

Rheumatologic rehabilitation: the great expectation for rheumatic patients

S. Maddali Bongi, M. Matucci Cerinic

Department of Biomedicine, Section of Rheumatology, University of Florence, Italy

In Italy, rheumatic diseases are the second most frequent cause of morbidity among all affections, after those involving the cardiovascular system, and the first in chronic-degenerative diseases (1). Their prevalence in adult population is 26.7% (2).

Rheumatic illnesses differ greatly in their etiology, severity and disease course. However, they all cause significant disability in daily activity and in a socioeconomic context, including the work place. The recent social report on Rheumatoid Arthritis presented by the Censis Foundation, the Italian Society of Rheumatology and the National Association for Rheumatic Illnesses showed significant daily disability in domestic activities in around half of the patients with Rheumatoid Arthritis, and a notable change in the working life of the 22.7% of those interviewed, even resulting in giving up work (3).

Many reports have shown the huge impact of rheumatic illnesses (chronic inflammatory rheumatism, fibromyalgia, chronic back pain, osteoarthritis, connective tissue diseases, etc.) on work disability, and the consequent social costs.

A survey carried out by the health monitoring service (Osservatorio Sanità e Salute, 2008) reported that, in Italy, total social and health care costs related to chronic rheumatic illnesses amount to over 4 billion euro a year (4).

According to the rehabilitation program set out by the Italian Ministry of Health in 2011 (5), patients with rheumatic illnesses can be defined as highly complex cases, as they are affected with chronic diseases, which are often associated with impaired

systemic functionality, comorbidity and complications. Thus, rheumatologic rehabilitation is necessary and complex.

However, even today, the concept of rheumatologic rehabilitation is little known and even less applied.

This is in stark contrast to the rehabilitation practices in other disciplines, such as orthopedics, neurology, cardiology and pneumology, that often treat also rheumatic patients. Although "rheumatism" have been among the most well known illnesses since ancient times, and Rheumatology has been recognized as a distinct discipline for almost a century (the International League Against Rheumatism was founded in 1927), rheumatologic rehabilitation in various countries, including Italy, has not been identified as a distinct and priority discipline.

Cause and effects of this situation are the following: few recommendations and guidelines are available, that, moreover, differ widely in their approach to the rehabilitation of rheumatic patients; randomized and controlled studies are scarce and it is difficult or even impossible to carry out double blinded studies; many researches lack in methodological rigor, involve only small patient samples, which are not homogeneous, and often do not have long-term results.

Furthermore, even though many studies reporting the efficacy of rehabilitation in rheumatic patients in terms of pain, daily function and quality of life have been published, the design of rehabilitation protocols have been hampered by the fact that the methods used in the studies have not been described and, thus, the results are

Corresponding author:
Prof.ssa Susanna Maddali Bongi
Dipartimento di Biomedicina
Sezione di Reumatologia
Università degli Studi di Firenze
Villa Monna Tessa
Viale G. Pieraccini, 18 - 50139 Firenze, Italy
E-mail: susanna.maddalibongi@unifi.it

difficult to be compared. It should be also added the lack of specific rehabilitation structures for rheumatic patients (almost absent in Italy) and the fact that in Italy rheumatologic rehabilitation is not included in University degree courses. In particular, no classes in rheumatologic rehabilitation are present in the degree courses of Medicine or Physiotherapy, or in the post-graduate specialty schools of Rheumatology and Rehabilitative Medicine.

Therefore, rheumatologic rehabilitation is, at the moment, mainly based on the experience and the clinical evidence provided by the specialists directly involved. On the basis of this experience, we can try to define the main characteristics by which rheumatologic rehabilitation differs from the rehabilitation practices in other disciplines.

In some countries, the rheumatologist has, for many years, been assisted by a team of various rehabilitation specialists, each with a specific role: physiotherapist, rehabilitation nurse, occupational therapist, rehabilitation assistant, professional assistant, social worker, psychologist (6). This multi- and inter-disciplinary profile of rheumatologic rehabilitation has led to great clinical efficacy and reduced management costs, as confirmed in many scientific papers (7-9).

