Reviewer's report

Title: The Utility of PerSonal Activity Trackers (Fitbit Charge 2) on Exercise Capacity in Patients Post Acute Coronary Syndrome [UP-STEP ACS Trial]: A Randomised Controlled Trial Protocol

Version: 0 Date: 17 Aug 2017
Reviewer: Giovanni Grazzi

Reviewer's report:

Reviewer Comments

This study examines the effects of a wearable physical activity tracker on active lifestyle habits and exercise capacity in a group of patients after Acute Coronary Syndrome (ACS).

This is an interesting research topic since even though recommended by current international guidelines, the use of cardiac rehabilitation/secondary prevention programs (CR/SP) in these patients is low. Reasons for non-participation in CR/SP include, among others, lack of feasible programs.

The authors aim to present the potential clinical utility of wearable physical activity tracker in the promotion and maintenance of active lifestyle, and the consequent expected improvement of exercise capacity. The method proposed herein present interesting novelty as an alternative technology that could be used in the promotion of better cardiovascular health profile.

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

Major Comments

Comment #1

Introduction. One on ten Americans over 18 yrs. owns an activity tracker. However, "most of these devices fail to drive long-term sustained engagement for a majority of users" (https://blog.endeavour.partners/inside-wearable-how-the-science-of-human-behavior-change-offers-the-secret-to-long-term-engagement-a15b3c7d4cf3). These considerations should be included in the Introduction.
Comment #2

Introduction. Rate of attendance to CR/SP after an acute event is debated. In addition to the references you quoted, you also must consider that it has been reported that just over 13% of Medicare patients who had an AMI, and 30% after a CABG received CR/SP (DOI: 10.1161/CIRCULATIONAHA.107.701466). Furthermore, certain "sub-population" including older, women, ethnic minorities, those with comorbidities and/or those with caregiver-related responsibilities, and with inadequate health insurance coverage are less like to receive CR/SP (DOI: 10.1161/CIRCULATIONAHA.107.701466, and doi.org/10.1016/j.jacc.2004.05.062). These aspects have to be extended in the Introduction, and the corresponding references quoted. These considerations will improve the relevance of your study.

Comment #3

Eligibility and Recruitment (page 10, rows 15-16): How do you assess life expectancy of less than one year? Please clarify.

Comment #4

Primary Outcome and Intervention (page 13, rows 33-40). It is confusing "patient exercise as measured by exercise capacity". The expected results are an improvement of exercise capacity associated with an increase in physical activity. I suggest considering physical activity habits and exercise capacity (i.e. 6MWD) separately.

Comment #5

Exercise Prescription (page 14, rows 21-31). Any other recommendations on mode and intensity of the prescription?

Comment #6

Screening Assessments (page 15, rows 46-49). Since Exercise Capacity by the 6MWD is a primary outcome, even though not needed, I suggest to evaluate the 6MWT twice, at least in a subgroup of your population. This would be helpful to preclude unequivocal results because of a certain learning effect (see your reference #26, page 114).
Comment #7

Discussion. Could you present data on walking pace or distance (even in a subsample) during the program? If not, please comment these considerations in the Discussion. In fact, improvement in walking ability (i.e. walking distance or speed) have been demonstrated to be strong independent predictors, helpful in guiding prognosis in patients with cardiovascular disease (DOI: http://dx.doi.org/10.1016/j.amjcard.2008.01.023; DOI: 10.1016/j.ijcard.2014.02.039; DOI: 10.1136/heartjnl-2015-309126). These comments and consistencies with the literature have to be included in the Discussion, to further emphasize the potential clinical meaning of your results.

Minor comments

Comment #8

Background. Page 4, rows 12-24: I suggest using Coronary Heart Disease (CHD) throughout the whole manuscript. Please replace IHD with CHD.

Comment #9

Background. Page 4, rows 48-49: you cite reference #41. Please check and update the Reference list consecutively, in order of appearance.

Comment #10

Background. Page 5, rows 6-7: I suggest replacing infarct with infarction.

Comment #11

Background. I suggest replacing throughout the whole manuscript Cardiac rehabilitation and Secondary prevention with Cardiac Rehabilitation/Secondary Prevention (abbreviation CR/SP).

Comment #12

Background. Page 6, row 55: you cite reference #42, 43. Please check and update the Reference list, consecutively, in order of appearance.

Comment #13

Background. Page 8, rows 27-28: I suggest using Acute Coronary Syndrome (ACS) here and throughout the whole manuscript when you refer to the acute event.
Comment #14

Eligibility and Recruitment. Page 10, rows 12-15: I suggest replacing co-existing medical conditions with comorbidities.

Comment #15

Setting and Participants. Page 10, rows 36-37. I suggest deleting both major referral metropolitan hospitals.

Comment #16

Exercise Prescription. Page 14, row 21, you stated: Patients in both groups will be encouraged to exercise as per guideline recommendations [14] with increasing intensity and activity over the course of the study period. Do you mean: patients in both groups will be encouraged to exercise according to current recommendations? Please clarify.

Comment #17

Screening and Assessments. Page 17, rows 9-10 I suggest to modify as follows: QOL assessment will be undertaken via the Short Form Health Survey (SF-36; please, include the reference).

Comment #18

Cardiac Education. Page 17, rows 49-55. I suggest replacing Cardiac Education with Cardiovascular Health Education. Risk factors education.

Comment #19

Standard Care. Page 19, rows 39-40: I suggest replacing (here and throughout the whole manuscript) follow up with follow-up.
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.

I am able to assess the statistics

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

Acceptable

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