Assessment of clinical efficiency of the chronic pain syndrome correction in patients with rheumatoid arthritis by means of the special complex of physical exercises

Abstract

Rheumatoid arthritis (RA) quickly leads to a decrease in working capacity, disability, and often to a decrease in the patients' life expectancy.[1]

One of the characteristic manifestations of RA is chronic pain syndrome (CPS).[2–5] Currently, the medications that are mainly used in the treatment of patients suffering chronic pain from RA result in polypharmacy and increase the cost of the treatment significantly. As a result, in most patients with RA, an adequate correction of pain is not achieved. In addition, drug treatment of the pain is associated with a high risk of adverse reactions.[6] Most non-medicamental methods of the treatment require special rather expensive equipment, and are not available to a wide range of patients.[7]

Keywords: rheumatoid arthritis, chronic pain syndrome, disturbing and depressive frustration, diagnostic approach, complex of physical exercises

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Research objective

To establish the efficiency of the special complex of physical exercises that can be used at home to correct chronic pain syndrome and anxiety-depressive disorders in patients with RA.

Materials and methods

There were 54 patients with significant RA (ACR,1987) at the age of 59.8±11.4 years, most of them were women (95%), without cardiovascular or other severe concomitant diseases. The average duration of RA was 7.7±7.8 years. 69% of patients had a seropositive variant, 19% of patients had system manifestations of the disease. The duration of the morning joint stiffness averaged 3 hours. Most of the patients had the 1-2 degree of activity, the I-II functional class (FC). Erosive arthritis was revealed in 98% of patients. The patients received methotrexate in combination with selective nonsteroidal anti-inflammatory drugs and 33.9% of the patients received glucocorticoids.

We have developed a training rehabilitation program for RA patients with CPS in the form of training sessions first with a doctor-instructor, and then independently at home. The basis of the program is the method of systemic muscle relaxation (Jacobson E. 1938), first modified by us for the treatment of CPS in RA. The program begins with a conversation with the patient about the mechanisms of therapeutic action of non-drug treatments and includs 3 stages:

1. Teaching the correct functional stereotype position and movements of the hand in patients with RA.

2. Deep breathing training.

3. Performing muscle relaxation exercises on Jacobson depending on the severity of RA.

Training in a complex of physical exercises was carried out in groups of 5 people 3 times a week for 2 weeks. Patients continued self-study at home daily 1-2 times a day for 15 minutes for three months.

Evaluation of the effectiveness of the complex of physical exercises for the correction of CBS and psychoemotional disorders was carried out in that group of 54 RA patients who were under the supervision of the city rheumatology center.

After receiving from the patients their informed consent to participate in the study they were divided into 2 groups depending on their consent or refusal of non-drug treatment. In group 1 (n=27), in addition to standard therapy, classes including a special set of physical exercises for the correction of CPS and anxiety-depressive disorders were conducted; in group 2, patients received only standard drug therapy (n=27).

CPS was evaluated by the visual analogue scale (VAS),[8–10] the Van Korff questionnaire (chronic pain grade questionnaire with assessment of grade and intensity of chronic pain of social maladaptation level, class rating and chronic pain intensity, the Mac-Gill pain questionnaire (McGill Pain Questionnaire, (MPQ)).[9-11] The severity of anxiety and depression was determined by the hospital scale of assessing anxiety and depression (Hospital Anxiety and Depression Scale – HADS),[12] the Beck depression assessment scale,[13] the CES-D questionnaire (Center of Epidimiological Studies of USA-Depression).[14] The assessment of health status of patients was carried out by visual analogue scale (HS-VAS). Health-related quality of life was established using the SF-36 questionnaire (SF-36 physical component (PhC)/SF-36 mental component (MC))[10] and the functional index (FDI) was determined using the HAQ questionnaire.[9,15] Statistical processing was carried out using the methods of descriptive statistics, nonparametric, correlation analysis on the STATISTICA 6.0 program.

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Results

The dynamics of CPS indicators and anxiety-depressive disorders is shown in Table 1. Initially patients of the 1st and 2nd groups were comparable to age, activity of RA, the HAQ index, the assessment of the impact of RA on assessment of the health state of patients and they received similar anti-inflammatory therapy. Also, the groups did not differ significantly in terms of anxiety and depression.

After 3 months of observation there were no significant changes between the two groups. However, there were differences in the dynamics of CPS within the groups. After 3 months in the 1st group there was a decrease in the severity of pain: a decrease in VAS (p<0.05), the MPQ VRS (p<0.05), the degree of pain intensity by Van Korff (p<0.05), the degree of maladaptation by Van Korff (p<0.05), SF36 MC (p<0.05) improved.

