of the autonomic system is associated with conferring an adaptive advantage during stressful situation.

The SSR in rheumatoid arthritis (RA) and systemic lupus erythematosus (SLE)

There is strong evidence that major life events and chronic minor stress act as important factors in RA and are associated with the onset and course of the disease. By considering that minor and major stress activate the SSR, the activation of the HPA axis is the physiologic consequence of such stimulation. However, as introduced, also inflammatory or infectious mediators such as cytokines (i.e. IL-6, TNF-alpha) are considered stressors (even with direct effects on adrenal gl) and are involved in HPA axis activation. Therefore, the chronic stimulation of the HPA axis (i.e. chronic stress), as reported in early RA patients (pts) and perhaps during the course of the disease (high levels of IL-6), might explain the lower than expected HPA axis function as showed by low levels of cortisol and dehydroepiandrosterone (DHEA). However, the administration of GC replaces the hormonal hypoproduction of the exhausted adrenal glands (gl), as well as decreases the levels of the inflammatory (chronic/acute) stressors (i.e. cytokines) in RA pts. Almost 50–80% of SLE pts believe that stress had provoked their illness and high level of life stress precedes flares of the disease. As observed in RA, low levels of cortisol and DHEA have been found in SLE pts further suggesting an altered HPA axis function.

The SSR in fibromyalgia syndrome (FM) and in polymyalgia rheumatica (PMR)

Minor stress and emotional trauma may act as provoking factors in FM and may modulate the course of the disease. In particular, the evidence suggest that FM represents pathology developing from a structurally dysregulated SSR which may result from a detrimental cascade of negative neuroendocrine and behavioural reaction patterns. Pain is the most prominent complain in FM. Pain memory and amplification as well as chronic pain in itself, become a main stressor in FM pts and there can be little doubt that FM is associated with chronic stress.

Recent data suggest that FM is related to a neuroendocrine disorder characterised by hyperreactive ACTH release and a relative hyporesponse of the adrenal gl. The presence of mild hypocortisolism with a reduced adrenal responsiveness in face of an exaggerated endogenous ACTH upon HPA axis stimulation, suggest a mild feedback resistance to cortisol at the central level and support distinct disturbance in the SSR in FM. The abrupt onset of PMR, with symptoms reminding the steroid withdrawal syndrome or adrenal insufficiency (i.e. myalgia, malaise, pain, depression, etc), might be induced by intense stimulation and inefficient response of the HPA axis, including different acute stresses (i.e. surgery, infections, severe interpersonal stress) in elderly people that are ageing-predisposed to an inadequate SSR. Our studies have shown that the reduced production of adrenal hormones (i.e. cortisol, DHEAS) in recent-onset and untreated PMR pts, seems mainly related to altered intraadrenal responsiveness to ACTH stimulation (i.e. increased 17-OHP).

Therapy intervention and surgery in R. D. – Thursday 14 June, 10.00-11.45/Club A-B

SP0119 PHYSICAL EXERCISE IN RECENT RHEUMATOID ARTHRITIS

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The impact of arthritis on the individual is multidimensional and various rehabilitation programs have therefore been developed for these patients. The long-term outcome varies from a minimal loss of function to a shortened life expectancy. Although RA patients represent only 8% of all patients with musculo-skeletal diseases in Finland, they consume 40% of all hospital days used by this patient group making RA a very expensive sickness. Several studies conducted worldwide have shown that more than a half of the patients become work disabled during the first 10 years of disease. Therefore, due to the limited availability of resources, it seems that efforts should be targeted to preventive rehabilitation at the early phases of disease.

The patients with early RA have significantly lower muscle strength levels (as much as 45% in knee extension and 20% in grip strength) compared to healthy persons even at the time of diagnosis of RA.¹ Heightened disease activity, nerve function impairment, changes in muscle metabolism, decreased muscle blood flow, degeneration of muscle fibres and disuse of the musculo-skeletal system have been suspected as possible mechanisms for muscular weakness and a loss of physical fitness. An accelerated loss of bone mineral density (BMD) leading to osteoporosis is also regarded as a common clinical problem. Even the early RA patients with high disease activity and glucocorticoids have an increased risk of osteoporosis.²

According the review of Van den Ende *et al.*,³ dynamic exercise therapy increases aerobic capacity and muscle strength in patients with a longer duration of RA. In our studies prolonged dynamic strength training for several months (with progressively increasing loads from 40–50% to 70–80% of maximum strength) increased the muscle strength values of early RA patients back to the level of healthy subjects.⁴ The large increase in the knee extension strength was accompanied by a significant enlargement in the cross-sectional area of the quadriceps femoris muscle. The data demonstrate that systematic resistance training can lead, not only to functional, but also to some extent structural adaptations in the neuromuscular system of early RA patients. Furthermore, the strength gains were obtained with no detrimental effects on disease activity or joint erosions. Physical training leads to significant increases in muscle strength and physical function, but it imposes only minor effects on BMD in spine and femoral neck. The “smooth” movements in supine, sitting or standing positions or non weight-bearing exercises, as generally recommended for RA patients, do not generate such ground reaction forces on the skeleton required to increase BMD. However, the physical activity on a certain level must be continuous, because it is known that muscle strength, aerobic capacity or BMD levels obtained by various type of training will be lost during the detraining.^{5,6,7}

The findings concerning the exercise interventions support unanimously the assumption that patients with RA can safely use individually tailored dynamic strength training or aerobic exercises to increase/maintain their muscle strength and overall physical condition without exacerbating the disease. The training to

improve muscle strength should follow the same basic principles as for healthy people. These are the principles of overload, sufficient frequency, progressive increase in the amount of training, specificity and individualisation. The safety components need to be emphasised. The patient should be tutored to know how to interpret the symptoms of the disease and how to adapt the exercise programme flexibly to the changes taking place in the disease activity. RA is a chronic disease, which seems to need continuous physical exercise to prevent the loss of muscle strength and functional capacity.

