PEER REVIEW HISTORY

This paper was submitted to a another journal from BMJ but declined for publication following peer review. The authors addressed the reviewers' comments and submitted the revised paper to BMJ Open. The paper was subsequently accepted for publication at BMJ Open.

(This paper received three reviews from its previous journal but only two reviewers agreed to published their review.)

ARTICLE DETAILS

TITLE (PROVISIONAL)	Effects of Home-based Cardiac Exercise Rehabilitation with Remote Electrocardiogram Monitoring in Patients with Chronic Heart Failure（HERE-CHF）：Study Protocol for a Randomized Controlled Trial
AUTHORS	Li, Jiahui; Yang, Peng; Fu, Dongliang; Ye, Xiaojun; Zhang, Lifang; Chen, Gang; Yang, Yiyun; Luo, He; Chen, Li; Shao, Mingjing; Li, Chunyan; Liu, Yi; Zhou, Ying; Jiang, Hong; Li, Xianlun

VERSION 1 – REVIEW

REVIEWER	Prof Rod Taylor University of Exeter Medical School, UK I am CI on ongoing trials of cardiac rehab
REVIEW RETURNED	04-Jun-2018

GENERAL COMMENTS	This mansucript addresses an important question of altenative models of cardiac rehab provision for HF The paper is generally well presented. However, I do have some comments - state the primary outcome timing in abstract - the title of the study is 'exploratory' yet the authors present statistical analysis to formally assess efficacy. If this is truly an exploratory study then this not appropriate and the objective of the study should be more ones of feasibility e.g. is recruitment possible? is the REMS home based intervention acceptable to patients and clinicians? what is the level of attrition? - related see guidelines of presentation of pilot trials http://www.consort-statement.org/extensions/overview/pilotandfeasibility - the authors describe the importance of improving uptake and adherence to rehabilitation/exercise - why are these not secondary outcomes?

REVIEWER	Sean R. McMahon Hartford Healthcare, University of Connecticut, USA
REVIEW RETURNED	27-Jul-2018

GENERAL COMMENTS	Suggest defining the phase of cardiac rehabilitation and do so in your abstract.

	If there is available data, would consider adding an additional arm with conventional phase three training at a CR facility. Under "study and patient population:" Congestive heart failure is a clinical diagnosis, not an echocardiographic diagnosis. Suggest altering CHF to systolic dysfunction or clarify documentation of CHF to include clinical history. Grammatical errors exist.

VERSION 1 – AUTHOR RESPONSE

To reviewer 1:

Thank you for your good questions and I revised my paper according to your suggestions:

1. I have stated primary outcome timing in abstract (Methods and Analysis Section, page 2)

The primary outcome is exercise capacity improvement measured by peak oxygen uptake (VO_2 peak) **(baseline vs 3 m)**."

2. We used an inappropriate English word "exploratory" and I deleted it in the tile. Our study is a randomized, parallel controlled clinical trial, not a pilot study. The tile is "**Effect of Home-based Cardiac Exercise Rehabilitation with Remote Electrocardiogram Monitoring in Patients with Chronic Heart Failure (HERE-CHF) : Study Protocol for a Randomized Controlled Trial**".

3. Adherence to exercise rehabilitation is adopted as a secondary outcome (Outcome assessments Section, page 10):

The secondary outcomes are: (1) difference in the meters walked in the 6-min Walk Test (6MWT); (2) improvement in heart function assessed by NYHA classifications; (3) improvement in echocardiographic parameters of systolic and diastolic function; (4)changes in biomarkers, including brain natriuretic peptide (BNP) / N-terminal-pro-brain natriuretic peptide (NT-pro-BNP) and Troponin-T/I; (5) changes in major adverse cardiovascular events (MACE) including worsening HF event, HF hospitalization, myocardial infarction, stroke, revascularization and cardiovascular mortality; (6) **qualitative evaluation of patients' adherence to the rehabilitation program.**

To reviewer 2:

Thank you for your good questions and I revised my paper according to your suggestions:

1. I defined the phase of cardiac rehabilitation in introduction (last paragraph, page 5) and abstract (Methods and Analysis, page 2).

Abstract：

This study is a prospective, randomized, parallel controlled clinical trial to evaluate the effectiveness of home-based **phase-II** ER with REMS in the management of CHF, which has a target enrollment of 120 patients 【Left Ventricular Ejection Fraction <50%, New York Heart Association (NYHA) classes I to III】.

Introduction：

This study is a prospective, randomized, parallel controlled clinical trial to evaluate the effectiveness and safety of home-based **phase-II** ER under the guidance of remote electrocardiogram （ECG）monitoring system（REMS） in the management of CHF compared with conventional ER without monitoring.

2. In our study, exercise training initially begins in a supervised setting and then transitions to a home-based regimen. Patients have up to 1 month to complete the 12 sessions before transition to the home exercise phase. During the 1 month, all the patients are supervised by rehabilitation specialists at a CR facility. Then the patients will know how to exercise at home. We hope to see the effect of Remote electrocardiogram monitoring system (REMS) in home-based exercise rehabilitation, so we just designed two groups: REMS group and conventional group without monitoring. This study design was registered and approved by Ethics Committee, so it's really difficult to add another arm. We have no available data now.

3. In the Eligibility and recruitment Section (page 6)，I altered CHF to systolic cardiac dysfunction: Patient selection criteria are listed in Table 1. Patients must have a **systolic cardiac dysfunction** documented from a baseline echocardiogram【LV ejection fraction (LVEF) <50%】within 6 weeks before randomization who are under stable conditions【New York Heart Association (NYHA) classes I to III】. Under "study and patient population", I have altered CHF to systolic dysfunction.

4. I corrected the grammatical error.

VERSION 2 – REVIEW

REVIEWER	Rod Taylor University of Exeter Trialist in same field
REVIEW RETURNED	25-Sep-2018

GENERAL COMMENTS	The authors have updated the paper appropriately based on peer review comments.

REVIEWER	Sean McMahon Hartford Healthcare
REVIEW RETURNED	15-Oct-2018

GENERAL COMMENTS	Thank you for your revisions. This will be an interesting study. I understand the study period is for three months. However given that your outcome measures include hard outcomes such as HF admissions and MACE you should consider a longer observation period.

VERSION 2 – AUTHOR RESPONSE

To reviewer 1:
Thank you very much!

To reviewer 2:
Thank you for your good suggestions!
The study period is for three months, which may be not long enough. It's really a limitation of our study. Please see 'strengths and limitations' section on page 3: A long-term follow-up may also be needed and extending the exercise out to 6 months may give us better data. If the study goes well, we may extend our home-based exercise rehabilitation to six months**.**