UDC: 619:616.995.132.6

EFFECTIVENESS OF COMPLEX REHABILITATION METHODS IN THE TREATMENT OF OSTEOARTHRITIS

Tuksanova Zebiniso Izatullaevna
Bukhara State Medical Institute, Uzbekistan

Resume. *There were 133 patients in total, of which 103 were in the main group, and 30 were in the comparison group. Rehabilitation methods recommended by us were applied to the patients and their functional indicators in the joint were analyzed. After that, there was a decrease in joint pain, an improvement in mobility and walking function.*

Keywords: *joint, osteoarthrosis, rehabilitation, ankle, osteophytes, knee, obesity, disability.*

Importance. According to an epidemiological review (Johnson and Hunter 2014), the incidence and prevalence of osteoarthritis is increasing rapidly as a result of population aging and increased life expectancy. However, the current treatment provided by clinicians to patients with osteoarthritis is limited to symptom management (Correa and Lietman 2017; DeRogatis et al. 2019), which cannot halt the progression of the condition.

According to the data of the ongoing research, osteoarthrosis is the most common pathological process among joint diseases. This pathology occurs in 10 to 16 percent of the world's population, and it is observed in almost all people over 70 years old. [1,12,16].

Treatment of osteoarthritis is an urgent problem among diseases of the musculoskeletal system. This disease is a chronic disease associated with a violation of homeostasis, resulting in pain and limitation of movement as a result of partial or complete damage to the joints, which leads to disability and greatly affects the human lifestyle [8,10,23].

Therapeutic exercise for osteoarthritis helps to: prevent or eliminate atrophy of periarticular muscles (for example, quadriceps in patients with gonarthrosis); prevention or prevention of joint instability; reducing arthralgia, improving the function of affected joints; slowing down the further development of OA; decrease in body weight [9,11,20].

Purpose of work. In order to develop rehabilitation methods and measures that improve the patient's quality of life, to study the dynamics of results with important features describing the course of the disease in patients with osteoarthritis. The task of the study was to evaluate the results of treatment of patients with this pathology after the recommended rehabilitation.

Materials and methods. Clinical studies were conducted in traumatology and physiotherapy departments of Bukhara Regional Multidisciplinary Medical Center. Examination and treatment were carried out in 2019-2021. Female and male patients aged 35 to 65 years with a diagnosis of osteoarthritis were included in the study with their consent. Of these, 89 (66.9%) patients were diagnosed with knee arthrosis (M17 code, class XIII, ICD-10), and 44 (33.1%) were diagnosed with coxarthrosis (M16 code, class XIII, ICD-10).

The main group of patients with OA received physical exercises (Nordic walking, butterfly pose, joint mobility exercises) along with physical therapy. The nature of the recommended treatment exercises and the order of execution were selected individually. One treatment course consisted of 12 sessions, which were conducted for 30 minutes each day. Treatment exercises were recommended from the 3rd day of treatment. Treatment exercises for osteoarthrosis were carried out individually, depending on the nature of pain in the joints, while sitting and lying down, gradually increasing the range of motion. Sharp movements and exercises that cause severe pain are not performed. The main principle that the patient should follow when performing therapeutic exercises is the regularity and gradualness of the exercises. In each session, the patient's heart rate was taken into account. Heart rate during exercise and at rest was determined.

The obtained results. As a result of carrying out rehabilitation methods in patients suffering from osteoarthritis, the improvement of their condition was shown by the reduction of swelling of tissues around the joints ($p<0.05$). The dynamics of indicators in joints in patients with OA is presented in table 1.1.

1.1-table

Changes in the joint

Group	**I (n=103)**	**II (n=30)**	**I (n=103)**	**II (n=30)**
Signs	*Before treatment*		*After treatment*	
movement is limited	3,06±1,51	1,53±0,10	0,86±0,07	1,33±0,10
cramps in the joint	0,76±0,04	0,83±0,07	0,35±0,05	0,77±0,08
deformation	2,35±1,16	1,30±0,12	1,02±0,07	1,17±0,11
swelling	0,49±0,05	0,67±0,09	0,11±0,03	0,43±0,09

Studying the dynamics of clinical indicators of patients with OA undergoing rehabilitation procedures (main group, n=103) and (comparison group, n=30) revealed significant differences in clinical symptoms of the disease after the course.

