

EFFECTIVENESS OF REHABILITATION PROGRAMS IN COMPLEX TREATMENT OF EARLY OSTEOARTHRITIS

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Resume.

Osteoarthritis is a chronic joint disease characterized by primary degeneration of the articular cartilage, changes in subchondral bone, and the development of pointed osteophytes with reactive synovial inflammation.

The aim of the study is to develop and substantiate coordinated complex rehabilitation methods based on a differentiated approach in early osteoarthritis.

In patients with early osteoarthritis, rehabilitation programs significantly improved their clinical symptoms compared to the control group, and body mass index decreased.

Osteoarthritis is a chronic joint disease characterized by primary degeneration of the articular cartilage, changes in subchondral bone, and the development of pointed osteophytes with reactive synovial inflammation [1, 3]. This pathology leads to a violation of the functional ability of the locomotor system and is considered one of the major medical and social problems [2, 5, 6, 13]. Inflammatory cytokines, metalloproteinases, cellular senescence, estrogen, and biomechanical imbalance play an important role in the development of osteoarthritis, and this can lead to a number of important pathological changes, such as focal cartilage failure, osteophyte formation, subchondral bone remodeling, and synovial hyperplasia in joints [4, 7, 9,11].

Anti-inflammatory mediators and cytokines produced by not only chondrocytes and synoviocytes, but also adipose tissue (adipocytes) and bone tissue (osteoblasts) cells play a key role in the development of OA [8, 10, 12].

The aim of the study is to develop and substantiate coordinated complex rehabilitation methods based on a differentiated approach in early osteoarthritis.

The research was conducted in the rheumatology and cardiorheumatology departments of the multidisciplinary clinic of the Tashkent Medical Academy.

82 patients with early osteoarthritis with disease duration of up to one year (average 6.3 ± 1.2 months) were included in the study. Patients were divided into two groups according to treatment methods. Group 1 (control group) 37 patients received traditional therapy (nonsteroidal anti-inflammatory drugs meloxicam 15 mg per day, chondroitin sulfate 400 mg per day as a chondroprotective agent), group 2 (main group) 45 patients received traditional therapy (nonsteroidal anti-inflammatory methods of rehabilitation including meloxicam 15 mg per day, chondroitin sulfate 400 mg per day as a chondroprotective agent).

In our research, we have developed complex rehabilitation methods for patients with osteoarthritis depending on the pathogenetic joint. In it, taking into account the patient's objective and subjective symptoms, sex, age, severity of the disease, X-ray symptoms, rehabilitation treatment methods were recommended. Evaluation of the dynamics of indicators describing the effectiveness of the developed rehabilitation treatment scheme for patients with osteoarthritis was carried out at each follow-up stage, 3, 6 months after the end of the course of therapy.

The following were used as rehabilitation exercises.

1. Walking in the fresh air (Scandinavian on 2 sticks). Such a walk is one of the simplest and most effective methods for the health of not only the joints, but also the whole person. Improves lung and heart function.

One of the comorbidities in patients with osteoarthritis under study is obesity. This is one of the main pathogenetic factors of osteoarthritis. Patients are advised to walk at a normal pace for 40 minutes every day. This is not only an integral part of the treatment of osteoarthritis, but also prevents obesity.

2. Therapeutic exercise.

The main principle that the patient must follow when performing therapeutic exercises is the regularity and gradualness of the exercises.

Exercise 1. (Butterfly position).

Initial state. When sitting on the floor, the back area is straightened, and the legs are stretched forward.

In a row, the knees are bent and the heel area is pulled towards the calf area.

Both palms are brought together and the outer side of the heel is pressed to the ground.

The hip area of the leg is lowered to the ground in the position of its own weight.

Then the legs move like the wings of a butterfly.

First of all, it stretches and strengthens the leg muscles, and increases the range of motion in the groin area.

Exercise 2.

Initial state. In the supine position, the knees are bent to the hips without leaving the heels off the floor.

Then, bending at the hip-hip joint, holding it with the hand, pull it to the stomach and hold it in this position for 10 seconds.

Then the legs are lowered to the ground and gradually straightened. This situation is repeated up to 10-15 times.

Exercise 3.

Initial state. The legs are bent up to the knees and raised up. It is done like riding a bicycle.

Exercise 4.

Initial state. While sitting on the floor, the legs are stretched slightly apart. Without bending the knees, the arms are stretched up to the heel area. 5-10 Stands in this bent position for 10 seconds. The movement is repeated from 5 to 8 times.

