Sarcopenia, balance and risk of falling in a sample of Portuguese community-dwelling older adults

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Background and aims

Given the growing aging index, Portuguese population is particularly exposed to a higher risk of falls, which is related to decreased levels of lower limbs muscle mass and strength. These factors are consequence of sarcopenia which has been associated with higher risk of falling. Handgrip strength is a clinical marker of risk of disability and cut-off points for defining sarcopenia through handgrip strength have been identified (Cruz-Jentoft, 2010).

Objectives

The purpose of this study was to characterise the risk of falls and related factors in community-dwelling older adults.

Participants

128 community-dwelling older adults (95 women, 33 men)
Mean age 75.4 ±7.4 years (range 65-97)
Apparent healthy
Independent in activities of daily living (ADL)
Exclusion criteria - illness or disability interfering with physical function and with the ability to perform the tests

Methods

Characterization and comorbidities data and physical activity habits were collected in a structured interview conducted by a single interviewer.
Afterward participants were asked to complete the tests. Before each test instructions were given according to specific guidelines and the participants could practice before starting the measurements.
Outcome measures were:
Berg Balance Scale (BBS) to assess the risk of falling
30’s chair stand test for lower limbs strength
8-foot up and go test for mobility
Handgrip strength with the dynamometer Jamar®
Functionality with the Composite Physical Function Scale (CPF)

Results

<table>
<thead>
<tr>
<th>Variables</th>
<th>n=128</th>
<th>Men (n=33)</th>
<th>Women (n=95)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years</td>
<td>75.4 (7.4)</td>
<td>75.8 (8.0)</td>
<td>75.3 (7.2)</td>
</tr>
<tr>
<td>Weight, kg</td>
<td>69.7 (12.5)</td>
<td>78.9 (13.0)</td>
<td>66.5 (10.6)</td>
</tr>
<tr>
<td>Height, cm</td>
<td>155.6 (0.1)</td>
<td>166.7 (0.1)</td>
<td>151.7 (0.1)</td>
</tr>
<tr>
<td>Body mass index, n (%)</td>
<td>28.7 (4.1)</td>
<td>28.3 (3.8)</td>
<td>28.8 (4.2)</td>
</tr>
<tr>
<td>+ Underweight (&lt;18.5)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>+ Normal (18.5-24.9)</td>
<td>21 (16.4)</td>
<td>5 (15.2)</td>
<td>16 (16.8)</td>
</tr>
<tr>
<td>+ Overweight (&gt;25.0)</td>
<td>107 (83.6)</td>
<td>28 (84.8)</td>
<td>79 (83.2)</td>
</tr>
</tbody>
</table>

Discussion

39.4% of men and 30.5% of women showed handgrip strength values lower than cut-off values for risk of mobility limitation (M -37Kg; W - 21Kg) (Sallinen et al, 2010)
BBS scores were above cut-off points for risk of falling, meanwhile scores from the other tests showed lower values comparatively to other similar populations (Marques et al, 2014; Gouveia et al, 2013). 36% reported at least one fall in the past year. Lower limbs strength was lower for fallers and this was different (p<0.023) from non-fallers. 21.2% of males and 24.2% of females showed values of handgrip strength lower than cut-off points for risk of sarcopenia (M < 30Kg; M < 20Kg) (Cruz-Jentoft et al, 2010).

Conclusions

Although the risk of falling in this sample is not increased, strength, lower limbs strength and mobility are decreased. This study reinforces the evidence that lower limbs muscle strength is lower in fallers than in non-fallers, which is described as a risk factor for falling. Assessment of these factors seems to be recommended in order to design rehabilitation programs as countermeasures for further muscle and functional deterioration and consequently decrease risk of falling.

References: