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A. Database Artikel

The screenshot shows a Google Scholar search interface. The search bar contains the text "Cardiac Telerehabilitation AND Coronary Heart Disease AND recurrence rate". The results are sorted by relevance. Three articles are visible:

- Cardiac rehabilitation via telerehabilitation in COVID-19 pandemic situation** (HTML) by DM Saji, LCG Wijaya. Published in *The Egyptian Heart Journal*, 2021. Springer. [HTML] springer.com
- Cost-effectiveness of cardiac telerehabilitation in coronary artery disease and heart failure patients: systematic review of randomized controlled trials** (HTML) by M Scherrenberg, M Falter. Published in *European Heart Journal*, 2020. academic.oup.com. [HTML] oup.com Full View
- A novel model of home-based, patient-tailored and mobile application-guided cardiac telerehabilitation in patients with atrial fibrillation: a randomised controlled trial** (PDF) by C Cai, Z Bao, N Wu, F Wu, G Sun. Published in *Clinical*, 2022. journals.sagepub.com. [PDF] sagepub.com Full View

Below the Google Scholar screenshot is a screenshot of the PubMed website. The search bar contains the same text: "Cardiac Telerehabilitation AND Coronary Heart Disease AND recurrence rate". The results show 2,701 results. A bar chart shows results by year from 2018 to 2023. The first result is:

Effect of Postreinduction Therapy Consolidation With Blinatumomab vs Chemotherapy on Disease-Free Survival in Children, Adolescents, and Young Adults With First Relapse of B-Cell Acute Lymphoblastic Leukemia: A Randomized Clinical Trial.

Share: Brown PA, Ji L, Xu X, Devidas M, Hogan LE, Borowitz MJ, Raetz EA, Zugmaier G, Sharon E, Bernhardt MB, Terezakis SA, Gore L, Whitlock JA, Pulsipher MA, Hunger SP, Loh ML. *JAMA*. 2021 Mar 2;325(9):833-842. doi: 10.1001/jama.2021.0669. PMID: 33651090. Free PMC article. Clinical Trial. IMPORTANCE: Standard chemotherapy for first relapse of B-cell acute lymphoblastic leukemia (B-ALL) in

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Advanced search

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sorted by relevance | date

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- 2023 (39)
- 2022 (48)
- 2021 (72)
- 2020 (64)
- 2019 (50)
- 2018 (53)

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A multimodal computer-aided diagnostic system for depression relapse prediction using audiovisual cues: A proof of concept

Healthcare Analytics, 17 August 2022, ...
Alice Othmani, Assaad Oussama Zeghina

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Women and Birth, 30 July 2022, ...
Tabassum Rahman, Alyce Weatherall, ... Gillian S. Gould

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121 Cochrane Reviews matching Cardiac Telerehabilitation AND Coronary Heart Disease AND recurrence rate OR relapse in Title Abstract Keyword - (Word variations have been searched)

Cochrane Database of Systematic Reviews
Issue 5 of 12, May 2023

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Results per page 25

- Relapse prevention interventions for smoking cessation
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B. Abstrak Artikel

Artikel 1

Letters

Effectiveness of Cardiac Telerehabilitation With Relapse Prevention



SmartCare-CAD Randomized Controlled Trial

Cardiac telerehabilitation (CTR) has the potential to induce a highly needed increase in participation in cardiac rehabilitation (CR) and to reduce relapse into unhealthy lifestyle behavior in patients with coronary artery disease (CAD). However, most studies have failed to show superiority of CTR over center-based CR, which remains the gold standard for secondary prevention programs for patients with CAD (1). The aim of the SmartCare-CAD trial was to evaluate the effects of a novel CTR intervention with relapse prevention on physical activity in patients with CAD.

We randomized patients with CAD entering phase II outpatient CR to either center-based CR with supervised group-based exercise training (control group) or CTR with relapse prevention by on-demand coaching after CTR completion (intervention group). CTR consisted of 6 supervised sessions followed by home-based training, using wearable sensors, and weekly video consultations. The primary outcome measure was objectively assessed physical activity level (PAL), using a validated population-specific model (2). Secondary outcome measures included physical fitness and quality of life (QoL). The study protocol was described in detail elsewhere (3). To assess between-group differences over time, we performed linear mixed model analyses. Multiple




respectively. Afterward, patients in the intervention group had a median of 6 (video) consultations, and 98 patients (64%) had ≥ 1 on-demand consultations for relapse prevention, mostly because of reduced training volume (40%). Total time of patient-staff interaction throughout the study did not differ between the intervention and control groups (163 min vs. 168 min; $p = 0.855$).