When we analyzed the patients by gender (Figure 1), the following data were obtained.



Figure 1. Distribution of patients by gender

In both groups under our observation, the proportion of women and men was almost the same.

Patients were divided according to the characteristics of affected joints as follows (Table 1).

Distribution of osteoarthritis

Indicators	Control group (n=37)		Main group (n=45)	
	СОН и	%	СОНИ	%
Osteoarthritis of the knee	26	70,3	31	6

joint				8,9
Osteoarthritis of the hip joint	11	29,7	14	3 1,1

When we analyzed patients with osteoarthritis according to which joint area was affected, the incidence of gonarthrosis (osteoarthritis of the knee joint) showed high rates in both groups (Table 1).

When we analyzed comorbid conditions in patients (Fig. 2), patients with high body weight were the majority in both groups, they were 23 patients (62.2%) in the control group, 29 patients (64.4%) in the main group, arterial hypertension (AH) occurred in 9 patients (24.3%) in the control group, 10 patients (22.2%) in the main group, diabetes mellitus (DM) in 3 patients (8.1%) in the control group, 4 in the main group occurred in patients (8.8%), ischemic heart disease (IHD) in 2 patients in both groups, 5.4 and 4.4%, respectively.

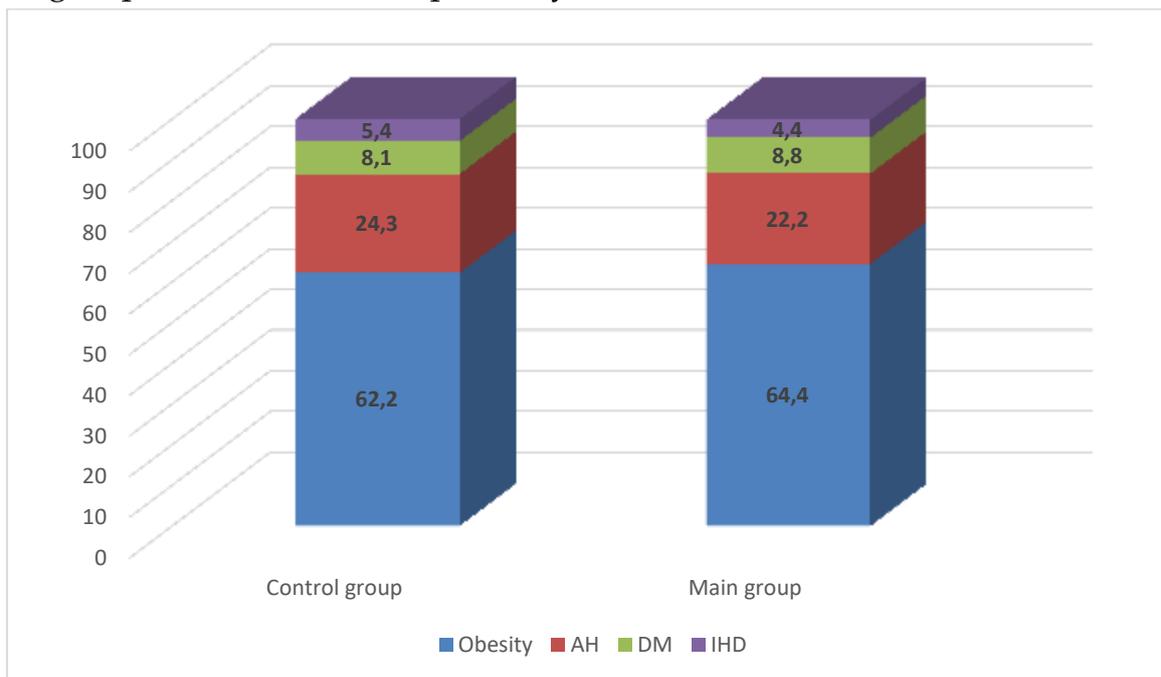


Figure 2. Distribution of patients by comorbid conditions

Thus, the distribution of comorbid conditions was almost the same in both groups.

When we analyzed the dynamics of clinical indicators against the background of treatment in patients under our observation (Table 1), the following data were obtained.

