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Impact of rheumatoid arthritis on physical function during the first five years. No longer a question mark?

The preservation of physical function is one of the most important issues in the long-term outcome in rheumatoid arthritis (RA) patients. This is acknowledged by the rheumatology community, which includes it in the core set of assessments to be included in clinical trials [1]. Moreover, demonstrating preserved physical function (as well as retarded structural damage) is a prerequisite for proving that a drug has disease-controlling capacity [2]. We are, however, badly informed about the effect of RA on physical function. One of the problems is knowing how to measure physical function. In the older literature the functional grade was used [3], but this is a very crude measure and its sensitivity in the assessment of important changes within patients and differences between patients is rather low. The development of the Health Assessment Questionnaire (HAQ) was a major step forwards [4]. This instrument is capable of detecting small but meaningful changes in function in individual patients, and can pick up differences between treatment groups in clinical trials. However, the HAQ has several limitations. It is dominated by effects on large joints such as the hips, knees and shoulders, and is relatively insensitive in detecting changes in, for example, hand function. Looking at several cohorts at the group level, a similar pattern is revealed: the HAQ score at the start of follow-up is high, and it decreases rapidly within the first year. Thereafter, there is a slow increase over the years [5]. All these data are based on the group level, and it is much more difficult to draw conclusions at the

level of the individual patient. On the other hand, it is a fairly consistent finding that a high HAQ score at the beginning of the disease is prognostic of a worse outcome [5, 6].

The MACTAR Patient Preference Disability Questionnaire has been developed to take the patient's perspective into account [7]. With this measure, the patient can indicate what aspects of the disease they see as being most in need of improvement. Compare a violinist with a bus driver, both of whom have incapacitating synovitis of a proximal interphalangeal joint and a knee. For the violinist, improvement in hand function may be much more important than improvement in knee function, whereas improved knee function is more important for the bus driver. For the patient, the MACTAR is more relevant than a general measure such as the HAQ, and it has been shown to be a sensitive instrument.

Another unsolved issue is the (seemingly weak) relationship between physical function and structural damage. An explanation is that measures of physical function emphasize the troublesome effects of damage in the large joints, whereas structural damage is usually judged in the small joints of the hands (and feet). Additional reasons are that physical function is influenced by both structural damage and disease activity. Function is also largely influenced by the quality and functioning of the tendons and muscles, which is again not captured by assessments of structural damage. On

the whole, it can be assumed that, in early RA, measures of physical function assess disease activity rather than structural damage, which is not yet present. In advanced disease, the correlation between physical function and structural damage will be greater, but physical function will always be influenced by factors not included in the formal assessment of structural damage. Moreover, it can be hypothesized that there must be a minimum amount of damage in a joint before it will influence the function of the joint, and a given number of erosions in a large number of joints could have a smaller impact on functioning than the same number of erosions in a small number of joints. These facts are not captured in simple correlations between physical function and total structural damage scores. In summary, a very close relationship cannot be expected between physical function and structural damage, although it is obvious that joints without structural damage are more likely to function well than completely damaged joints, which are more likely to function poorly.

In this issue, Young *et al.* for the Early Rheumatoid Arthritis Study (ERAS) group [8] describe the first 5 yr of follow-up of a large inception cohort of RA patients. They used both the functional grade and the HAQ. They found the same pattern of a high HAQ at the start with improvement of function during the first year, and slow deterioration in the years thereafter. Their study also confirmed the worse functional outcome predicted by the HAQ score at presentation. In addition to physical function, they present data on major appliances and adaptations, major surgery, extra-articular disease and employment status.

This study is an important contribution to the literature. The data can be used as a historical reference with which to compare new cohorts treated with newer therapies, such as the biologicals. The most important advantage of their study is that it is a (relatively) long follow-up of a large cohort of patients with early disease, assembled without special inclusion criteria and derived from many centres in the UK. This is in sharp contrast to trials in which new therapies are being tested: these trials are relatively short and their use of restrictive inclusion and exclusion criteria results in patient selection [9]. It is also important to compare the data in the study of Young *et al.* [8] with data for other cohorts in the past and from studies performed in other countries. Long-term data of this type are a necessary addition to clinical trial data if it is to be shown that new therapies, and especially new treatment strategies, indeed have a major impact on the ultimate outcome of the disease. It is data of this type that we need in order to persuade general practitioners to refer patients at an early stage in their disease for treatment by rheumatologists. Such data may also convince insurance providers and governments that they should pay for treatments that are expensive but are beyond doubt able to improve the long-term outcome substantially. The short-term effects can be identified from clinical trials, but comparisons of cohorts treated in different ways are needed to reveal the long-term effects.

The follow-up of such a large group of patients as that described in this study provides a wealth of data on the burden of illness imposed by RA. The publication of this study coincides with the start of the Bone and Joint Decade. One of the aims of the Bone and Joint Decade is to assess the burden of illness imposed by various bone and joint diseases, both from the patient's perspective and from a societal perspective. It is important to gather information on aspects such as the need for surgery, loss of work capacity and the use of aids and devices. Therefore, the value of this cohort is much beyond physical function alone. Both patients and rheumatologists can be congratulated on their large effort and the success of this study. The rheumatology community would welcome more information, especially on structural damage and various aspects of the long-term outcome.

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