After 3 months in the dynamics in group 2, only a decrease in the severity of pain was observed: a decrease in VAS (p<0.05), other significant changes in the severity of pain syndrome, quality of life in SF36 were not revealed.

Authentic dynamics of the indices of anxiety and depression was absent in both groups for 3 months. However, in the 2nd group there was a tendency to the increase of CES-D and the development of mild depression (16.0± 11.58 and 18.96±10.56, respectively).

Thus, the 3 months observation of two groups of patients with RA showed that the treatment of the group with non-pharmacological agents was more effective and contributed to the improvement of the patients' state. Though the two groups were initially comparable in age, RA activity, HAQ index, assessment of the impact of RA on assessment of the health state of patient, indicators of anxiety and depressive disorders received similar anti-inflammatory therapy but after 3 months the group1 that was treated with non-pharmacological agents improved the indexes in the severity of pain, the degree of maladaptation, the mental health component of SF36 (p<0.05).

For 3 months the dynamics of anxiety and depression indicators of both groups was absent. However, in group 2 there was a tendency to the CES-D increase and the development of mild depression.

with non-pharmacological agents.

Table 1 Initially and in dynamics indices of chronic pain syndrome and anxiety-depressive disorders depending on the use of non-pharmacological correction

Indices	Group 1 (n=27) (with the use of non-drug treatment)		Group 2 (n=27) (standard therapy)	
	Initially	In the dynamics	Initially	In the dynamics
DAS 28	4,54±0,92	3,78±1,27*	4,26±0,84	3,68±1,29
HS-VAS	53,11±20,8	43,07±22,8	53,5±21,9	29,2±17,5
Pain intensity on VAS	48,8± 20,8	30,2±16,4*	52,04±21,5	29,2±17,5*
Pain intensity on Van Korff	52,7±19,8	42,5±11,7*	54,8±18,5	45,8±16,1
The degree of maladaptation onVan Korff	50,0 [30,0; 70,0]	36,6 [20,0; 50,0]*	58,3 [33,0; 70,0]	39,9 [20,0; 60,0]
Class CPS on Van Korff	2,0 [1,0; 3,0]	1,0 [1,0; 2,0]	2,0 [1,0; 3,0]	1,0 [1,0; 2,0]
MPQ visual rank scale (VRS)	2,4±0,85	1,74±0,65*	2,35±0,74	1,8±1,08
Index of the number of selected descriptors on the MPQ touch scale	4,0 [2,0; 9,0]	3,0 [2,0; 5,0]	5,0 [3,0; 11,0]	4,0 [2,0; 9,0]
The index of the number of descriptors on the MPQ affective scale	4,0 [2,0; 5,0]	4,0 [2,0; 4,0]	4,0 [3,0; 5,0]	4,0 [2,0; 5,0]
Rank pain index on the MPQ touch scale	11,5,0 [6,0; 19,0]	6,0 [3,0; 11,0]	16,0 [6,0; 29,0]	9,0 [5,0; 21,0]
Rank pain index for the MPQ affective scale	7,0 [3,0; 10,0]	6,0 [3,0; 8,0]	8,0 [4,0; 10,0]	7,0 [4,0; 9,0]
SF-36 PhC	41,29±10,07	45,04±11,39	40,5±11,4	41,67±13,1
SF-36 MC	59,89±14,7	64,09±16,9*	58,5±15,9	65,6±17,0
the HAQ FDI	1,32±0,82	1,0 ± 0,74	1,3 ± 0,82	1,0 ±0,71
HADS anxiety	7,63±2,3	6,81±3,4	7,59±2,4	6,68±3,6
HADS depression	6,74±4,5	5,52±3,1	6,59±4,7	5,95±3,6
CES-D	14,8±9,4	16,0 ± 11,6	14,05±7,2	18,96±10,56
The Beck Test	5,85±4,8	5,3±3,8	6,65±4,8	6,0±4,5

Note: Statistical significance of differences within the group: *-p<0.05.

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Conclusion

The obtained results testify to the effectiveness of a special set of physical exercises that can be used at home to correct CPS in patients suffering RA whose degree of activity is low or moderate. The proposed complex also allows to stabilize the psycho-emotional state of patients and improve the quality of their life due to the mental component.

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None.

Conflict of interest

The authors declare that they do not have any conflicts of interest.

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