

The non-pharmacologic treatment of rheumatoid arthritis

Giorgiana Nicoleta Dediu¹, Irina Crismaru¹, Monica Bajan², Georgiana Ionescu³, Madalina Ilie⁴, Gabriela Udrea⁵, Camelia Diaconu⁴, Daniela Bartos⁴

¹Clinical Emergency Hospital of Bucharest

²Filantropia Hospital, Bucharest

³Matei Bals National Institute of Infectious Diseases, Bucharest

⁴Clinical Emergency Hospital of Bucharest, Carol Davila University of Medicine and Pharmacy, Bucharest

⁵Dr. I. Cantacuzino Hospital, Carol Davila University of Medicine and Pharmacy, Bucharest

ABSTRACT

Rheumatoid arthritis (RA) is a chronic, progressive, destructive and deforming arthropathy, characterized by symmetrical erosive synovitis and multisystemic injury. Despite the progresses of pharmacological therapy for RA, many patients continue to have active disease with the risk of developing disability. A number of non-pharmacological therapies are used in addition to the regular treatment of RA. On October 7th, 2008, American Physical Activity guidelines were released, based on the latest physical activity techniques, with impact on the health of people with arthritis, grouped under the acronym SMART. A comprehensive management program for RA includes patient education, psycho-social interventions, adequate rest, exercise, physical and occupational therapy, nutritional and dietetics counseling, interventions to reduce the risk of cardiovascular diseases, osteoporosis and immunizations to reduce the risk of complications from immunosuppressive treatment. The objectives of this program are: disease stabilization, preventing deviations, deformities and ankylosis, combating retractions and stiffness, partial or complete restoration of motor functional capacity of patients. For achieving these goals, the treatment must adhere to the following general conditions: to be initiated early, to be continuous and complex. In conclusion, education and counseling of the patient are important for the management of RA. The physicians should explain to the patient all the treatment options and develop with him a longitudinal treatment plan, which includes the association of the pharmacological therapy with the non-pharmacological one.

Keywords: rheumatoid arthritis, non-pharmacological treatment

Rheumatoid arthritis (RA) is a chronic, progressive, destructive and deforming arthropathy, frequently with systemic manifestations. It is a chronic autoimmune disorder, the cause of which is not completely understood, characterized by symmetrical erosive synovitis and multisystemic injury (1) (Fig. 1).

Despite the progresses made in pharmacological therapy of RA, many patients continue to have active disease, with high risk of later disabilities. A series of non-pharmacological therapies may complete the medical treatment of RA.

An extensive management plan for RA includes patient education, psychosocial interventions, adequate rest, physical exercise, physical and occupational therapy, nutrition and diet counseling, inter-



FIGURE 1. Articular involvement in rheumatoid arthritis (2)

ventions meant to reduce cardiovascular disease risk factors and osteoporosis, immunizations in order to

Corresponding author:

Giorgiana Dediu, PhD

E-mail: drgiorgiana.dediu@gmail.com

Article History:

Received: 12 May 2015

Accepted: 30 May 2015

reduce the risk of complications due to immunosuppressive therapy. The goals of this management plan are: stabilizing the disease, preventing joint deformities and ankylosis, decreasing stiffness, increasing range of joint motion and maintaining the functional status of patients. In order to achieve these goals, the treatment must follow these general principles: it should be started early in the course of disease, it should be continuous and complex. Patient education and counseling is very important, since studies have shown that many patients do not understand the notion of “arthritis” and its causes. A meta-analysis that included 1579 patients has shown that patient education and cognitive behavioral therapy can lead to a slight improvement of rheumatoid arthritis symptoms (1).

The level of physical activity in patients with rheumatoid arthritis

Physical activity has been shown to relieve pain, maintain the function of affected joints and improve the general well-being of patients with RA. In a study comparing patients diagnosed with arthritis and patients without arthritis, 44% of patients with arthritis did not do regular physical activity and subsequently developed cardiovascular diseases, diabetes, obesity and loss of joints function (3) (Fig. 2).

Patients diagnosed with RA often have flares that make physical exercise difficult; however, these patients do not need to abandon their exercise program, but to frequently adjust the level of physical effort they can make. The relative intensity of physical activity can be estimated using a scale from 0 to 10, where 0 is sitting and 10 is the highest level of effort possible (Fig. 3). A moderate intensity activity corresponds to a score of 5-6 on this scale. Regular moderate intensity activity diminishes pain, improves fun-

ctional status of joints, without worsening the symptoms of the disease. Another benefit of physical exercise is the delay of stiffness and functional capacity loss.

