

MEDICAL REHABILITATION OF PATIENTS WITH RHEUMATOID ARTHRITIS AND ANKYLOSING SPONDYLITIS WITH KIDNEY DAMAGE

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ABSTRACT

In the study, rehabilitation treatments were performed in patients with rheumatoid arthritis (RA) and ankylosing spondylitis (AS) with renal injury. The aim of the study was to evaluate the effectiveness of rehabilitation methods in improving its performance in patients with rheumatoid arthritis and ankylosing spondylitis with chronic kidney disease. A total of 125 patients were examined during the study, including 84 patients with rheumatoid arthritis and 41 patients with ankylosing spondylitis. Physical, mechanical and climatic factors of treatment in patients after main treatment therapy led to a significant improvement in the main clinical signs of RA and AS disease.

Keywords: rheumatoid arthritis, ankylosing spondylitis, inflammation, kidney damage, chronic kidney disease, rehabilitation, climate therapy, ultrasound therapy

INTRODUCTION Medical rehabilitation is a set of medical and psychological measures aimed at full or partial restoration of the damaged functions of the affected organ or system and (or) recovery of lost functions, maintaining the body in the process of performing its functions [1,8]. It is also an intensification of acute or chronic pathological process in the body, as well as prevention, early diagnosis and rehabilitation of damaged organs or systems, prevention and reduction of possible disability, improvement of quality of life, maintenance of the patient's ability to work and his contribution to society. is an area that studies social integration [2,12,14]. This line is an essential part of the treatment of patients with joint disease and is as important as pharmacotherapy in most cases [9]. Rehabilitation of patients with rheumatoid arthritis (RA) remains one of the most difficult problems of modern rheumatology [8,10,13]. As climate therapy, the sanatorium "Sitorai Moxi-Khosa" was used, this climatic sanatorium is located 9 km north of Bukhara, in a beautiful park, at an altitude of 275 m above sea level. The climatic features of Bukhara are almost the same as in the Bayram Ali zone and meet the requirements for climatic resorts for the treatment of kidney patients[19,20]. Its relevance was the progressive course of the disease, the degree of

damage to the musculoskeletal system, the highest incidence of able-bodied people, early onset of functional impairment, loss of professional and social skills, difficulty in physical and psychological adaptation of patients, leading to major disabilities, general medical and social problems are causing economic losses [3,6,11,15]. To date, there are almost no studies in the world literature on the effectiveness of nonmedical methods and complex rehabilitation programs for patients with non-articular forms of RA and AS disease. The findings of several clinical recommendations for the use of nonpharmacological methods in patients with RA and AS are based on the results of an advanced study of these methods [4,5,18].

THE AIM of the study was to evaluate the effectiveness of rehabilitation methods in improving its performance in patients with rheumatoid arthritis and ankylosing spondylitis with kidney damage.

MATERIALS AND METHODS A total of 125 patients were examined during the study, including 84 patients with rheumatoid arthritis (RA) and 41 patients with ankylosing spondylitis (AS). The set of materials was conducted from 2018 to 2020 among inpatients for diagnosis and treatment in the rheumatology department of the Bukhara Regional Multidisciplinary Medical Center.

Diagnosis was based on clinical, radiological, laboratory, and immunological examination of patients. Patients included in the single-stage and prospective comparative study were evaluated according to standard physical parameters [7,17,20]. Modern classification and nomenclature of diseases of the joints and spine were used in the diagnosis of patients with RA and AS. The data of clinical research methods were included in a questionnaire developed at the Bukhara Medical Institute named after Abu Ali ibn Sino, which reflects the initial symptoms and risk factors of the disease, medications, physiotherapy and their effects on the body, the patient's current condition, especially arthritis syndrome, taking

into account the pathogenesis and clinical course of these diseases, the clinical examination of patients with each nosological form has its own characteristics [3,16,19].