REFERENCES

- 1 Häkkinen, et al. *Scand J Rheumatol.* 1999;**28**:1–7
- 2 Häkkinen, et al. *Arthritis Rheum.* 2001, in press
- 3 Van den Ende, et al. *Br J Rheumatol.* 1998;**37**:677–87
- 4 Häkkinen, et al. *Scand J Rheumatol.* 1994;**23**:237–42
- 5 Van den Ende, et al. *Ann Rheum Dis.* 1996;**55**:798–805
- 6 Dalsky, et al. *Ann Intern Med.* 1988;**108**:824–8
- 7 Häkkinen, et al. *Br J Rheumatol.* 1997;**23**:237–42

SP0120 OCCUPATIONAL THERAPY IN PATIENTS WITH RHEUMATIC DISEASE: OCCUPATIONAL THERAPY AS PART OF A MULTIDISCIPLINARY STANDARD PROGRAMME FOR PATIENTS RECENTLY DIAGNOSES WITH RHEUMATOID ARTHRITIS

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Rheumatic disease has considerable influence on the patient's functional level. Using the WHO-Classification (ICIDH 2) the patient's problems can be classified in several dimensions:

In the Body Functions and Structure dimension the consequences of a rheumatic disease are mostly pain and disorder in joint and muscle functions. In the dimension of Activity the consequences may be in the areas of attending to one self and in everyday activities. Regarding the dimension of Participation the consequences may be reduced participation in everyday life for example mobility, social relations, participating in education, attending to one's work and participation in the life of the community.

Working in multidisciplinary teams, the occupational therapist focuses on Activities of Daily Living (ADL)-related problems. The aim of treatment is to enable the patient to function as well as possible in their daily life, and to prevent functional deterioration as a result of inappropriate strain.

Patients with a variety of rheumatological diagnoses are treated. However, rheumatoid arthritis (RA) patients make up the largest group, as ADL-related problems are significant consequences of this disease.

For patients with RA occupational therapy is one of the treatments in the interdisciplinary team. Each group in the team has its fields of responsibility.

The fields of occupational therapy are:

- evaluation of ADL-functions and solutions to the ADL-problems
- instruction in and testing of joint protection
- maintaining and training the functions of the hands
- evaluation of the need for wrist splints including fitting of the splints

These are the main treatments irrespective of the progress of the disease, the difficulties of the disease or the demands the patient meets in everyday life.

On 1 September 1999 at the Department of Rheumatology at Aarhus University Hospital a standard programme for patients recently diagnosed with RA was introduced by the interdisciplinary team. The background for this early effort is the considerable attention in recent years from a medical point of view, that has been placed on improving the quality of treatment of RA-patients. The main emphasis for improving quality is: 1) Early diagnoses; 2) Early intensive medical treatment; and 3) extensive information to the patient, for example that joint protection is initiated to guard against the loss of function.

For many years occupational therapists have taught joint protection to RA patients. Typically these patients have already experienced ADL-problems when referred to occupational therapy. However this does not apply to all recently diagnosed patients. The main challenge has therefore been to direct the efforts towards patients who are at some point of their disease where the need primarily is prophylactic information.

We have described a standardised program where the goal of occupational therapy is to support the patients in living a normal, active life, in which the body is used appropriately and the necessary precautions are taken.

The content includes instruction of ergonomics primarily concerning the hands, and guidance in maintaining the function of the hands. The patients also try ergonomically shaped utensils and they are offered wrist splints.

It is standard to use 2 h of instruction and testing in the OT Department. If the patients need further treatment than the above-mentioned preventative program the treatment is extended to include these needs.

As part of the improvement of the quality of the treatment written information material has been prepared and is given to the patients.

SP0121 OCCUPATIONAL THERAPY IN PATIENTS WITH RHEUMATIC DISEASES

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Action for health is a central concept in occupational therapy and assuming that the individual is an active person with his or her own resources. Activity encompasses all such situations as personal care, living conditions, work, leisure, and relations to other people, referred to as activities of daily living (ADLs).

Individuals with arthritis have problems conducting their daily lives because of pain, muscle weakness, stiffness, fatigue, reduced grip force and hand deformities. They are often unable to perform daily activities in what is considered a normal manner. When analysing the situation of patients, the occupational therapist may find the ICIDH, 2000 helpful, since it clarifies the different levels in the disablements process as; Body Functions Structure -Impairments, Activity - Activity Limitations, Participation - Restrictions analysing the problems an individual may experience in life situation and Environmental Factors.

Most patients experience chronic pain. The frustration over the inability to perform tasks, dependence upon others and difficulties in adjusting routines, have been identified.