On October 7th, 2008, The United States Department of Health and Human Resources released the American Physical Activity guidelines, based on the latest techniques for health improvement in patients with arthritis, gathered under the acronym S.M.A.R.T.S. (“start low and go slow”). S – the key to a successful physical therapy is the slow progression of the level of intensity. M – modify the activity if necessary, any level of activity is helpful, as long as the patient maintains the activity without joint pain. A – physical activity must be “joint friendly”. R – recognise the best places to exercise (for example, in organized groups). T – talk to a specialist.

In case of pain during physical exercise, several strategies can be adopted:

- Changing the exercise schedule by cutting down the frequency or the duration.
- Changing the type of exercises in order to reduce the impact on the joints.
- Exercising in a friendly environment, the patient must be able to have a conversation during exercise.
- Wearing comfortable clothing and shoes.

A randomized, double-blind, placebo-controlled trial, including 244 patients, evaluated the patients’ physical activity based on an international questionnaire about physical activity, the disease activity based on C-reactive protein and DAS 28 score, the level of disability based on a health evaluation questionnaire, the number of hospitalizations and their length over a period of one year. This trial showed that physical exercise and low disease activity directly influenced the number of hospitaliza-

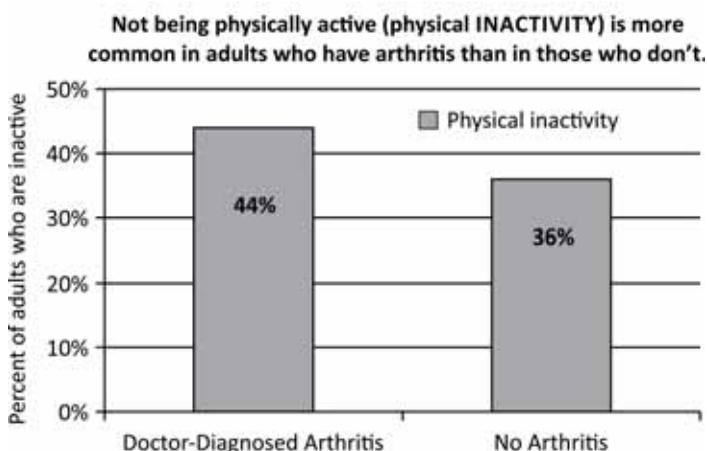


FIGURE 2. Lack of physical activity in people with and without rheumatoid arthritis (4)

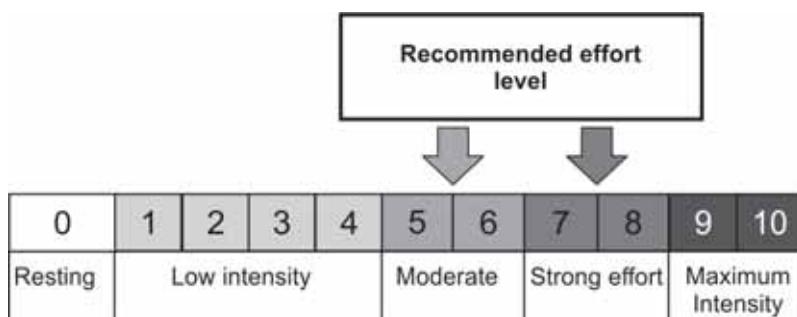


FIGURE 3. Physical activity intensity scale in rheumatoid arthritis (5)

tions and the length of hospitalizations and thus, the health care costs for RA patients (6,7).

Electrophysical therapies are often used to decrease pain, swelling and to maintain the joints' flexibility.

Thermotherapy: local cold applications (cold packs, ice massage, cold air) or warm applications (thermal baths, ultrasounds, diathermy) are often used to relieve pain, fatigue and inflammation. A review on the efficacy of thermotherapy in the management of RA showed no effects on disease activity (including the number of swollen joints, pain, required medical treatment and hand functional status) (8). However, warm wax baths combined with active hand exercises resulted in significant improvement of grip function and range of motion in finger flexion, compared with a control after 4 weeks of intervention. No clinically important benefit was shown for muscle force. (9) Patients may benefit from such combination of therapies in the same treatment session, heat therapy, with its reflex vasodilative effect, making for an optimal muscle preparation before hand exercises.

