Reviewer’s report

Title: Aqua walking as an alternative exercise modality during cardiac rehabilitation for coronary artery disease in older patients with lower extremity osteoarthritis

Version: 0 Date: 23 Jul 2017

Reviewer: Giovanni Grazzi

Reviewer's report:

REVIEWER COMMENTS

This study examines the effects of an alternative exercise modality (Aqua-walking) on exercise capacity and cardiovascular health profile in a group of older adults with coronary artery disease, and with osteoarthritis (OA).

This is an interesting research topic since the number of older adults eligible for cardiac rehabilitation/secondary prevention programs (CR/SP) is increasing, because of the progressive aging of the population and the advances in both the acute treatment and secondary prevention of cardiovascular disease (CVD).

Even though recommended by current international guidelines, the use of CR/SP in older patients with CVD is very low. Reasons for non-participation in CR/SP include, among others, high disability rates due to the presence of comorbidities, including OA, and lack of feasible programs.

The article provide further support on the benefits of exercise training in an underrepresented category of patients like older adults with CVD and OA. In addition, the article present interesting novelty about an alternative exercise modality like Aqua-walking.

However, some aspects of the manuscript need to be clarified or extended to improve its relevance.

Comment #1

Page 4, row 13. Participants are described as "with limited ambulation". Have you objectively measured disability? If yes, please present methods and results. If not, you could better describe subjectively the walking limitation: Were all participants free of self-reported difficulty walking for one-quarter mile? Do all participants have any difficulty walking for one mile?
Comment #2
Page 4, row 57. "... matched to the subject's functional capacity...": was the protocol individualized? Do you mean small increases in workload as described by the BSU/Bruce Ramp protocol? Please clarify.

Comment #3
Even though maximal cardiopulmonary exercise tests represent the gold standard for cardiorespiratory fitness (CRF) assessment, it has been described impractical for evaluating older and mobility-impaired adults (DOI: 10.1111/j.1532-5415.2004.52267.x; DOI: 10.1046/j.1532-5415.2001.4911247.x). Thus, several alternative submaximal walking protocols have been developed to estimate CRF. Since you use walking as training modality, have you assessed walking capacity by other walking tests? If yes, please present the data. If not, this issue has to be included in the Discussion as a potential limitation.

Comment #4
Daily activities, particularly for mobility-impaired adults, rarely require maximal effort. Therefore, the ability to perform prolonged submaximal exercise (e.g. extended walking tests) is often more relevant to health-related fitness assessment. The effects of the Aqua-walking program proposed in this study could be more emphasized by considering submaximal walking testing.

Comment #5
Page 10, rows 33-35: Clinical meaning of the VO2peak improvement obtained. The VO2peak improvement you obtained in the 24 weeks program is relevant, not only because consistent with a prior study in healthy elderly women, but also because a similar improvement predicted long-term prognosis in patients with CVD (DOI: 10.1016/j.amjcard.2008.01.023. and DOI: 10.1016/j.ijcard.2014.02.039). These comments and consistencies with the literature have to be included in the Discussion, to further emphasize the potential clinical meaning of the results you obtained.
Comment #6

Page 10, rows 38-40: Meaningful change in physical function. In the Exercise Training Program section (page 5, row 57) you stated "...The TW group performed either treadmill or track walking of their own choice...". Do you have data on walking pace or distance during the program? If yes (even in a subsample), please present data. If not, please comment these considerations in the Discussion. In fact, improvement in walking distance or pace have been demonstrated to be strong independent predictors, and a greater guide to prognosis, than gains in VO2peak (DOI: 10.1016/j.amjcard.2008.01.023. and DOI: 10.1136/heartjnl-2015-309126). As suggested in Comment #5, these comments and consistencies with the literature have to be included in the Discussion, to further emphasize the potential clinical meaning of the results you obtained.

Comment #7

Did you assessed rate of perceived exertion during the training sessions? If yes, please present the data in the Results.

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

Yes

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

Yes

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
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