Reviewer's report

Title: Frequency of sarcopenia and associated factors among hospitalized elderly

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Reviewer: Tiago Alexandre

Reviewer’s report:

The topic is particularly relevant because try to describe the frequency of sarcopenia in hospitalized elderly in Brazil using an equation to estimate muscle mass and measuring handgrip and gait speed according the EWGSOP.

The manuscript is cohesive, written intelligently and presents adequate statistical analysis for the proposed aim. But some issues prevent me to recommend this manuscript for publication.

Major Compulsory Revisions

1 – Why the authors choose to include in the study only elderly able to walk without assistance, not using vasoactive and inotropic drugs, without pain, dyspnea or some cardiopulmonary changes that limit the physical performance tests? This can reduce the hospital prevalence of sarcopenia and introduce a selection bias in the sample. In addition is important to clarify the sample selection. Is it a convenience sample? How this sample was selected?

2 – On page 2 and 4, lines 44 and 150, the authors use the term “moderate sarcopenia type”. The EWGSOP recommend three categories to define sarcopenia: no sarcopenia, sarcopenia and severe sarcopenia. So it is important to explain which means “moderate sarcopenia”. Furthermore, since the prevalence of sarcopenia was presented into two categories how was created the dependent variable? Severe sarcopenia and sarcopenia were grouped? The authors should to be explicit in the text about it.

3 – On page 2, line 44 and 45, there is the term “clinical profile”. What it means specifically? There are some explanations throughout the text, which also need to be improved, but in the abstract this information must be clear.

4 – Page 2, lines 62 and 63, the authors state: “Older people are highly susceptible to sarcopenia, which is associated with increased muscle weakness…” This information is ok, but it is important to explain that the researches have been shown that weakness is not attributed only to sarcopenia.

5 – There are Brazilian studies analyzing sarcopenia according the EWGSOP as a risk factor for disability and mortality. Maybe it would be interesting to cite such papers.

6 – The cut off points to IMM were defined according the Brazilian population using the lowest quintile in reference 13. So such values cannot be assigned to Newman and Delmonico. Therefore it should not be cited as a limitation of the study on page 6, line 242.
7 – Half the sample had overweight or obesity (50.9%). The Lee equation is not recommended to estimate muscle mass in this population. How to reduce this bias?

8 – The undernutrition and risk for undernutrition are important factors associated with sarcopenia, especially in hospitalized patients. As height and weight are used in Lee equation and to calculate the BMI would not be better to have chosen another measure to analyze such situations? This issue becomes more relevant when we check the high correlation between BMI and MMI.

9 – In reference 13 the prevalence of sarcopenia is 15.4% and not 15.2% and the authors didn’t present the confidence interval. The percentages of hypertension, heart disease, and osteoarthritis are not also the same as given in reference 13. How the authors obtained these values?

10 – In discussion section, page 6, line 222, the authors explain the association between smoking habit and sarcopenia through the inflammatory activity. I believe that there are other explanations that could be exploited.

11 – I recommend reviewing the statement between lines 228 and 230. This point of view is no able to explain this relationship.

12 – Why the authors didn’t use income or schooling as independent variables; didn’t stratify smoking as non smokers, former smokers and current smokers or didn’t control the multivariable analyses with MMSE and the Charlson index instead to use the admission profile? Is it a statistical decision, given the backward model adopted? I have doubts about what the variable admission profile is able to measure and how it can modify the final model avoiding other important associations.

13 – On table 3 I recommend to show the OR for each category of age and insert 1.00 in the reference category. I recommend the same for all table 3.

14 – The tables 2 and 3 can be unified. Therefore the table 2 should show the OR.

15 – Table 4: What means “Tabagismo”?

16 – Please cite table 4 in the text.

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

'I declare that I have no competing interests' below.