Electrotherapy represents the therapeutical use of different types of electrical currents (usually on the surface of the skin through electrodes) for pain relief and muscle stimulation. Pain relief may be obtained by transcutaneous electrical nerve stimulation (TENS). Some trials have shown significantly better pain relief with acupuncture-like (low frequency combined with high-intensity) TENS compared to placebo, while others did not find significant differences between TENS and placebo (10). A study which compared low-frequency acupuncture-like TENS to conventional high-frequency TENS on patients with chronic rheumatoid arthritis found no statistically significant difference in patient assessment of overall disease improvement, but clinically important benefits in patients treated with high-frequency TENS have been noted. (11)

Lasertherapy: low-level laser therapy has been used for RA for more than 20 years. It does not generate a thermal effect, but induces photochemical reactions in cells. Although some research about this therapy shows benefits in decreasing pain and increasing range of motion, there are trials that show no difference between this method and placebo (10).

Spa-therapy: balneotherapy is one of the oldest methods used in the treatment of rheumatoid arthritis, especially mineral and thermal waters. Spa therapy is best tolerated at a temperature of 34-35°C and for approximately 20 minutes. All trials have shown that balneotherapy and mud applications decrease pain and fatigue, their positive effects lasting for 3 to 9 months (12). However, a recent review of nine studies on effects of balneotherapy on patients with RA revealed no significant differences between balneotherapy and placebo or hydrotherapy (exercises in water) in terms of pain, swollen joints or tender joints. A comparison between mineral baths and Cyclosporin A for patients with RA showed some benefit of balneotherapy in overall improvement at 8 weeks, though there were no statistically significant differences in pain intensity or in the number of swollen joints. Therefore the overall evidence is not conclusive as to support the use of balneotherapy or to recommend one type of bath in favour of another. (13)

Therapeutic exercise: exercise therapy, including stretching, strengthening, aerobic conditioning exercises, adjusted to the stage of the disease, the affected joints and the age of the patient, proved to have beneficial effects on increasing physical capacity in patients with RA (14). There should be no straining exercises during acute arthritis. Inflamed joints should be rested, while non-inflamed should be active or active-assisted stretched to prevent contractures. In chronic disease with inactive arthritis, conditioning exercises such as swimming, walking and cycling alternating with resting periods are re-

commended. A study compared patients with rheumatoid arthritis that underwent a training program with a control group of patients who participated in physical therapy, but were not allowed high impact activities. (15) The study concluded that high intensity exercise has more benefits regarding functional status, not influencing the radiographic progression of the disease.

Massage therapy is a form of manual therapy that includes techniques meant to increase the range of motion of the affected joints. A cross-over study that included 9 patients and used a combination of aromatherapy and massage has proved that massage is beneficial in reducing pain (16). A recent study that included 42 patients with RA affecting the upper limb confirmed these results. Moderate pressure massage therapy group had less pain and greater range of motion in their wrist, elbows and shoulders. (17)

Occupational therapy is concerned with activities involving upper extremities and teaches patients with RA to cope with daily activities and to protect the affected joints by using practical tools and splints. A meta-analysis of occupational therapy studies including 38 studies on occupational therapy for patients with RA showed limited results in pain relief and improving the quality of life (18). Although the nature of the occupational therapy interventions varied widely and there were large differences in interventions with regard to the type of treatment and duration, the results suggest occupational therapy may play an important role in the treatment of patients with RA.

Splints and orthoses play a key role in the management of patients with RA, as they are used to relieve pain, reduce inflammation and to correct bone deformities. Approximately 80% of patients suffering from RA have lower extremities involvement, so the most commonly used splints are for foot and ankle, for maintaining stability and weight support (19). A metatarsal pad or bar is usually used to off-load weight away from the painful metatarsophalangeal articulations and knee orthoses help reduce edema and pain, control the patellar alignment, the hyperexten-

sion or the instability of the knee due to cruciate ligaments.

Nutrition and dietary therapy is another important issue in patients with RA, because these patients can have anorexia and inadequate alimentation. Alimentary diets rich in fish oil, fatty acids (eicosapentaenoic acid and docosahexaenoic acid) may decrease arachidonic acid metabolites and cytokines, thus improving the symptomatology (19). In a randomized trial including 139 patients with recent onset of the disease, large doses of fish oil (5.5 g daily) in addition to triple therapy consisting of DMARDs (Methotrexate + Sulfasalazine + Hydroxychloroquine) significantly reduced the percentage of patients that did not reach remission or low disease activity, compared to the patients on medication associated with a low dose of fish oil (0.4 g daily) (20).

Group therapy is beneficial by improving the general well-being, learning new methods to cope with the disease and sharing experiences with patients who suffer from the same disorder. In this way, it can help patients dealing with their fear and anxiety when diagnosed with this chronic disease (19).

