 to 4 physiotherapy methods (cryotherapy, ultrasound, laser, TENS, iontophoresis, diadynamic and the magnetic field) in the series corresponding to the diagnosis and general condition of the patient.

Results

The inflammatory process in 19 (38%) patients started in one group of joints such as the knee or just hand joints, other patients the first symptoms of the disease appeared in at least two joints. In all cases, the joints were occupied symmetrically. Changes related

to joint hands: 18 respondents (36%) joints of the thumb, and 21 (42%) joints of the fingers II - V; 9 patients (18%) wrists, elbows-2 patients (4%), shoulder joints in 14 patients (28%), cervical spine-4 people (8%), 6 (12%) hips, 16 (32%) knees, ankle joints 10 (20%), the joints of the toes 5 (10%). Hand joints were the place of the first appearance of symptoms in 30 patients (60%), and foot joints in 31 patients (62%) The exact distribution of the onset of symptoms shows a table 1

Table 1 Place occurrence of the first symptoms

1 inflamed joint		2 and more inflamed joints	
thumb joint	1	upper limb	10
joints of the fingers II - V	0	lower limb	0
wrists joint	1	Upper and lower limb	14
shoulder joint	4	Spine and limbs	2
elbow joint	0		
cervical spine joint	2		
hip joint	2		
knee joint	10		
ankle joint	3		
foot joints	1		

Before taking the treatment as joints provide the most pain indicated: the joints of the thumb 15 people (30%), joints of fingers 2-5 of 20 people (40%), shoulder joints of 18 people (36%), cervical spine 15 (30%), knee joints in 24 patients (48%), 15 patients ankles (30%). After treatment joints that provide the most pain were the joints of the thumb 12 people (24%), joints of fingers 2-5 of 12 people (24%), shoulder joints of 18 people (36%), cervical spine 15 (30%), knee joints in 14 patients (28%). To treatment resulted in reduction of pain in all patients in all joints. It should be noted that some of the patients reported as the most painful one joint, but the majority of cases, the most painful subjects found 2-4 joints simultaneously. The relationships between the most painful joints before and after treatment shows a table 2.

Table 2 Joints provide the most pain

Number of reviews evaluate joint as the most painful		
	Before treatment	After treatment
thumb joint	15	12
joints of the fingers II - V	20	12
wrists joint	9	6
shoulder joint	18	14
elbow joint	4	2
cervical spine joint	15	8
hip joint	10	8
knee joint	24	21
ankle joint	15	4
foot joints	5	4

In the study group observed a very weak ($r=0,18$; $p>0,05$) relationship between the number of affected joints and the effectiveness of therapy in the reduction of pain. In the study group observed a very weak ($r=0,23$; $p>0,05$) relationship between the number of affected joints and the degree of disability in HAQ. The more the affected joints patient had, the higher degree of disability was observed.

Discussion

According to Zimmermann- Górska location of the primary inflammatory changes are metacarpophalangeal joints phalanges, proximal interphalangeal joints of hands and wrists. Much less are occupied at the beginning of the foot joints and large joints [1]. Infested joints at the beginning of the disease by Bruckl it in 39% are hand joints, 16% of the wrists, elbows 2%, 7% joints of shoulder, cervical spine 4%, 2% hip joints, knee joint 15%, 7% feet joints [6]. Filipowicz-Sosnowska and common. given that the first symptoms appear in 35-40% of the joints of fingers 2-5, 25-30% in the joints of thumb, in 12-18% in wrist, in the knee joint and ankle joints in 10-15% cases, the joints of the big toe and shoulder in 6-10% in the cervical spine in 3-4% and degrees elbows in 2-3% of cases [7]. The study showed a greater share of large joints in early disease, than serve other sources. This difference may be due to the fact that some of the respondents gave as a place of appearance of the first symptoms more than one joint. You can also assume that the pre-existing complaints from the small joints were not so troublesome to the respondents considered them as the first symptom of the disease and the appearance of inflammation in the large joints had a violent course.

The first symptoms in 24 cases appeared in one joint, in 10 patients with 2 or more joints of the upper limbs, in 14 respondents in two or more joints of the upper limb and lower at the same time, in 2 cases the changes occurred in the extremities and spine. The conducted research shows that inflammation often begins with the hands and wrists, than from the feet and ankles, which agrees with data from the literature [6, 1]. In the later stages of the disease are almost all affected joints. Free from the disease are interphalangeal joints further, thoracic and lumbar spine [1]. Research shows that among respondents significantly more frequent changes in the hip joint, shoulder and ankle than the literature. Can't be excluded that in the group there are also changes of a degenerative arthritis and degradation associated with age.

Conclusion

The inflammatory process often begins with the hands and wrists, than from the feet and ankles, which agrees with data from the literature.

Applied physical therapy to decrease pain in all joints treated.

Top react to the applied treatment was in ankle, joints of the fingers and joints of the cervical spine, the lowest joints of the toes, hips and elbows.

Hand joints responded better to the applied physical therapy than the foot joints.

References:

- Zimmermann-Górska I. Choroby reumatyczne. PZWL Warszawa 2004, 23-24, 39-40, 88-105, 114-159.
- Rosławski A. Reumatologia praktyczna. Wrocław 1998, 7-14.
- Rosławski A. Podstawy fizjoterapii w chorobach reumatycznych. Wrocław 1998, 5-28.
- Leigh J.P, Fries J.F, Parikh N. Severity of disability and duration of disease in rheumatoid arthritis. Journal of Rheumatology 1992; 19: 1906-1911.
- Kunczewicz E, Gajewska E, Atarowska M, Sobieska M, Samborski W. Postępowanie fizjoterapeutyczne w reumatoidalnym zapaleniu stawów. Nowiny lekarskie 2005; 74, 2: 199-203.
- Brückle W. Reumatoidalne zapalenie stawów rozpoznanie, przebieg, leczenie. Warszawa 2000, 13-31.
- Filipowicz-Sosnowska A, Przygodzka M. Wczesne reumatoidalne zapalenie stawów – implikacje kliniczne. Terapia 2001, 6; 108: www.terapia.com.pl