Reviewer's report

Title: Assessing the exertion required to induce breathlessness in a population with advanced cancer: Matching measures to the level of physical function

Version: 0 Date: 14 Sep 2018

Reviewer: Reviewer 2

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

REVIEWER COMMENTS FROM REPORT: This is an interesting study that demonstrates the need to tailor tests to populations, here in the context of exercise-induced breathlessness. A shorter title might be: Assessing the exertion required to induce breathlessness in a population with advanced cancer: matching measures to the level of physical function.

The main conclusion is sound and remains important to communicate to researchers and clinicians in this field. It is especially relevant to studies examining breathlessness and physical function with sufficiently long follow-up to expect deterioration, to avoid missing data biased towards those who deteriorate quickest or most.

The overall message could be made clearer with more careful and consistent language, and by qualifying some terms when they are first used. I am not sure why the authors avoid use of commonly understood floor and ceiling effects.

Major

The concept of 'completing' a test need qualifying. For example, it could mean the maximum duration of the test has been reached, rather than that a participant can attempt to perform it. Complete is used up to the end of the results, then participation is used, first as an alternative then exclusively in parts of the discussion. Proponents of the 6MWT would say there is minimal floor effect, as unless the participant refuses to attempt, a primary measure can be gained (sometimes <10m). This contrasts with the shuttle walk tests which require 10m of ambulation to record a score above 0m. In the text describing the results by MRC score I worry that the proportion completing 2MWT is higher than the proportion completing the 6MWT (given that the 2MWT was derived) - this suggests 'completion' was either about walking for the full test
time (which goes against standard protocols) or it was not uniformly defined across the tests being studied.

The description of the arm and number reading tests is missing what is recorded as the primary endpoint, units used and scaling including direction of improvement. I note in Figure 3 the number reading test is numbers read per breath for example. More complete descriptions, including what counts as 'completion' if this is test-dependant will be useful for most readers given the low use of these tests.

Minimal findings are reported for MRC scores, yet intuitively these could also be highly relevant as they note functional limitation due to breathlessness. The data presented suggests more people with a reasonable level of impairment could complete a walk test (2MWT) than an arm exercise test. Is this correct?

The figures are missing 6MWT and by just showing bars with the median performance for each AKPS group it is not possible to judge the spread of data, and any evidence of floor/ceiling effects. Why not show individual data points given the relatively small samples in each group?

Minor

Abstract

Walking tests are only for people with…. Only appropriate, suitable?

Perhaps turn around and state they have poor utility in people with high levels of functional limitation or similar. I appreciate the main focus is on floor effects of walk tests, but equally the number reading test would have little utility in highly functioning participants.

I am not sure why numbers reading allowed but not the arm test is recommended from the data presented.

Background

End of para 2 and beginning of para 3 suggest exercise tests rather than exercises.

The aim is rather broad as stated in the abstract 'to assess four assessments' and main text 'assess the use of…' What is it being assessed? Perhaps utility, appropriateness, performance, floor effect?
Method

Protocol: suggest tests instead of physical activities.

I am quite sure the upper limb test is not isometric (i.e. static).

Discussion

It might be useful to comment briefly on the exclusions for the various tests as well. I note from your eligibility criteria some relate to the exertion relating to walking tests. This again can be prohibiting in many populations.

This is an interesting study that demonstrates the need to tailor tests to populations, here in the context of exercise-induced breathlessness. A shorter title might be: Assessing the exertion required to induce breathlessness in a population with advanced cancer: matching measures to the level of physical function.

The main conclusion is sound and remains important to communicate to researchers and clinicians in this field. It is especially relevant to studies examining breathlessness and physical function with sufficiently long follow-up to expect deterioration, to avoid missing data biased towards those who deteriorate quickest or most.

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REQUESTED REVISIONS:

As per comments above - most important is clarity on the main measure of 'completed' a test

ADDITIONAL REQUESTS/SUGGESTIONS:

As above

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:

Needs some language corrections before being published

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