Today, in Italy, rheumatic patients are being followed by a growing number of experts with highly specialized skills in a variety of fields, such as otoneurologists, dentists and bioengineers who deal with posturology, chiropractic treatment, osteopathy, acupuncture, podiatry, and many others.

As underlined in the recent update of the ASAS/EULAR recommendations in patients with Ankylosing Spondylitis, the rheumatologist is responsible for the co-ordination of the complex multidisciplinary approach that requires pharmacological treatment and rehabilitation (10). It is, in fact, the rheumatologist who knows both the disease and the psychophysical status of the patient and who should be informed of the whole range of useful rehabilitation options. Thus, the

rheumatologist must, above all, provide the rehabilitation team with the diagnosis of the patient, and define the presence and the severity of the extra-articular manifestations of the disease and the possible comorbidities which could influence the rehabilitation process (cardiac and pulmonary diseases, severe osteoporosis, etc.). The rheumatologist should be also the first to propose the rehabilitation project to the patients, providing them with correct information and encouraging their active participation in the therapeutic program. The collaboration of the rheumatologist consists also in prescribing an efficacious pharmacological therapy, that allows the rehabilitation to take place, in controlling patient compliance for the entire duration of treatment and in evaluating, together with the rehabilitation team, the final results and follow-up (11).

It is essential to carry out the rehabilitation as early as possible together with the pharmacological therapy. Unfortunately, very often, the rehabilitation in rheumatology is introduced as the last therapeutic attempt, to be used only when it is not possible to cure the patient with medical therapy, and when surgery is not advised. This approach has little efficacy and does not motivate the patient in following the treatment. For example, there is scarce hope of improvement in patients with advanced stage of Ankylosing Spondylitis with a "bamboo spine" or of Systemic Sclerosis with claw-like fingers.

The early adoption of specific rehabilitation therapy has been promoted in many fields (traumatology, cardiac surgery, pneumology, neurology, etc.), but little is known about the enormous benefits of rehabilitation in rheumatic diseases, particularly when started early and in collaboration with the rheumatologist. These benefits are not only evident in their impact on pain and inflammation of the joints, but also on the evolution of the disease, by preventing articular alterations and the consequent disability (12-14).

It would be hoped that rheumatologists could be able to invert the therapeutic pyramid, not only in establishing more ef-

efficacious pharmacological therapy since the first phases of the illness, but also in prescribing early and appropriate rehabilitation therapy.

The patient has a central role within the rehabilitation team and should actively participate in his day-to-day improvement. The rheumatologist is responsible for educating the patients and for choosing the rehabilitation objectives with them and their family, by discussing and deciding together about the best ways to achieve those objectives. The rheumatologist should be the referent for the patient for the whole rehabilitation period and should guarantee an adequate communication with all the members of the team (11, 15).

The 1998 Italian Health Ministry guidelines (16) indicated for rehabilitation activities the need of a total patient care, with the drawing of an individual rehabilitation program.

A personalized therapeutic program should be centered on the physical, psychological and social situation of the patient. It is essential that the rheumatologist could globally take in account the patient's needs, expectations and preferences, besides environmental and contextual factors. In order to create an efficacious personalized rehabilitation program, it is of fundamental importance that an accurate clinical and instrumental evaluation of every compromised joint (pain, phlogosis, motility, strength, deformity and dexterity) of the patient should be made. The rheumatologist and the rehabilitation team should also perform an overall assessment (disease activity, psychological state, functional ability, tiredness and quality of life) by using anthropometric measurements, scales and validated questionnaires.

Thus, different rehabilitation programs should be designed according to each rheumatic affection, and also differentiated according to the different phases and stages of the disease, in agreement with the proposals of the English (17), French (18), and Canadian (19) scientific societies regarding Rheumatoid Arthritis, as we

already underlined for the physical exercise (20).

Furthermore, methods known as efficacious in rheumatology should be combined and could be of help to achieve specific objectives in particular sites and in different phases of the illness, as demonstrated by our group in Systemic Sclerosis (21-23), always maintaining the priority of personalized treatment program and of global approach (24). In fact, even when the primary aim of the rehabilitation program is to reduce pain and to prevent damage and articular deformity in the most compromised sites, as in chronic arthritis, however, is always necessary to evaluate and to treat the entire musculoskeletal system to prevent secondary damages. These are due to changes in posture and gesture which have developed to compensate the initial disability and which may, in turn, be more severe than the initial damage. Furthermore, rheumatic illnesses involve many joints and it is, therefore, necessary to avoid the evolution of the impairment in other different sites. Unfortunately, the consequences of the lack of a global rehabilitation may arise when a rheumatic patient is treated in sport or post-trauma specialized rehabilitation centers, where only a segmental rehabilitation is performed.

According to the bio-psycho-social model (25), the global approach to rehabilitation of the rheumatic patient should not only cover the entire musculoskeletal system but also the overall general health of a chronically ill patient. In fact, the multi-dimensional concept of Health includes not only the simple absence of illness, but rather "a state of complete physical, mental, and social well-being" (WHO, 1947). In fact, rheumatic diseases present progressive and disabling chronic pain, are often systemic and sometimes life threatening; they can lead not only to serious musculoskeletal impairment but to equally important psychological and social problems, which may have a strong impact on patient quality of life and which aggravate pain and disability.

For what concerns the global approach, professional experts with psycho-social

skills should be included in the rehabilitation team and each member of the team should be able to establish a meaningful and communicative interchange with the patients. Moreover, in the global management of rheumatic patients, mind-body techniques are increasingly demonstrated as efficacious (26).

These techniques treat the mind and the body as two integrated and inseparable aspects of the organism. Acting on the patients mental and psychological state, they develop their self-perception and body awareness, helping them to recognize any changes in posture and function. These techniques help the patients in developing strategies to re-educate body, to improve movement and body control, and to reduce pain.

One of the most interesting features of this approach is that patients who can accomplish it can actually take responsibility for their own health through an active commitment to gaining psycho-physical well-being. It is the patient himself who, under the guidance of the physiotherapist, improves his own health. Mind Body strategies seem to be particularly effective in patients with Fibromyalgia (29-32). In this condition, the multidisciplinary rehabilitative approach is recommended with a high level of evidence by American Pain Society and Association of Scientific Medical Societies in Germany, in contrast to the EULAR, which advises almost exclusively pharmacological therapy (33).

From the data discussed till now, it is easy to understand the difficulty of applying in rheumatic patients predetermined rehabilitation protocols, difficulty that heavily impacts on the research in this field. Another important characteristic of rheumatologic rehabilitation, which differentiates it from other fields of medicine (orthopedics, traumatology, sport medicine), is the continuity of treatment, to be carried out for the entire duration of the illness. Given the chronic nature of the rheumatic diseases, scientific studies show a rapid reduction in efficacy once treatment is stopped, no matter what method of rehabilitation is applied. It is, therefore, advis-

able to repeat the cycles of rehabilitation therapy, alternating group courses and individual sessions, under the supervision of a physiotherapist. These should be supported by home exercises and education programs administered to the patients.

Finally, it is important to underline that any rehabilitation treatment aimed at the rheumatic patient must always be applied in the absence of pain. Causing pain in this type of diseases is the equivalent of exacerbating the inflammation of the joints, with the risk of leading to serious and irreversible lesions and damages. An expert physiotherapist should adjust his intervention precisely according to a constant evaluation of the pain the patient is experiencing and should never pass pain threshold. For this reason, in rheumatologic rehabilitation it is not advisable to use technical equipment but rather to rely on the manual skills of a physiotherapist with an expertise in treating rheumatic patients (11).

In conclusion, rehabilitation treatment in the rheumatic patient does not consist in applying methods used in other disciplines. It is rather a specific and personalized multidisciplinary approach which is aimed at and continuously adjusted to achieve the physical, social and psychological wellbeing of the patient, coordinated by the rheumatologist at every stage and phase of the illness. Given the efficacy and the complexity of rheumatologic rehabilitation, it is essential to raise awareness and knowledge in this field throughout Italy.