Patients in both groups significantly improved their PAL from baseline to 12 months (Figure 1), but we did not observe a significant between-group difference in the response over time ($p = 0.731$). Only 26 (14%) patients, 16 of whom were in the intervention group, showed a relapse in PAL after 3 months. Similar to PAL, we observed sustained improvements in physical fitness, QoL, depression scores, and patient empowerment but no significant between-group differences in responses over time. Patient satisfaction was similar between the groups at 12 months ($p = 0.649$).

Similar to other CTR trials with comparable results (4), our participants were mainly men, relatively young, highly educated, and had low residual cardiovascular risk. This might have caused the low incidence of physical activity relapse and the favorable results in the control group. In contrast, the Telerehab III trial (5) included patients with higher residual risk and revealed a higher peak oxygen consumption and physical activity in the intervention group after 2 years, whereas both groups showed a decline over time. These findings suggested that these patients benefitted more from extended CTR interventions.

In conclusion, the SmartCare-CAD trial showed that CTR with relapse prevention and center-based

BMJ Open Efficacy, efficiency and safety of a cardiac telerehabilitation programme using wearable sensors in patients with coronary heart disease: the TELEWEAR-CR study protocol

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► Prepublication history for this paper is available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2021-059945>).

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Accepted 29 April 2022

ABSTRACT

Introduction Exercise-based cardiac rehabilitation (CR) is a beneficial tool for the secondary prevention of cardiovascular diseases with, however, low participation rates. Telerehabilitation, intergrading mobile technologies and wireless sensors may advance the cardiac patients' adherence. This study will investigate the efficacy, efficiency, safety and cost-effectiveness of a telerehabilitation programme based on objective exercise telemonitoring and evaluation of cardiorespiratory fitness.

Methods and analysis A supervised, parallel-group, single-blind randomised controlled trial will be conducted. A total of 124 patients with coronary disease will be randomised in a 1:1 ratio into two groups: intervention telerehabilitation group (TELE-CR) (n=62) and control centre-based cardiac rehabilitation group (CB-CR) (n=62). Participants will receive a 12-week exercise-based rehabilitation programme, remotely monitored for the TELE-CR group and standard supervised for the CB-CR group. All participants will perform aerobic training at 70% of their maximal heart rate, as obtained from cardiopulmonary exercise testing (CPET) for 20 min plus 20 min for strengthening and balance training, three times per week. The primary outcomes will be the assessment of cardiorespiratory fitness, expressed as peak oxygen uptake assessed by the CPET test and the 6 min walk test. Secondary outcomes will be the physical activity, the safety of the exercise intervention (number of adverse events that may occur during the exercise), the quality of

STRENGTHS AND LIMITATIONS OF THIS STUDY

- Telerehabilitation as an alternative tool to contemporary centre/community-based cardiac rehabilitation.
- Intergrading real-time supervision and group-based exercise sessions in cardiac telerehabilitation.
- Objective monitoring and evaluation of physical activity and exercise intensity in cardiac rehabilitation interventions.
- Inability, by study design, to blind participants to treatment allocation.
- Possible selection bias, since only low and moderate cardiac risk patients will be recruited.

INTRODUCTION

Cardiovascular diseases (CVDs) are the leading cause of morbidity and premature mortality globally.¹⁻⁵ Coronary artery diseases (CAD) account for the largest proportion of CVD mortality.⁶ A systematic review by the Global Burden of Disease (GBD) reveals an increase of 11.8% in the mortality rates due to ischaemic CVDs in Greece⁶ with cardiac risk factors⁷ being very common among Greek patients and without signs of future decline.⁸ The increased rates of CVDs put additional pressure on the healthcare systems, especially under the

1963



ORIGINAL ARTICLE

Cardiac telerehabilitation in a middle-income country: analysis of adherence, effectiveness and cost through a randomized clinical trial

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ABSTRACT

BACKGROUND: The benefits of cardiac rehabilitation (CR) are already well established; however, such intervention has been underused, mainly in low- and middle-income countries.

