Current treatment for rheumatoid arthritis fails to improve patient's body composition or physical function

Adverse changes in body composition – specifically, reduced muscle mass (MM) and increased fat mass (FM) – are characteristic of rheumatoid arthritis (RA). Indeed, when body composition is assessed, significant muscle loss is evident in ~67% and obesity in ~80% of RA patients. Loss of MM (due to strength reduction) and extra FM (due to increased load) independently contribute to poorer physical function (disability), a cardinal feature of RA. Whilst obesity, particularly trunk obesity (fat is preferentially deposited on the trunk in RA) exacerbates cardiovascular disease (CVD) and diabetes risk; both noted co-morbidities in RA.

These detrimental body composition changes, termed ‘rheumatoid cachexia’ (RC), are rarely noted in rheumatology clinics as body composition is not assessed and the standard clinical measures of bodyweight and body mass index (BMI) obscure muscle loss and obesity when these conditions co-exist. As RC is not diagnosed, it remains untreated.

Current treatments of RA (generally adopted ~2008) have as their central theme ‘tight control of inflammation’ by disease-modifying anti-rheumatic drugs (DMARDs). This approach emphasises early and aggressive use of DMARDs to achieve ‘low disease activity’, preferably ‘remission’ (categories determined by measures of inflammation).

Since RC is driven by inflammation, one would anticipate that the enhanced control of inflammation afforded by current treatment strategies would attenuate RC and thereby reduce disability and co-morbidity risk in RA patients. Unfortunately, this is not the case. In a recent study we compared 82 RA patients, all exclusively treated by ‘tight control’ drug strategies, to healthy sedentary individuals of the same age and sex. Whilst the treatment had been clinically effective (half had achieved ‘remission’ with the remainder generally having ‘low disease activity’), the magnitude of muscle loss (reduced 10% vs matched healthy controls) and increased adiposity (by 27%), especially trunk adiposity (32% higher), was similar to that observed by ourselves and others in patients who commenced treatment prior to the adoption of current ‘tight control’ strategies. Consistent with the failure to improve body composition, a battery of objective function tests designed to reflect the ability to perform daily tasks (getting dressed, doing housework, carrying shopping etc.), consistently showed patient’s physical function to be only two-thirds of that of sedentary matched healthy individuals. To put this deficit into context, both the male and female RA patients (mean age ~60 years) had the functional level of healthy sedentary individuals ~25 years older (i.e. aged ~85 years)! When current patients’ scores in the function tests was compared to data we collected on RA patients prior to ‘tight control’ treatment strategies (n=181, commenced treatment 1992-2004), no improvement in function is evident. Additionally, since adiposity, particularly trunk FM, was not reduced, patients’ CVD and diabetes risk remained elevated.

Given that RC is inflammation-driven, why does ‘tight control’ treatment fail to reduce RC? A likely explanation is that RC occurs before RA is diagnosed and DMARD treatment commenced. Thus, DMARD treatment starts too late to prevent RC and, since none of the drugs used are anabolic, is unable to restore body composition or, as a consequence, normal levels of physical function or co-morbidity risk.

To rectify this situation, patient’s body composition needs to be assessed at diagnosis and regularly thereafter. Such assessment would alert physicians to the need to treat RC with adjunct therapies effective in improving body composition and, as a consequence, restoring function and co-morbidity risk. The most efficacious of these treatment options is high-intensity resistance exercise. Thus, appropriate exercise programs should be recommended to patients at diagnosis.

Recognition of RC and appropriate adjunct treatments to reverse it are required if meaningful improvements in RA patients’ disability and well-being are to be achieved.

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