It is also important to promote scientific studies, formulation of guidelines and to provide highly specialized medical and paramedical staffs that could properly apply rehabilitation to all rheumatic patients needing this intervention. The rheumatologist has a central role in taking responsibility for the overall management of the rheumatic patient, even during the complex rehabilitation process. For this reason it may be suggested to create a new field within Rheumatology to train rheumatologists skilled in rheumatologic rehabilitation: the Rehabilitative Rheumatology.

■ REFERENCES

1. Ciocci A. Aspetti epidemiologici e socio-economici delle malattie reumatiche in Italia. *Reumatismo* 1999; 51: Suppl. 2: 405.
2. Salaffi F, De Angelis R, Grassi W; MArche Pain Prevalence; INvestigation Group (MAPPING) study. Prevalence of musculoskeletal conditions in an Italian population sample: results of a regional community-based study. I. The MAPPING study. *Clin Exp Rheumatol* 2005; 23: 819-28.
3. Un percorso a ostacoli. Primo Rapporto Sociale sull'Artrite Reumatoide, 2008. www.reumatologia.it
4. Ridolfi. Osservatorio Sanità e Salute 2008. www.anmar-italia.it
5. Piano di indirizzo per la riabilitazione del Ministero della Salute, Supplemento Ordinario n. 60, *Gazzetta Ufficiale* 2 marzo 2011, n. 50.
6. Swezey RL. Medicina riabilitativa e artrite. In DJ Mc Carty e WJ Koopman, editors. *Trattato di Reumatologia*, XII ed (ed. italiana). Padova: Piccin Editrice, 1993; 1076-1113.
7. Tjhuis GJ, Zwiderman AH, Hazes JM, Van Den Hout WB, Breedveld FC, Vliet Vlieland TP. A randomized comparison of care provided by a clinical nurse specialist, an inpatient team, and a day patient team in rheumatoid arthritis. *Arthritis Rheum.* 2002; 47: 525-31.
8. van den Hout WB, Tjhuis GJ, Hazes JM, Breedveld FC, Vliet Vlieland TP. Cost effectiveness and cost utility analysis of multidisciplinary care in patients with rheumatoid arthritis: a randomised comparison of clinical nurse specialist care, inpatient team care, and day patient team care. *Ann Rheum Dis.* 2003; 62: 308-15.
9. Häuser W, Bernardy K, Arnold B, Offenbächer M, Schiltenwolf M. Efficacy of multicomponent treatment in fibromyalgia syndrome: a meta-analysis of randomized controlled clinical trials. *Arthritis Rheum* 2009; 61: 216-24.
10. Braun J, van den Berg R, Baraliakos X, Boehm H, Burgos-Vargas R, Collantes-Estevez E, Dagfinrud H, et al. 2010 update of the ASAS/EULAR recommendations for the management of ankylosing spondylitis, *Ann Rheum Dis*, 2011;70: 896-904.
11. Maddali Bongi S. L'approccio riabilitativo al malato reumatico. In: Maddali Bongi S, editor. *Riabilitazione reumatologica: approccio multidisciplinare*. Milano: EDRA, 2007.
12. Steultjens EM, Dekker J, Bouter LM, van Schaardenburg D, van Kuyk MA, van den Ende CH. Occupational therapy for rheumatoid arthritis. *Cochrane Database Syst Rev.* 2004; (1): CD003114.
13. Dagfinrud H, Kvien TK, Hagen KB. Physiotherapy interventions for ankylosing spondylitis. *Cochrane Database Syst Rev.* 2008; (1): CD002822. Review.
14. American College of Rheumatology Subcommittee on Rheumatoid Arthritis Guidelines. Guidelines for the management of rheumatoid arthritis: 2002 Update. *Arthritis Rheum.* 2002; 46: 328-46.
15. Hammond A. Rehabilitation in rheumatoid arthritis: a critical review. *Musculoskeletal Care.* 2004; 2: 135-51.