Patients in the main group showed significant ($p<0.05$) improvement in all clinical parameters, while patients in the comparison group showed no significant change in the studied parameters. In particular, a significant improvement in joint stiffness and swelling index was found in the observation group, which was not observed in patients in the comparison group.

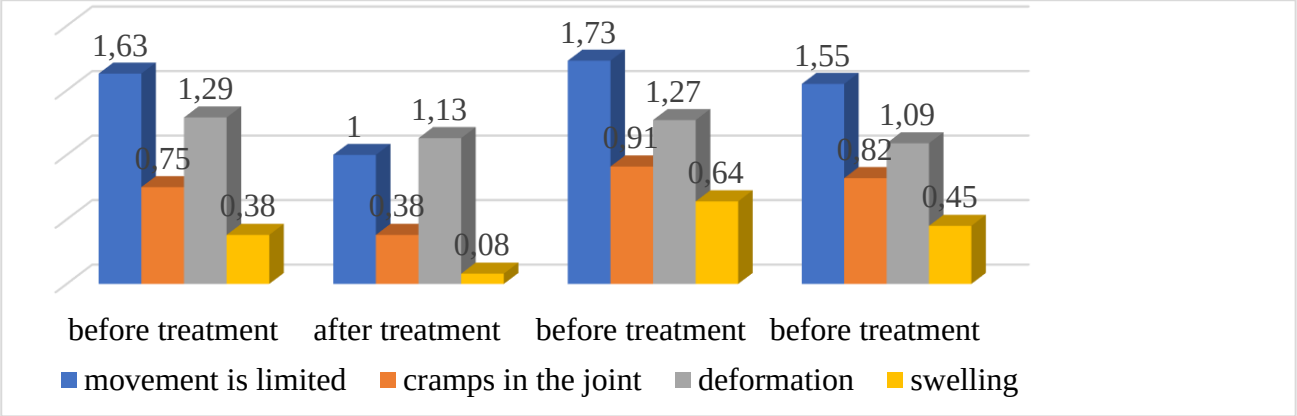

Figure 1.1. Dynamics of joint changes in male patients with osteoarthritis (in groups I and II)

If we compare patients with OA by gender, a significant positive change was observed in patients of both sexes in indicators 1,2,4 compared to patients in the main group (Fig. 1.1).

Dynamic changes in joint symptoms before treatment and after treatment in the main group of male patients are shown below. First of all, a significant reduction of swelling around the joint (1.63±0.10; 1.0±0.13) proves that this rehabilitation treatment is effective. After that, stiffness in the joint (0.75±0.09; 0.38±0.10), the level of movement limitation (1.29±0.15; 1.13±0.15) is in the third place among the signs with a positive result. the last indicator is joint deformation (0.38±0.10; 0.08±0.06).

In the second group of male patients, pathological symptoms in the joints showed lower results compared to the first group.

(1,73±0,14; 1,55±0,16); (0,91±0,09; 0,82±0,12); (1,27±0,14; 1,09±0,09); (0,64±0,15; 0,45±0,16).

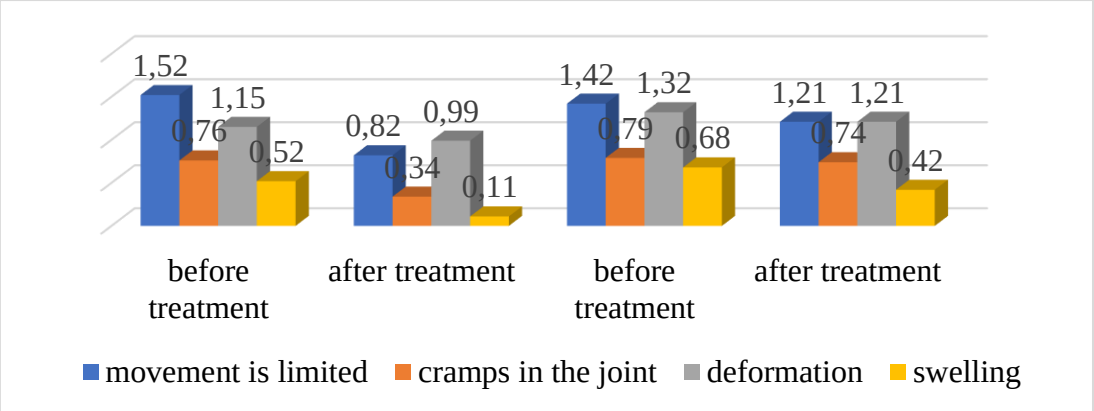

Figure 1.2. Dynamics of joint changes in female patients with osteoarthritis (groups I and II)

Among the observed changes in the joint of the main group of female patients under study, the symptom of limitation of movement (1.52±0.06; 0.82±0.08), compressions in the joint (0.76±0.05; 0.34±0.05) , joint deformation was (1.15±0.08; 0.99±0.08), swelling around the joint (0.52±0.06; 0.11±0.04) (Fig. 1.2).

In the female patients of the comparison group, the results before and after the treatment were as follows: symptoms of limitation of movement (1.42±0.14; 1.21±0.12), stiffness in the joint (0.79±0.10; 0, 74±0.10), joint deformation (1.32±0.17; 1.21±0.16), swelling around the joint (0.68±0.11; 0.42±0.12).

1.2-table

Dynamics of clinical indicators in patients with OA, in scores (before and after treatment)

Clinical signs	I group	II group
VASh scale	6,36±0,16* 1,84±0,11*	5,23±0,32* 4,17±0,23*
Lequesne index	6,53±0,17* 4,92±0,14*	7,27±0,27 6,7±0,23
Evening pain intensity	1,30±0,06* 0,86±0,05*	1,57±0,11 1,43±0,11
Morning sickness	1,23±0,05 * 0,93±0,05*	1,40±0,09 1,23±0,09

* The difference between the values before and after the treatment is $p<0.05$

According to the indicators presented in Table 1.2, 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 VASh scale (from 6.36±0.16 to 1.84±0.11). , improvement of the functional condition of the joints according to the Lequesne index (from 6.53±0.17 to 4.92±0.14), evening pain intensity (from 1.30±0.06 to 0.86±0.05), morning numbness (from 1.23±0.05 to 0.93±0.05)

appears to have changed positively. In the comparison group, only the indicators on the VASh scale have a reliability level of $p<0.05$.

According to the X-ray examination of the knee joint of the patients in the main group, there are relatively more changes of the II degree, while according to the X-ray examinations of the patients in the comparison group, the signs of the II and III degrees give the same indicator.

In the treatment of patients with OA, the main group of patients was recommended therapeutic exercises selected by us together with physiotherapy procedures.

In patients in the comparison group, the duration of the treatment course was on average 10-12 days, and a positive clinical result was achieved during 18-20 weeks. In patients in the main group, the course of treatment was similarly 10-12 days on average, and clinical efficacy was observed on average for 24-25 weeks.

Physiotherapy and remedial exercises recommended for patients with OA resulted in a positive improvement in patients' condition. Peri-articular swelling and pain were reduced, and as a result, joint bending and writing movements significantly changed ($p<0.05$) when examined by goniometry.

The dynamics of movement changes in the joint were measured and compared with goniometry every 3, 6, 12 months. The dynamics of movements in joints in patients with OA is presented in Table 3.3.

1.3-table

Dynamics of movement changes in the joint of patients with OA (joint bending and writing, in degrees)

Patient group	**Before treatment**	**After treatment**		
		in 3 months	**in 6 months**	**in 12 months**
Group I	105,54±1,17 161,54±0,64	103,50±1,14 162,20±0,66	98,19±1,53 168,16±0,57	89,87±1,23 173,25±0,34
Group II	103,17±2,88 158,83±0,92	101,50±2,80 159,33±0,92	100,00±2,62 160,43±1,07	99,20±2,58 161,03±1,11

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

The results in the table showed that the comparison group of patients was recommended only physiotherapeutic procedures, so the changes in them were lower than the results of the first group of patients.

In patients with OA, the increase in joint range of motion was more pronounced in the main group than in the comparison group after a course of rehabilitation treatment. After 3, 6, 12 months, under the influence of the rehabilitation course, the amplitude of bending movements in the joint in the main group gave the following

values on average: 2.04±1.2º; 7.35±1.4º; 15.67±1.2º (p<0.05). The indicators in the comparison group changed as follows: 1.67±2.8º; 3.17±2.8º; 3.97±2.7º. In patients, the amplitude of writing movements in the joint is -0.66±0.6º; -6.62±0.6º; -11.71±0.5º expressed indicators (p<0.05). When we analyzed such indicators in the comparison group, we got the following results: -0.50±0.9º; -1.60±1.0º; -2.2±1.1º. The increase in the amplitude of joint movement in the patients of the main group was significantly different from that of the patients in the comparison group: 2.0±1.9º : 2.87±0.8º; -1.81±2.1º : 7.73±0.8º; -9.33±1.9º : 12.22±0.7º (p <0.05).

When we analyzed the dynamic monitoring of the amplitude of joint movements in patients in the main and comparison groups by gender, the amplitude of bending movements in the joints in men was 10.7±1.8º; 4.09±3.6º; and 17.18±1.4º in women; 3.9±3.7º, and the amplitude of writing movements in the joints is -13.92±1.2º in male patients; -2.73±1.9º; in women, this indicator is -11.03±1.1º; It was -1.89±0.9º.

Summary. In conclusion, it is worth saying that the treatment of osteoarthritis is an urgent problem among diseases of the musculoskeletal system. For the treatment of this disease, nonsteroidal anti-inflammatory drugs are often used, which, while relieving pain and improving joint mobility, have side effects primarily on the gastrointestinal tract, especially in elderly patients. In this regard, a pathogenetically based, highly effective treatment method with almost no side effects was chosen for the disease, which selectively affects the structure of the stomach. This type of therapy allows to reduce the pain syndrome, to restore the mobility of the patient, that is, to improve the quality of his usual lifestyle. The study of the effectiveness of various methods of treatment of OA includes the use of subjective assessments of the patient as a criterion, according to which the dynamics of pain sensations were determined. The overall effect on the pathological process was determined.

REFERENCES

1. *Алексеева Н.В., Основина И.П., Владимирова Е.Л., Иванов А.В. Обоснование возможности применения магнитофореза при патологии суставов. //Вопросы курортологии, физиотерапии и лечебной физической культуры. Москва: Медиа Сфера, 2018, № 3, С. 49–56*

2. *Абусева Г. Р., Ковлен Д. В., Пономаренко Г. Н. и др. Физические методы реабилитации пациентов с остеоартрозом: наукометрический анализ доказательных исследований. //Травматология и ортопедия России. 2020;26 (1):190-200.*

3. *Мазуров В.И., Трофимова А.С., Трофимов Е.А. Факторы риска и некоторые аспекты патогенеза остеоартрита // Вестник Северо-Западного*

государственного медицинского университета им. И.И. Мечникова. -2016. Т. 8, № 2. - С. 116-124.

4. Ашурова Н.А., Туксанова З.И. Сочетанное применение лекарственных трав с химиотерапевтическим средством доксорубицин // Биология и интегративная медицина - 8 (2019) 36.

5. Давудова А. К., Мамайханов С. М., Кудаев М. Т. Бальнеотерапия в комплексном лечении остеоартроза крупных суставов у пожилых пациентов на санаторно-курортном этапе // Экологическая медицина. 2018. - № 1(1). – С. 45-49.

6. Максимов А. В., Шибанов Е. Н., Ямалдинова Е. А. Применение высокотоновой электротерапии у больных остеоартрозом // Медицинские изделия» - 2018 - №1. – С. 43.

7. Менгельбаева З. Я. Эффективность применения электроимпульсных физиотерапевтических методов в лечении остеоартроза // Международный научный журнал «ВЕСТНИК НАУКИ» - 2020. - № 2 .-(23) Т.3. – С. 152-153.

8. Онищук В. В. и др. Возможности терапевтического влияния на патогенетические звенья развития деформирующего остеоартроза //Современные проблемы науки и образования. – 2019. – №. 1. – С. 19-19.

9. Нурбоев Ф. Э., Туксанова З. И. Остеоартрознинг тарқалиш сабаблари, ривожланиш механизми, кечиш хусусиятларининг ўзига хослиги //Тиббиётда янги кун. Илмий журнал – 2020 - №2 (30) -485-488 б.

10. Рябинин С. В., Самодай В. Г., Пелешенко Е. И. Повышения клинической эффективности лечения гонартроза с использованием индивидуализированной схемы терапии //Вестник Смоленской государственной медицинской академии. – 2019. – Т. 18. – №. 3. – С. 66-73.

11. Туксанова Зебинисо Изатуллаевна Гранат и перспективы его применения при заболеваниях костей и суставов // Биология и интегративная медицина. 2022. №3 (56). С. 146-166.

12. Туксанова Зебинисо Изатуллоевна Остеоартроз касаллигида клиник кўрсаткичлар таҳлили // Innovations in Technology and Science Education 2023. 881-892 б.

13. Турсунова А. М., Абдурахимова Л. А. Реабилитация в поликлиническом звене здравоохранения: использование комплекс методов в лечении больных деформирующим остеоартрозом // Восточно-Сибирский государственный университет технологий и управления (Улан-Удэ) – 2015. – С.336-337.

14. Якушин А. А. и др. Суставосохраняющие методы лечения пациентов е деформирующим остеоартрозом в современной гериатрической практике //Московская медицина. – 2019. – №. 6. – С. 112-112.

15. Ismoilova, M. Yu., Tuksanova Z. I. To the issue of development of cardiovascular diseases at athletes World Journal of Pharmaceutical Research - Volume 9 (2020): 331.

16. Huang T, et al. Aging reduces an ERRalpha-directed mitochondrial glutaminase expression suppressing glutamine anaplerosis and osteogenic differentiation of mesenchymal stem cells. S//tem Cells. 2017;35:411–424.

17. Kayumov K. N., Tuksanova Z. I., Djabborova M. B. Indicators of reproductive functions in women fertile age //湖南大学学报 (自然科学版). – 2021. – T. 48. – №. 8.

18. Peng H, Ou A, Huang X, Wang C, Wang L, Yu T, Zhang Y, Zhang Y. Osteotomy Around the Knee: The Surgical Treatment of Osteoarthritis. //Orthop Surg. 2021 Jul;13(5):1465-1473.

19. Kholmurod Naimovich Kayumov, Zebiniso Izatulloyevna Tuksanova, Mushtari Yusupovna Ismoilova 2021. Medical and Social Aspects of the Lifestyle and Conditions of Women of Reproductive Age. Annals of the Romanian Society for Cell Biology. (Mar. 2021), 5205–5209.

20. Tuksanova Z.I. Analysis of clinical signs of a patient's osteoarthrosis //World Bulletin of Public Health. – 2022. – T. 16. – C. 146-150.

21. Snelling S.J., Bas S., Puskas G.J. Presence of IL-17 in synovial fluid identifies a potential inflammatory osteoarthritic phenotype. PLoS One. 2017. Vol. 12 (4). P. 109.

22. Sun Y, Zuo Z, Kuang Y. An Emerging Target in the Battle against Osteoarthritis: Macrophage Polarization.// Int J Mol Sci. 2020 Nov 12;21(22):8513

23. Tuksanova Z.I. Complex rehabilitation methods depending on the pathogenetic link of osteoarthritis // Barqarorlik va yetakchi tadqiqotlar onlayn ilmiy jurnali. – 2022. – C. 484-487.

24. Tang J, Liu T, Wen X, Zhou Z, Yan J, Gao J, Zuo J. Estrogen-related receptors: novel potential regulators of osteoarthritis pathogenesis. //Mol Med. 2021 Jan 15;27(1):5.

25. Tuksanova Z. I., Nurboyev F. E., Ismoilova M. Y., Djabbarova M.B. Development of differentiated approaches to the complex treatment of osteoarthritis // Psycyology and education. – 2021. – T. 2. – C. 5002-5005.