RESULTS AND DISCUSSION The treatment phase of the study was divided into 2 groups with the same distribution according to clinical, functional class, activity level, and radiological stages. The main group of standard therapy and rehabilitation-included "Sitorai Moxi-Khosa" sanatorium (S + R) consisted of 40 RA and 20 AS patients, while the comparison group of standard therapy (S) consisted of 44 RA and 21 AS patients (Table 1).

1-Table Distribution of patients in the main and comparative groups in the RA group (in% of patients)

Indicators	Main group – included "Sitorai Moxi-Khosa" (S + R) n=40	Comparison group (S) n=44	p
Duration of illness Up to 5 years 5-10 years > 10 years	24,9 38,4 36,7	22,4 43,5 34,1	p<0,05
Clinical course slowly progressive rapidly progressive	78 22	72 28	p<0,05
Activity level I II III	23,4 55,7 20,9	25,6 56,3 18,1	p<0,05
Immunological characteristics Seropositive Seronegative	74,6 25,4	72,5 27,5	p<0,05
Radiological stage I II III IV	11,2 38,5 32,2 18,1	13,3 36,2 30,4 20,1	p<0,05

Joint Functional Deficiency			
0	17,2	14,6	p<0,05
I	39,4	38,6	
II	25,6	28,5	
III	17,8	18,3	

Patients with ankylosing spondylitis were both primary and comparatively distributed according to clinical, laboratory,

disease activity, and renal impairment indicators (Table 2).

2-Table Distribution of AS main and comparison group patients

Indications	Treatment		p
	Main group included "Sitorai Moxi-Khosa" n= 21	Comparison group n=20	
Age of patients (years)	36,2±1,2	37,4±1,3	p<0,05
Disease duration (years)	8,4±0,23	9,7±0,34	p<0,05
AS axial form, n (%)	11 (52%)	11(55%)	p<0,05
AS peripheral form, n (%)	10 (47,6%)	9 (45%)	p<0,05
Duration of morning numbness, min	56,3±2,4	52,5±2,6	p<0,05
ASDAS	4,21±0,25	4,13±1,3	p<0,05
BASDAI	2,33±0,12	2,15±1,2	p<0,05
BASFI	5,80±0,20	4,78±1,1	p<0,05
Tomayer test, cm	32,6±1,1	30,8±0,9	p<0,05
Shober modification test, cm	12,5±0,14	10,2±0,18	p<0,05
Chest excursion, cm	3,6±0,2	2,5±0,4	p<0,05
"Ear-wall", cm	16,2±2,3	15,4±2,7	p<0,05
Jaws-sternum, sm	2,8±1,2	2,4±1,3	p<0,05
ESR	23,2±1,3	22,1±1,8	p<0,05
HAQ	1,56±0,12	1,26±0,2	p<0,05

Physical, mechanical and climatic factors - ultrasound therapy (US), therapeutic physical training (TPhT), massage and included "Sitorai Moxi-Khosa" sanatorium in patients after treatment therapy led to a significant improvement in the main clinical signs of RA disease. The general condition of the patients improved, the duration of morning numbness decreased, and a decrease in pain intensity was observed ($p<0.01$). The improvement effect usually began after 5-7 treatments and intensified at the end of treatment. The positive effect was observed after a relatively short period of time at the I, II

activity level relative to the III activity ratio. In our study, movement and palpation were observed in 86% of patients after rehabilitation procedures. Decreased local inflammatory activity was detected in 62% of patients, indicating a decrease in exudative processes in the joints. In patients, morning numbness decreased by 96%. In most patients, a decrease in pain contractures (59%) was observed (78%) due to a decrease and loss of exudative processes in the affected joint function.

The positive dynamics of rheumatoid arthritis were not detected in 14.2% of patients due to its severe course in patients with

activity level II and III. No exacerbation of the underlying disease was observed during and after rehabilitation. No adverse effects have been reported in RA patients with renal impairment.

In assessing the effectiveness of therapeutic agents in RA, it can be concluded from the changes in the analysis of renal damage, as well as the dynamics of laboratory tests that determine the activity of the underlying disease. Influence of rehabilitation measures on clinical and laboratory indicators of the underlying disease. The data in Table 2 show changes in indicators of different activity levels of RA disease.

With the increase in the level of activity, there was a more pronounced change in the complex of rehabilitation measures. Activity level I decreased by 37%, activity level II - by 60%. SRP in the blood decreased by 14.2 and 33%, respectively. The improvement in albumin creatinine ratio in patients averaged 24.3 ± 1.52 to 19.1 ± 1.42 ($p < 0.01$) and GFR III activity levels ranged from 60.6 ± 3.5 to 78.8 ± 3.1 change (23%) had a statistically significant difference (Figure 1). Laboratory indicators of underlying disease and kidney damage were also observed in patients with activity levels II and III, and, of course, many analyzes of activity level I were around the norm.

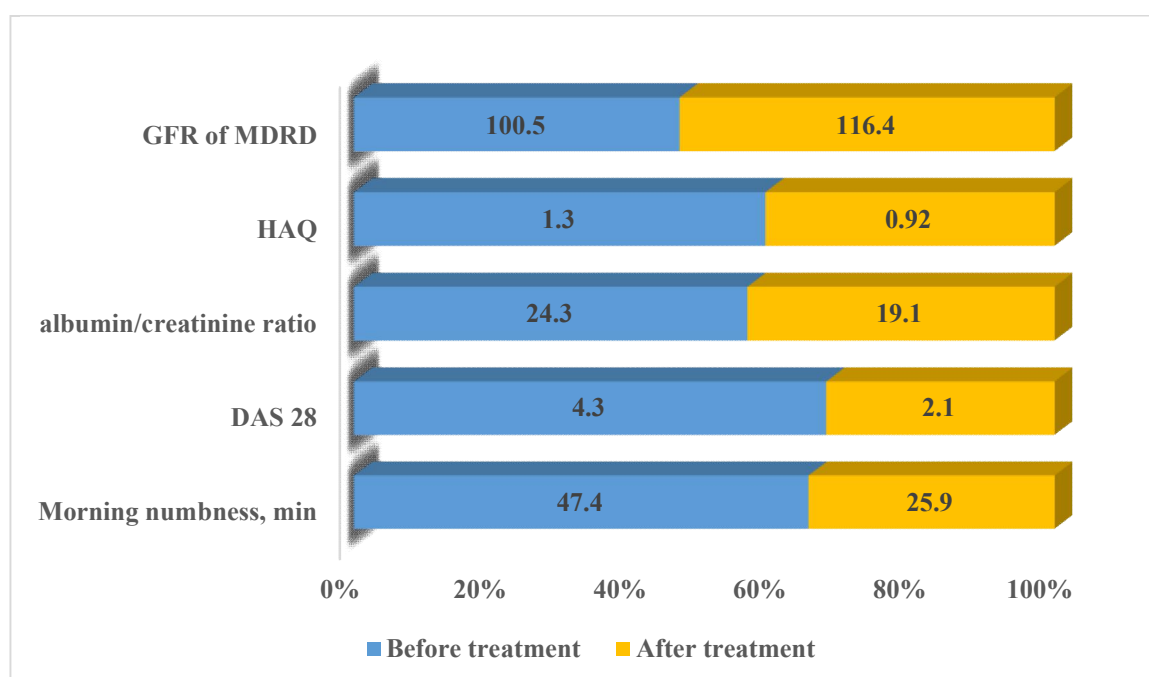


Figure № 1. Changes in before and after rehabilitation parameters in patients with rheumatoid arthritis (* - $p < 0.05$).

Thus, based on clinical and laboratory analysis, changes in RA and renal impairment rates in 40 out of 48 patients (83%) under the influence of physical, mechanical and climatic therapy were observed in 8 patients with II and III activity levels, seropositive form and severe exudative processes in the joints not detected. None of the patients had any major symptoms of RA disease or worsening of laboratory parameters.

When evaluating complex rehabilitation procedures in AS patients, positive efficacy was found in 13 (65%) patients. In an analysis of renal impairment in patients, a decrease in albumin \ creatinine

ratio from 4.5 ± 1.2 to 3.2 ± 1.1 and an improvement in GFR of 20% (4) were found (Fig. 2).

Among the tests of the spine - 8.2% ($p < 0.05$) with the maximum back bend of the head, 96% ($p < 0.05$) for the Otta test, 75% ($p < 0.05$) for chest breathing excursions had revealed statistically significant values. In laboratory analyzes, the change in ESR from 28.2 ± 1.6 to 22.5 ± 0.9 mm/s and SRP from 32.2 ± 1.5 to 22.3 ± 1.4 achieved a statistically significant value in AS with moderate activity. In 5 (25%) patients with AS central form, the change was relatively rare.

US therapy, physical exercises and “Sitorai Moxi-Khosa” sanatorium treatment were positively received by all patients. No adverse side effects were observed. After 6–7 treatments, in most patients, the intensity of daytime and evening pain decreased, depending on its expression and duration. US therapy II activity level was observed to be

less affected in the central form of the disease. After US, massage, and physical training therapy, pain in the spine and joints decreased in 13 (65%) patients, and the ability to work in the affected areas was due to muscle spasm relaxation. In 6 patients, Tomayer positive test was lost. Positive changes in Otto and Shober tests were detected in 8 patients.

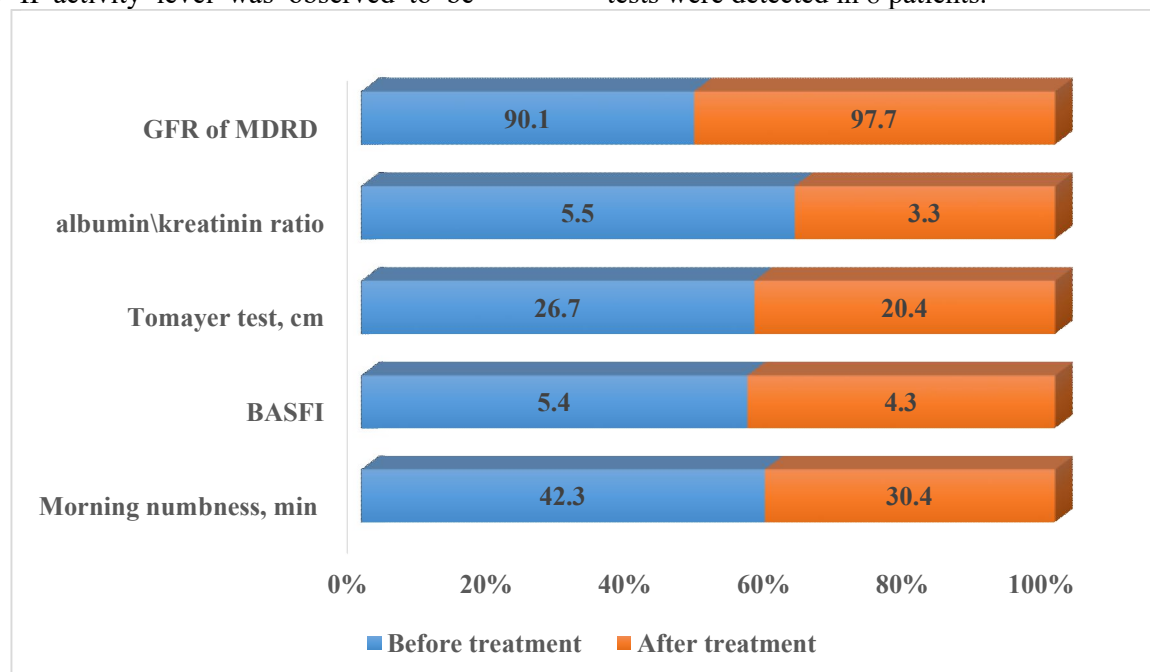


Figure № 2. Changes in before and after rehabilitation parameters in patients with ankylosing spondylitis (* - $r < 0.05$).

