Reviewer’s report

Title: Prevalence and overlap of sarcopenia, frailty, cachexia and malnutrition in older medical inpatients

Version: 0 Date: 04 Sep 2018

Reviewer: Reviewer 2

Reviewer's report:

PEER REVIEWER COMMENTS: To view the full report from the academic peer reviewer, please see the attached file.

REVIEWER COMMENTS FROM REPORT: The study attempts to identify the prevalence and overlap of four different syndromes (frailty, sarcopenia, cachexia, and malnutrition) in older hospital inpatients. The study is limited by a small sample size of 100, with a large number of participants unwilling to participate. Despite this, the study does offer an interesting first comparison of the prevalence and overlap of the four syndromes in a clinical setting, and has worth as a pilot study.

What have the authors done well?

- This is the first time all four syndromes have been assessed in an inpatient setting, which could lead to subsequent studies on a larger scale and in different clinical settings.

What could be improved?

- The authors do not justify their choice of definitions for the four syndromes, as multiple definitions exist for each syndrome. For instance, frailty could be assessed using the accumulation of deficits/frailty index, which is also commonly used in geriatric settings.

- The sample size is mentioned as a limitation, however the discussion does not address the issue of poor compliance, with a low percentage of potential participants eventually included. This could be the reason the population was relatively robust, particularly with respect to ADLs, as well as the requirement to be able to stand for the assessment of body composition, although this point was acknowledged as a limitation.

REQUESTED REVISIONS:

The authors need to provide a justification for their choice of screening tools for each of the syndromes chosen. They also need to discuss the issues related to a relatively low compliance in more detail.
ADDITIONAL REQUESTS/SUGGESTIONS:
In the methods section, it would be better to start with the definition of each syndrome, and then include the tests performed for each syndrome, rather than begin with the "Assessment of components of tissue loss syndromes" followed by the "Definitions of tissue loss syndromes" section.

For instance, if sarcopenia was the first syndrome mentioned, it would make more sense to describe the definition used and the methods used to test each component. When syndromes have the same component, such as handgrip strength, the subsequent syndromes (frailty and cachexia) would then refer to the test used for sarcopenia.

It might also be worthwhile presenting the results of pre-frailty and the three levels of sarcopenia (pre-sarcopenia, sarcopenia, and severe sarcopenia) of the diagnostic tools used.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

No

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

Not relevant to this manuscript

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable
Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

This reviewer has been recruited by a partner organization, Research Square. Reviewers with declared or apparent competing interests are not utilized for these reviews. This reviewer has agreed to publication of their comments online under a Creative Commons Attribution License attributed to Research Square and was paid a small honorarium for completing the review within a specified timeframe. Honoraria for reviews such as this are paid regardless of the reviewer recommendation.

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal