Prevalence of sarcopenia in patients attending outpatient geriatric clinics: the ELLI study

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Abstract

Objectives: the aim of this study is to know the prevalence of sarcopenia in geriatric outpatient clinics using the EGWSOP (European Working Group on Sarcopenia in Older People) diagnostic criteria that include muscle mass, muscle strength and physical performance.

Methods: subjects over 69 years old, able to walk without help and who attended five geriatric outpatient clinics were recruited. Body composition was assessed using bioimpedance analysis (BIA), grip strength using a JAMAR dynamometer and physical performance by the 4 m gait speed. Sarcopenia was diagnosed using the EGWSOP criteria (gait speed <0.8 m/s; grip strength <30 kg in men or <20 kg in women, and muscle mass index (MMI) <8.31 kg/m² in men or <6.68 kg/m² in women).

Results: two hundred and ninety-eight subjects were included (median age 83.2 years, 63.1% women). 19.1% had sarcopenia (12.7% men, 22.9% women); 20.1% had low muscle mass; 68.8% had low gait speed and 81.2% low grip strength. Only 21.9% of the subjects with low grip strength and 19.5% of those with low gait speed had sarcopenia. No correlations between muscle mass and either muscle strength or gait speed were detected.

Conclusions: sarcopenia is present in one out of five subjects attending geriatric outpatient clinics.

Keywords: sarcopenia, screening, older people, outpatient
Introduction

The ageing process is characterised by quantitative and qualitative changes in body composition. Those affecting skeletal muscle mass and function are among the most relevant, though the onset of functional decline begins earlier than muscle mass reduction [1, 2]. Sarcopenia is characterised by low muscle mass and function and an increased risk of adverse outcomes such as physical disability, poor quality of life and death [3].

A systematic review [4] shows a prevalence between 1 and 29% in community-dwelling populations; 14–33% in long-term care populations; and 10% in the only study in acute hospital care. We are not aware of prevalence data in geriatric outpatient clinics, but its patients are usually frail, complex or have multimorbidity [5], so may be expected to be high. The aim of this article is to know the prevalence of sarcopenia in geriatric outpatient clinics using the European Working Group on Sarcopenia in Older People (EGWSOP) [3] diagnostic criteria.

Methods

Methodology of this study has been extensively described elsewhere [6] and in the Supplementary data, available in Age and Ageing online. Briefly we included outpatients older than 70 years, able to walk and with no incompatibilities to do a bioimpedance analysis (BIA). We excluded persons with advanced dementia or terminal illness.

We defined sarcopenia according to EGWSOP criteria assessing muscle mass with BIA, gait speed walking across 4 m and grip strength with a Jamar dynamometer. We considered that a participant had sarcopenia if had a muscle mass index (MMI) below 8.31 kg/m² in men or 6.68 kg/m² in women [7] with either gait speed <0.8 m/s or grip strength below 30 kg in men or 20 kg in women.

Statistical analysis was performed with SAS 9.3. Trends were assessed with the Cochrane-Armitage Test; differences between categories with \( \chi^2 \) or Fisher test; and correlations with Pearson’s \( r \).

The study was approved by the Ethics Committee of the Hospital Clinic de Barcelona. Informed written consent was obtained from the participants or the next of kin.

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Results

A total of 298 subjects were consecutively recruited from the five outpatient geriatric clinics. Median age was 83.2 years (inter-quartile range (IR): 78.7–87.5), 63.1% were women. The median BMI was 26.8 (IR: 23.8–29.7), 8.4% had a BMI below 21 and 23.5% were obese. The median MNA score was 12 (IR: 10–14); 7.4% were undernourished and 30.0% were at risk of malnutrition. The median Barthel Index was 95 (IR: 85–100); median Pfeiffer test was 1 error (IR: 0–3) and median CIRS score 18 points over 74 (IR: 15–21). 11.5% showed some degree of walking dependence according to the Functional Ambulation Classification.

Low muscle mass was found in 20.1% of the subjects, 68.8% had low gait speed and 81.2% low grip strength. Overall, 57 subjects (19.1%) met the EWGSOP sarcopenia criteria, 36 of them (63.2% of those with sarcopenia) severe (Table 1). Only 21.9% of the subjects with low grip strength and 19.5% of those with low gait speed had sarcopenia. We found no correlations between muscle mass and either strength or gait speed in men or women. Pearson’s coefficient between muscle strength and gait speed was 0.432 for men and 0.270 for women (P < 0.001 in both cases). We did not find any age trend in the prevalence of sarcopenia between age groups (P = 0.091), neither in overall nor by sex (Table 1). The prevalence of sarcopenia was higher in women (22.9%) than in men (12.7%) (P = 0.032). In sarcopenic subjects, we did not find differences in severity between men and women (P = 0.135).

Discussion

In our study, the overall prevalence of sarcopenia in geriatric outpatient clinics is within the range found in community-dwelling subjects in a recent systematic review [4] and similar to other Spanish study with community-dwelling persons, which found a prevalence of 10 and 33% in men and in women, respectively [7]. Nevertheless, our sample is not...
representative of the general population, and the group of 70–79 years is under-represented (31% in the sample versus 59% in the census of persons over 70). In our study, the prevalence of sarcopenia in persons between 70 and 79 years was higher than that in the InCHIANTI study [8], but in those over 80, the prevalence was similar. We ignore why the prevalence of sarcopenia in outpatients in their seventies is the same than in those in their eighties, although in the younger group sarcopenia (or conditions related with sarcopenia) could increase the probability to attend outpatient clinics, whereas in the older groups other health conditions could be more important. On the other side, the figures suggest a rise in the prevalence and the severity of sarcopenia in nonagenarian women, but even if the difference is real, this group is too small to show significant differences and must be confirmed with further studies.

In our study, four out of five subjects with low grip strength or low gait speed have preserved muscle mass and cannot be classified as sarcopenic according to EWGSOP criteria but have some degree of frailty [9, 10], so the measurement of muscle mass may be important to distinguish between those who may be frail and those who may have sarcopenia. Inversely, nearly all the subjects with low muscle mass had some degree of functional decline. We did not find any correlation between muscle mass and muscle function, a finding that has already been described [11, 12].

Our study has several strengths: it is a prospective, multicentre study of geriatric outpatient clinics in university hospitals, uses a standardised methodology to measure and define sarcopenia, and uses muscle mass cut-off points from a local reference population. However, the prevalence could be higher in persons with exclusion criteria (i.e. advanced dementia) leading to an underestimation of its prevalence. On the other side, the scarce number of nonagenarians limits the ability to draw conclusions in this group.

The detection of sarcopenia in geriatric outpatients may lead to a better management of this geriatric syndrome and offers an opportunity to include sarcopenia into mainstream geriatric care. It may also help to foster clinical research, by using geriatric clinics to recruit subjects for future clinical trials.

Key points

- One out of five patients in geriatric outpatient clinics has sarcopenia.
- Decreased muscle function is frequent in outpatient persons, but only one out of five patients with impaired muscle function has sarcopenia.
- The prevalence of sarcopenia in outpatient clinics is similar to community-dwelling population.
- The detection of sarcopenia in outpatient clinics offers an opportunity to include sarcopenia into mainstream geriatric care.

Conflicts of interest

None declared.

Supplementary data

Supplementary data mentioned in the text are available to subscribers in Age and Ageing online.

References


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