EDITORIAL

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Rapid screening for sarcopenia

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The four major comments of muscle wasting disease are cachexia, sarcopenia, malnutrition and congenital.[1,2] Of these, the most common is sarcopenia.[3–7] Since sarcopenia is a clinical situation which causes various adverse outcomes, including immobility, falls, disability and death in older people [8–13], the importance of recognizing and treating sarcopenia has been recognized by providing an ICD-10 code for sarcopenia.

Since the publication of the European Working Group consensus paper on sarcopenia in older persons,[14] a number of other definitions have been published.[15–18] All these definitions have stressed that sarcopenia should be defined as a loss of muscle function associated with a loss of muscle mass.[19–21] This change in definition was necessitated by the recognition that muscle quality and, therefore, muscle performance were not directly related to muscle mass.[22] Two factors appear to be responsible for this, viz the fact that sarcopenia is a neuromuscular junction disease[23,24] and the infiltration of fat into muscle during the ageing process.[25,26]

The measurement of muscle mass has classically been done by anthropomorphic measures or dual energy x-ray absorptiometry.[27] However, ultrasound, bioelectrical impedance, computed tomography, and magnetic resonance imaging have also been used. Goodman *et al.*,[28] utilizing the NHANES data, suggested that Body Mass Index (BMI) is a reasonable proxy as a skeletal muscle index. Yu *et al.*[29] utilized equations using BMI, weight, and age and showed that these are excellent predictive equations for skeletal muscle mass. A recent review of methods to assess sarcopenia found that for epidemiological studies, bioelectrical impedance for measuring muscle mass coupled with either gait speed or grip dynamometry were the most simple methods to identify sarcopenia based on the modern definitions.[30]

Recently it was shown that the questions used in the FRAX as part of diagnosis fracture risk had excellent specificity and sensitivity in recognizing risk when used without measuring bone mineral density.[31] This raised the possibility that persons with sarcopenia could be identified by a simple questionnaire. This led to the development of SARC-F as a simple questionnaire to rapidly diagnose sarcopenia (*Table* 1).[32,33] Cao *et al.*[34] showed that SARC-F was associated with poor physical performance, grip strength, and hospitalization in the previous 2 years. Woo *et al.*[35] showed that SARC-F has excellent specificity when identifying persons with sarcopenia diagnosed by either the European or Asian working group definitions. Further, the Hong Kong group showed that SARC-F had similar predictive value for walking speed, physical limitation, hospitalization, and mortality as the Foundation of the National Institutes of Health and four other consensus definitions for sarcopenia.[36] Woo *et al.*[37] then showed that it could be used

Table 1 SARC-F screen for sarcopenia

Component	Question	Scoring
Strength	How much difficulty do you have in lifting and carrying 10 pounds?	None = 0 Some = 1 A lot or unable = 2
Assistance in walking	How much difficulty do you have walking across a room?	None = 0 Some = 1 A lot, use aids, or unable = 2
Rise from a chair	How much difficulty do you have transferring from a chair or bed?	None = 0 Some = 1 A lot or unable without help = 2
Climb stairs	How much difficulty do you have climbing a flight of ten stairs?	None = 0 Some = 1 A lot or unable = 2
Falls	How many times have you fallen in the last year?	None = 0 1–3 falls = 1 4 or more falls = 2

prospectively to successfully screen for sarcopenia. Malmstrom *et al.*[38] showed that the SARC-F was a valid tool in three populations viz the Baltimore Longitudinal study, the African American Cohort in St. Louis, and the NHANES population.

Sarcopenia is a major component of physical frailty in older persons.[39] The simple FRAIL score has been shown to be a valid measure for detecting frailty.[40–42] Between 40 and 70% of persons who are frail are also sarcopenic.[37,43] Thus, it makes sense to screen for both frailty and sarcopenia in older individuals as is done in the Rapid Geriatric Assessment (RGA).[44] In addition, middle aged persons with diabetes mellitus,[45–47] chronic obstructive pulmonary disease,[48,49] and hip fracture[50,51] are at high risk of having sarcopenia and therefore should be screened.

The accumulating evidence shows that sarcopenia could be alleviated by resistance exercise,[52–55] leucine enriched essential amino acids,[56–58] and vitamin D.[59] New promising drugs for sarcopenia are in development. [59] Given that we have a successful treatment which enhances outcome for sarcopenia, it would seem that utilizing the SARC-F, which takes under 15 s to do, to screen older persons and those with specific diseases with a high propensity to become sarcopenic, is an imminently sensible approach to prevent disability and hospitalization in older persons. The importance of recognizing and treating sarcopenia has been recognized by providing an ICD-10 code for sarcopenia.

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Conflict of interest

None declared.

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