RHEUMATOLOGY

Letter to the Editor (Other)

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Sarcopenic obesity is more prevalent in osteoarthritis than rheumatoid arthritis: are different processes involved?

Rheumatology key message

- Sarcopenia is highly prevalent in osteoarthritis and rheumatoid arthritis.

Sir, sarcopenia could be defined as the loss of skeletal muscle mass and strength both of which face gradual age-related decline [1]. In older adults with sarcopenia, the importance of skeletal muscle function has been demonstrated by increased frailty, disability and loss of independence [1]. Sarcopenia with osteopenia is a comorbid state that may not be adequately identified, particularly in obese patients, and sarcopenic obesity may pose important risks to health [2]. The extent of these phenotypes has not been widely studied in people with rheumatic diseases. To investigate this, we aimed to determine the relative prevalence of sarcopenia in patients with OA or RA and its association with obesity and osteopenia. Comparison between these two conditions was chosen to elucidate potential differences between a predominantly biomechanical process (OA) and an inflammatory disease process (RA).

A total of 75 patients with OA (68.8 ± 8.9 years) and 82 patients with RA (61.1 ± 13.3 years) were assessed. Patients were recruited from a cohort followed over 5 years, described in a previous study [3]. The study protocol was approved by the Lower South Ethics Committee of the New Zealand Ministry of Health and all participants provided written informed consent. Body composition and total hip bone mineral density were measured using dual X-ray absorptiometry (Lunar Prodigy, GE Medical Systems Lunar, Madison, WI, USA). Sarcopenia was classified using Appendicular Muscle Index/BMI (males <0.789, females <0.512) [4] and obesity was defined as $\geqslant 30\%$ fat for men and $\geqslant 40\%$ fat for women [5]. Osteopenia was classified according to the WHO as total hip T-scores between -1 and -2.5 [6]. Sarco-osteopenia and sarcopenic obesity were defined, respectively, as the presence of both sarcopenia and osteopenia and both sarcopenia and obesity.

Prevalence of each body composition phenotype is reported in Table 1. Sarcopenia was highly prevalent in both OA and RA. Sarcopenic obesity was significantly more prevalent in OA than in RA ($P = 0.043$). The prevalence of osteopenia and sarco-osteopenia was not significantly different between the two conditions. Surprisingly, sarcopenic obesity appeared more common in the OA group, suggesting that the role of catabolism resulting from systemic inflammation in RA [7, 8] may contribute less to the combined loss of muscle and bone mass than disability and biomechanical factors as seen in OA. Limitations to this descriptive report are acknowledged: bisphosphonate treatment may confound the reported prevalence of osteopenia in the RA patients, with one-third of the RA patients with osteopenia receiving oral or i.v. bisphosphonates, compared with 10% in OA. A further limitation was the use of Appendicular Muscle Index/BMI to define sarcopenia. Other definitions of sarcopenia include grip strength [2], but since grip strength in the patients with RA was very low due to the disease process, this would give a spuriously high prevalence of sarcopenia rather than reflecting low total muscle mass. These preliminary findings indicate further longitudinal research is needed into both the prevalence and causes of sarcopenia in OA and RA, because sarcopenia as a comorbid state in OA and RA could be associated with high incidence of falls and fracture risk. Identifying individuals with OA or RA who are at risk of sarcopenia may help to inform and implement appropriate interventions that aim to improve muscle strength and reduce frailty.

Table 1 Prevalence of body composition phenotypes in OA and RA patients

	OA (n = 75)	RA (n = 82)	P-value
Age, mean (s.d.), years	68.8 (8.9)	61.1 (13.3)	—
Sex, female, %	60	73.2	—
Sarcopenia	22 (29.3)	14 (17.1)	0.068
Osteopenia	10 (13.3)	18 (22.0)	0.159
Obesity	54 (72)	47 (57.3)	0.055
Sarco-osteopenia	5 (6.7)	2 (2.4)	0.200
Sarcopenic obesity	22 (29.3)	13 (15.9)	0.043
Sarcopenic receiving bisphosphonates	1 (10)	12 (66)	—

Data are presented as n (%) unless otherwise stated.

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LETTER

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Lara Vlietstra[1], Kim Meredith-Jones[2], Simon Stebbings[2], J. Haxby Abbott[3], Gareth J. Treharne[4] and Debra L. Waters[5]

[1]*Physical Therapy Sciences, University Medical Center Utrecht, Utrecht, The Netherlands,* [2]*Department of Medicine,* [3]*Centre for Musculoskeletal Outcomes Research, Department of Surgical Sciences,* [4]*Department of Psychology and* [5]*Department of Medicine and School of Physiotherapy, University of Otago, Dunedin, New Zealand*
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Correspondence to: Lara Vlietstra, Physical Therapy Sciences, University Medical Center Utrecht, Heidelberglaan 100, 3584 CX Utrecht, Netherlands.
E-mail: laravlietstra@live.nl

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