Table 1

Dynamics of clinical indicators in patients

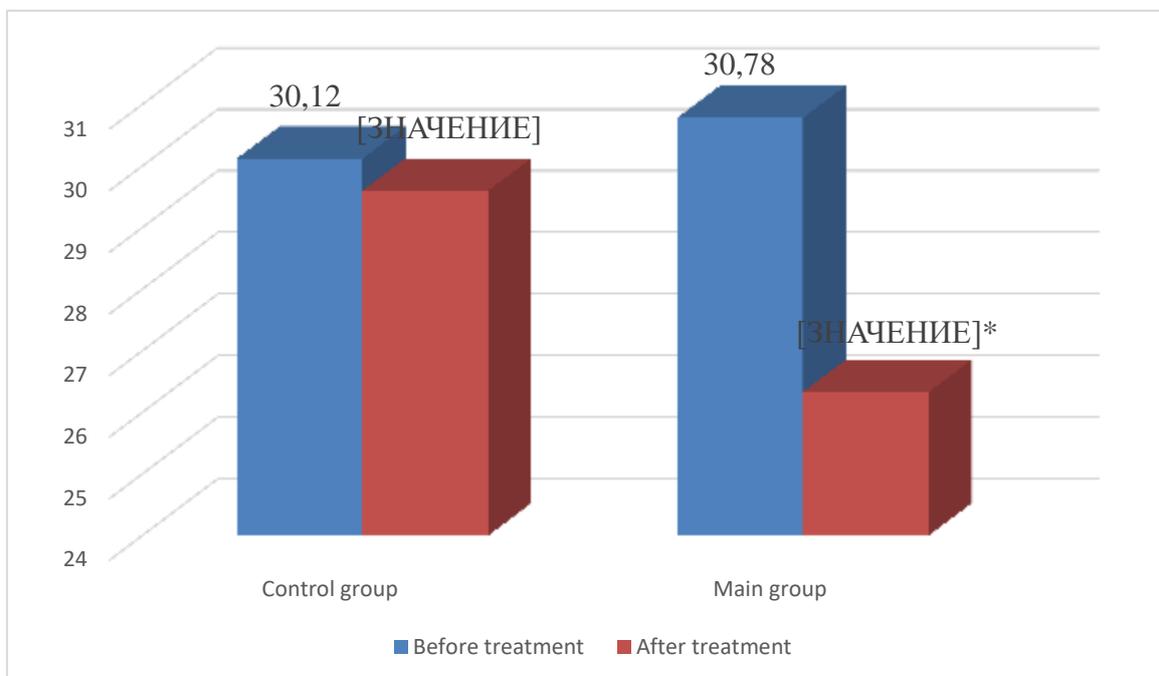
Clinical signs	Control group	Main group
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	Before treatment	After treatment	Before treatment	After treatment
VAS scale (score)	5,19±0,31	4,18±0,24*	6,33±0,18	1,88±0,12*
Leken index (score)	6,97±0,28	6,7±0,25	6,52±0,18	4,91±0,15*
Pain intensity (score)	1,56±0,11	1,42±0,10	1,32±0,062	0,85±0,051*
Morning sickness (minutes)	31,40±5,89	29,12±6,78	31,23±6,15	17,93±5,25*

* The difference in indicators before and after treatment $p < 0,05$

According to the indicators presented in Table 1, when comparing the results before and after the treatment in the main group, the level of reliability $p < 0.05$ was a decrease in the intensity of pain in the joints according to the visual analog scale (VAS) (from 6.33 ± 0.18 to 1.88 ± 0.12), improvement of the functional condition of the joints according to the Leken index (from 6.52 ± 0.18 to 4.91 ± 0.15), pain intensity (from 1.32 ± 0.062 to 0.85 ± 0.051), morning sickness 31.23 ± 6.15 to 17.93 ± 5.25) seems to have changed positively. In the control group, only the indicators on the VAS scale have a reliability level of $p < 0.05$.

A high body mass index (BMI) in patients is considered one of the factors that contribute to the development of osteoarthritis. The results obtained when we studied the effect of complex rehabilitation measures on BMI are presented in Figure 3.



* The difference in indicators before and after treatment $p < 0,05$

Figure 3. Dynamics of body mass index of patients

As a result of the study (Figure 3), the body mass index of the patients decreased significantly ($p < 0.05$) after the treatment exercises and Scandinavian walking were recommended to the main group of patients.

Thus, the results obtained in our study show that rehabilitation programs in patients with early osteoarthritis significantly improved their clinical symptoms compared to the control group, and body mass index decreased.

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