

Exercise in Rheumatoid Disease

Rheumatoid arthritis (RA) is a systemic condition characterised by pain, swelling and stiffness in multiple joints, often with systemic involvement. Non-specific symptoms, and in particular fatigue, are common. The disease affects 0.5-1% of the general adult population and an increasing incidence with age is noted, with an annual incidence in females: of 36/100000 and in males 14/100000. The disease can result in significant pain and disability, but the spectrum of clinical presentations is wide. Systemic involvement can manifest itself as inflammation in any organ, and the pro-inflammatory cytokines is one reason why fatigue is also a major limiting factor.

Management focuses upon the early identification of individuals with RA, and thorough education and counselling of individuals according to their needs, expectations and concerns. Empowerment of the patient to take an active role in the management of their disease is of vital importance. Pharmacological approaches and in particular disease modifying drugs such as Methotrexate, Salazopyrine, Leflunomide, the more recent anti-TNF agents, and where appropriate, steroids play a significant role. However, an often neglected area of management is exercise for health related benefit. Rheumatoid disease confers a heightened risk of cardiovascular events, depression and mood disturbance, osteoporosis, muscle wasting, secondary degenerative arthritis and fatigue; all indications for an exercise prescription. Muscle wasting occurs due to disuse, the disease process itself, steroid use and to arthrogenic inhibition, which in itself is related to raised intra-articular pressure and pain. A vicious cycle then develops, with inactivity and deconditioning making it progressively more difficult to function. Wasting and weakness increases the risk of falls, which can result in fracture and further disability. Hence, every patient with RA should have an exercise prescription, focussing upon aerobic activity, strengthening and functional activities.

There is overwhelming evidence that exercise programmes involving muscle strengthening and aerobic activities can improve muscle strength, muscle mass, function, and reduce cardiovascular risks in patients with stable rheumatoid arthritis. Exercise programmes that have been studied and demonstrated to be safe and effective include hydrotherapy [1], Tai Chi [2] and general aerobics.

Studies on the effects of moderate or high-intensity exercise in rheumatoid arthritis demonstrate either decreased or stable disease activity. Research on exercise and radiologic progression of the small joints is scant, but results indicate that exercises are safe for the joints of hands and feet. One study does suggest that long-term high-intensity weight-bearing exercises in patients who have significant radiologic damage of large joints may result in additional damage in some patients, although this requires further investigation [3-6].

Strength training, to enhance muscle mass and function is very important; even high intensity strength training appears safe [7].

Exercise prescription should start with a thorough education of the patient and their carers about the importance of exercise to maintain function and to enhance well being. Perceived barriers need to be addressed and there is a wide interindividual variation in this [8].

Physical, psychological, social, and environmental factors all influence motivation to exercise. Anxieties about damaging joints, aggravating pain, falling, physical appearance, a lack of a protected environment, all can play a role. Some of these factors are similar to those in general adult samples, whereas others are more unique to individuals with chronic disease. Symptoms of arthritis are, inevitably, barriers to exercise, yet demonstration of improvements in these outcomes act as motivating features. To this end, involvement of therapists is vital and 'expert patients' also provide support. However the nature of the disease is such that flares can occur unpredictably, and continuing an exercise programme when such flares occur is a major challenge. Those who do experience benefits are more likely to have adapted their exercise to accommodate the disease. This usually initially requires input from therapists, trainers and others. Contact with the patient can be maintained by direct visits, telephone and email [9].

Good pain management is also vital, since there is little inclination to exercise in the presence of pain. Ideally the disease will be controlled by effective disease modifying agents, but analgesics are usually required. In the elderly, the risk of adverse effects of

NSAIDs cannot be over emphasised and attempts to avoid regular use should be made. The use of heat and cold is often neglected; heat can be used in relieving muscle spasm and pain, whilst cold packs can be used for post exercise soreness around joints.

The basic components of the exercise prescription at the outset are (a) aerobic activity (b) strength training. The former will be structured according to intensity (initially 60-70% of maximum), duration (initially 20 minutes, which can be divided into separate sessions, with rest breaks), frequency (initially 3 times weekly). Intensity can be assessed by the patient according to perceived exertion, such as using a Borg scale [] or heart rate. Strengthening exercises for upper and lower limbs are also performed 3 times weekly and can be taught by a physical therapist. Gentle stretching and education about use of ice after exercise to reduce any post exercise inflammation is important. Keeping an exercise diary, which can be reviewed by therapists and/or doctors is useful in refining the programme. Alteration of the programme when disease flares occur is necessary and the patient will become experienced with this.

Attention to diet is a priority in patients with RA. As indicated earlier, the rheumatoid disease process also involves cytokine-driven alterations in protein and energy metabolism and consequent muscle wasting (rheumatoid cachexia). Anorexia can also be an issue. Diet is of great importance and in many elderly patients extra calorie and protein supplementation should be considered. Exercise is unlikely to be of significant benefit in the absence of adequate dietary intake.

Attention to risks is also important. Muscles usually account for 40% of an individual's body weight; this is not the case in those with RA. A reduction in muscle mass makes the likelihood of injury more likely without close attention to the rate of the progression of the exercise prescription. Adverse biomechanics such as valgus deformities at the ankles also should be identified and, where possible, corrected; orthotics may be helpful in this situation.

Compliance

While low pain, high physical activity, and good lower extremity function are predictors of good general health perception, a high physical activity level before the

disease is the strongest predictor of high physical activity later [10]. In one study, patients with RA were nearly 7 times more likely to exercise 6 months after visiting their rheumatologist if they participated in exercise in the past [11]. Non-participants and non-compliers in exercise programmes are more likely to perceive their disease as more serious, use fewer disease-modifying antirheumatic drugs, have a lower level of education, and have a more negative attitude toward intensive exercise [12].

Access to support from, and regular contact with, professionals and other experienced patients also improves compliance. One study noted that patients with RA were 26% more likely to be engaged in exercise at follow-up 6 months after seeing a rheumatologist if a patient's rheumatologist was currently performing aerobic exercise [11].

Conclusions:

Exercise Prescription is vital and a fundamental component in the management of all patients with rheumatoid arthritis. There remains a lack of awareness by physicians and some physical therapists in relation to this important aspect of management and hence recommendation of exercise by health care providers remains suboptimal. Availability of access to appropriate environments, supervision and arthritis specific programmes remains a limiting factor, but many patients can follow a suitable programme with some initial support and encouragement.

Useful reading material for patients is available from the Arthritis Research Campaign: arc.org.uk.

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