After rehabilitation procedures, the quality of life of patients with RA, as determined by all scales of the HAQ survey, improved significantly. Significant decrease in HAQ survey indicators from 1.55 ± 0.22 to 1.23 ± 0.16 ($p < 0.05$) as evidence of improved quality of life (from 1.44 ± 0.35 up to 1.35 ± 0.28 in the comparison group, $p > 0.05$). Improved quality of life in RA patients is determined by the development of a rehabilitation model. After a course of rehabilitation and treatment, the average number of swollen joints (NSJ) decreased from 4.2 to 2.6 ($p < 0.05$) in the main group and from 4.5 to 2.8 ($p < 0.05$) in the control group. The number of painful joints (NPJ) was found to vary with the number of swollen joints. NPJ in the control group decreased from 4.8 to 2.7 ($p < 0.05$) on palpation and movement, and in the control group from 4.4 to 2.9 ($p < 0.05$). The patient's total condition ranged from 3.3 ± 0.7 to 2.3 ± 0.8 according to the DAS 28 index, and from 3.5 ± 1.1 to 2.7 ± 1.0 ($p < 0.05$) in the comparison group decreased. The improvement in the general condition in

patients with RA was observed in the control group at a significant value ($p < 0.05$) as a result of a decrease in morning numbness from 86.15 to 54.17 min (from 93.18 to 59.16 min in the comparison group).

Changes in quality of life after 3 months and after 6 months between treatment-based baseline and comparison group in RA patients were found to be 2 times greater than in the baseline group compared to the comparison group and a statistical difference was achieved. Subsequent results of treatment of RA and AS indicate the sustainability of the effect achieved. Based on the results of the study, the principles of detection and treatment of kidney damage in patients with RA were developed.

Specific criteria for determining the prevalence and risk factors of kidney damage in patients with RA and AS, as well as the advantages of climate therapy included “Sitorai Moxi-Khosa” sanatorium methods based on basic treatment to improve renal function, prevent expected complications such

as chronic renal failure, prevent early disability of patients and improved quality of life.

CONCLUSION Improvement in the condition of patients with RA as a result of rehabilitation treatment was accompanied by an increase in physical activity, which was manifested by a significant ($p < 0.05$) decrease in morning numbness in the main group. In the comparison group, the downward trend in ESR levels was more pronounced, with proteinuria decreased by an average of 12% ($p < 0.05$) and CRP by 14% ($p < 0.05$). In the comparison group, a slight decrease in CRP was noted.

Rehabilitation efficacy in patients with RA was 91%, compared to 65% in the comparison group. Differences in rehabilitation efficacy indicators were found to be reliably variable in the baseline and control groups ($\chi^2 = 0.82$, $p < 0.05$). After the rehabilitation course, it was found that the general condition of the patients improved. However, improvement in the condition of the patients was more pronounced in the main group. The mean number of swollen joints in the main group decreased from 6.23 to 3.34 ($p < 0.05$), and in the control group from 5.34 to 4.23 ($p < 0.05$). The dynamics of the number of painful joints was similar to the dynamics of the number of inflamed joints. In the main group, the number of painful joints on palpation and movement decreased from 5.56 - ($p < 0.05$), in the comparison group - from 5.58 ($p < 0.05$).

The results of this study revealed an association between the number and duration of exercise therapy in AS patients and the improvement in spinal function. The best results were shown in patients who exercised for at least 30 minutes a day and at least 5 days a week. Illness activity and pain severity are also factors that act as a barrier to exercise. However, the results of studies evaluating their impact on physical activity in people with arthritis are inconsistent.

Thus, pain was expressed in patients receiving rehabilitation procedures and a decrease in the duration of morning numbness ($p < 0.01$) was noted. Laboratory results also revealed positive changes in total urine analysis, daily protein loss. A positive change in GFR ($p < 0.05$) was observed in patients with mild to moderate activity of RA and AS. Subsequent results of treatment of RA and AS indicate the sustainability of the effect achieved.

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