16. Linee-guida del Ministro della Sanità per le attività di riabilitazione, *Gazzetta Ufficiale* 30 maggio 1998; 124.
17. NICE National Institute for health and Clinical Excellence. Rheumatoid Arthritis. National clinical guideline for management and treatment in adults. NICE Clinical Guideline 2009.
18. Forestier R, André-Vert J, Guillez P, Coudeyre E, Lefevre-Colau MM, Combe B, et al. Non-drug treatment (excluding surgery) in rheumatoid arthritis: clinical practice guidelines. *Joint Bone Spine.* 2009; 76: 691-8.
19. Ottawa Panel evidence-based clinical practice guidelines for therapeutic exercises in the management of rheumatoid arthritis in adults. *Phys Ther* 2004; 84: 934-72.
20. Maddali Bongi S, Del Rosso A. Come si prescrive l'esercizio fisico in reumatologia. *Reumatismo* 2010; 62: 4-11.
21. Maddali-Bongi S, Landi G, Galluccio F, Del Rosso A, Miniati I, Conforti ML, et al. The rehabilitation of facial involvement in systemic sclerosis: efficacy of the combination of connective tissue massage, Kabat's technique and kinesiotherapy: a randomized controlled trial. *Rheumatol Int.* 2010; 18.
22. Maddali Bongi S, Del Rosso A, Passalacqua M, Miccio S, Matucci Cerinic M. Manual lymph drainage improves upper limb oedema and hand function in patients with systemic sclerosis (SSC) in oedematous phase. *Arthritis Care Res.* 2011;63: 1134-41.
23. Maddali Bongi S, Del Rosso A, Galluccio F, Sigismondi F, Miniati I, Conforti ML, et al. Efficacy of connective tissue massage and Mc Menell joint manipulation in the rehabilitative treatment of the hands in systemic sclerosis. *Clin Rheumatol.* 2009; 28: 1167-73.
24. Maddali Bongi S, Del Rosso A, Galluccio F, Tai G, Sigismondi F, Passalacqua M et al. Efficacy of a tailored rehabilitation program for systemic sclerosis. *Clin Exp Rheumatol.* 2009; 27 (3 Suppl 54): 44-50.
25. Engel GL: The need for a new medical model: a challenge for biomedicine. *Science* 1977; 196: 129-36.
26. Wang C. Tai chi and rheumatic diseases. *Rheum Dis Clin North Am.* 2011; 37: 19-32.
27. Lee MS, Pittler MH, Ernst E. Internal qigong for pain conditions: a systematic review. *J Pain* 2009; 10: 1121-7 Review.
28. Lee MS, Pittler MH, Ernst E. Tai chi for osteoarthritis: a systematic review. *Clin Rheumatol.* 2008; 27: 2, 11-8. Review.

29. Carson JW, Carson KM, Jones KD, Bennett RM, Wright CL, Mist SD. A pilot randomized controlled trial of the Yoga of Awareness program in the management of fibromyalgia. *Pain* 2010; 151: 530-9.
30. Zhang F, Wu Y. A randomized trial of tai chi for fibromyalgia. *N Engl J Med*. 2010; 363: 2265-6.
31. Maddali Bongi S, Di Felice C, Del Rosso A, Galluccio F, Landi G, Tai G, et al. The efficacy of the Ressayguier method in the treatment of fibromyalgia syndrome: a randomized controlled trial. *Clin Exp Rheumatol*. 2010; 28 (6 Suppl 63): S46-50.
32. Maddali Bongi S, Di Felice C, Del Rosso A, Landi G, Giambalvo Dal Ben G, Matucci Cerinic M. Efficacy of the "body movement and perception" method in the treatment of fibromyalgia syndrome: an open pilot study. *Clin Exp Rheumatol* 2011; 29 (6 Suppl. 69): S12-48.
33. Häuser W, Arnold B, Eich W, Felde E, Flügge C, Henningsen P, et al. Management of fibromyalgia syndrome - an interdisciplinary evidence-based guideline. *Ger Med Sci*. 2008; 6: 5-10.