Reducing cardiovascular disease risk. Patients with RA have a high risk of coronary atherosclerosis, therefore reducing cardiovascular disease risk factors such as smoking, hiperlipidemia, arterial hypertension and sedentary lifestyle should be a part of rheumatoid arthritis management, alongside with specific pharmacological treatment. The management of inflammation can also contribute to cardiovascular protection and there are proofs that statins can reduce inflammation in these patients (19).

In conclusion, treatment of RA requires global management and non-pharmacological treatment should be considered as adjunctive therapy regardless of the stage of the disease. So far, better conducted studies are necessary to draw firm conclusions on the effectiveness of these therapies. However, a multidisciplinary team can establish the indications for non-drug therapy in each individual and can monitor the benefits of the treatment.

REFERENCES

1. www.ms.ro/documente (accessed May 2014)
2. <http://www.nebh.org/> (accessed May 2014)
3. Hawkes J. Care, Dixon J.S. et al. Comparison of three different three treatments for rheumatoid arthritis of the hands. *Physiother Pract* 1986; 2:155-160.
4. Shih M., Hootman J.M., Kruger J., Helmick C.G. Physical activity in men and women with arthritis, National Health Interview Survey, 2002. *Am J Prev Med* 2006; 30(5):385-93.
5. http://www.cdc.gov/arthritis/pa_overview.htm (accessed May 2014)
6. <http://arthritis-research.com> (accessed June 2014)

7. **Konrad K.** Randomized, double-blind, placebo-controlled study of ultrasonic treatment of the hands of rheumatoid arthritis patients. *Eur J Phys Med Rehab* 1994; 4:155.
8. <http://jrheum.com> (accessed May 2014)
9. **Dellhag B., Wollersjö I., Bjelle A.** Effect of active hand exercise and wax bath treatment in rheumatoid arthritis patients. *Arthritis Care Res.* 1992; 5:87–92
10. **Brousseau L., Jud M.G. et al.** Transcutaneous electrical nerve stimulation (TENSE) for the treatment of rheumatoid arthritis in the hand. The Cochrane Library, Issue 2, 2003, Oxford.
11. **Mannheimer C., Lund S., Carlsson C.A.** The effect of transcutaneous electrical nerve stimulation (TNS) on joint pain in patients with RA. *Scand J Rheumatol.* 1978; 7:13–16.
12. **Cramp F., Hewlett S., Almeida C., et al.** Non-pharmacological interventions for fatigue in rheumatoid arthritis. *Cochrane Database Syst Rev.* 2013; 8:CD008322.
13. **Verhagen A.P., Bierma-Zeinstra S.M.A., Boers M., Cardoso J.R., Lambeck J., de Bie R., de Vet H.C.W.** Balneotherapy (or spa therapy) for rheumatoid arthritis. *Cochrane Database of Systematic Reviews* 2015, Issue 4. Art. No.: CD000518.
14. **Van den Ende C.H.M., Vliet Vlieland T.P.M., Munneke M., Hazes J.M.W.** Dynamic exercise therapy in rheumatoid arthritis: a systematic review. *Br J Rheumatol.* 1998; 37: 677-687
15. **de Jong Z, Munneke M, Zwiderman AH, Kroon HM, Jansen A, Runday KH, van Schaardenburg D, Dijkmans BA, Van den Ende CH, Breedveld FC, Vliet Vlieland TP, Hazes JM.** Is a long-term high-intensity exercise program effective and safe in patients with rheumatoid arthritis? Results of a randomized controlled trial. *Arthritis Rheum* 48(9):2415-24, 2003.
16. **Brownfield A.** Aromatherapy in arthritis: a study. *Nurs Stand* 1998; 13;34-5.
17. **Field T., Diego M., Delgado J., Garcia D., Funk C.G.** Rheumatoid arthritis in upper limbs benefits from moderate pressure massage therapy. *Complement Ther Clin Pract.* 2013 May; 19(2):101-3.
18. **Steultjens E.M.J., Dekker J., Bouter L.M., Van Schaardenburg D., Van Kuyk M.A.H., Van den Ende C.H.M.** Occupational therapy for rheumatoid arthritis: a systematic review. *Arthritis Rheum (Arthritis Care Res)* 2002; 47: 672–85.
19. www.uptodate.com (accessed June 2014)
20. **Geusens P., Wouters C., Nijs J., et al.** Long-term effect of omega-3 fatty acid supplementation in active rheumatoid arthritis. A 12-month, double-blind, controlled study. *J Arthritis Rheum.* 1994; 37(6):824.