AIM: To compare adherence, effectiveness, and cost of a home CR with the traditional CR (TCR) in a middle-income country (MIC).

DESIGN: Single-blind randomized control trial.

SETTING: A university hospital.

POPULATION: Individuals with coronary disease that were eligible were invited to participate. A randomized sample of 51 individuals was selected, where two participants were not included by not meeting inclusion criteria.

METHODS: The home-CR group participated in health education activities, carried out two supervised exercise sessions, and was instructed to carry out 58 sessions at home. Weekly telephone calls were made. The TCR group held 24 supervised exercise sessions and were instructed to carry out 36 sessions at home.

RESULTS: 49 individuals (42 male, 56.37±10.35years) participated in the study, 23 in the home-CR group and 26 in the TCR group. After the intervention, adherence in the home-CR and TCR groups was 94.18% and 79.08%, respectively, with no significant difference (P=0.191). Both protocols were effective for the other variables, with no differences. The cost per patient for the service was lower in the home-CR (US\$ 59.31) than in the TCR group (US\$ 135.05).

CONCLUSIONS: CR performed at home in an MIC demonstrated similar adherence and effectiveness compared to the TCR program, but with a lower cost for the service. The results corroborate the possibility of using home CR programs, even in MICs, after exercise risk stratification and under remote supervision.

CLINICAL REHABILITATION IMPACT: Home-CR can contribute to overcome participants' barriers with compatible cost. Home-CR is effective in improving functional capacity and risk factors control. Perform risk stratification and remote supervision are essential to offer Home-CR.

(Cite this article as: De Lima AP, Pereira DG, Nascimento IO, Martins TH, Oliveira AC, Nogueira TS, et al. Cardiac telerehabilitation in a middle-income country: analysis of adherence, effectiveness and cost through a randomized clinical trial. Eur J Phys Rehabil Med 2022;58:598-605. DOI: 10.23736/S1973-9087.22.07340-3)

KEY WORDS: Cardiac rehabilitation; Patient compliance; Direct service costs; Home care services.





ORIGINAL ARTICLE

Long-term exercise effects after cardiac telerehabilitation in patients with coronary artery disease: 1-year follow-up results of the randomized study

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ABSTRACT

BACKGROUND: Home-based cardiac telerehabilitation (HBCT) is a feasible and effective alternative to traditional center-based cardiac rehabilitation (CBCR). Currently, there are only limited studies focusing on a long-term effect of HBCT, which means it is essential to do more research in this study field.

AIM: This study aimed at investigating a 1-year effect of a randomized controlled study using Cardiac Rehabilitation through the Global Position System (CR-GPS) compared to outpatient cardiac rehabilitation. Study focused on cardiorespiratory fitness (CRF) and health-related quality of life (HRQL) in patients with coronary heart disease (CAD).

DESIGN: A long-term follow-up of a randomized study.

SETTING: Patients were enrolled, and the intervention was performed in an outpatient or home-based model. The results were obtained and evaluated in a hospital.

POPULATION: Patients who participated in the CR-GPS study were diagnosed with CAD with low to moderate cardiovascular risk.

METHODS: Patients enrolled in the study were eligible participants who had previously completed a 12-week HBCT program using a wrist heart rate (HR) monitor or attended a traditional CBCR. Primary outcome was the change in CRF expressed in peak oxygen uptake ($\dot{V}O_2$), and the secondary outcomes were self-reported HRQL, objectively measured anthropometric characteristics, and mortality and hospitalization rates.

RESULTS: Forty-four patients (76%) completed the long-term follow-up. The average peak of $\dot{V}O_2$ was higher after 1-year follow-up in the telerehabilitation group (HBCT 25.5 mL/kg/min compared to the active control group CBCR 23.6 mL/kg/min $P=0.047$). No statistically significant difference between the two groups was found after long-term follow-up for the parameter HRQL. For both groups, there was a significant improvement in the range of perceptions of general health. There was no death case and no difference in hospitalization rate between the groups.

CONCLUSIONS: This study supports the HBCT model. It has been demonstrated that it induces satisfactory long-term effects in $\dot{V}O_2$, exercise performance, and perceived general health in CAD patients with low to moderate cardiovascular risk.

CLINICAL REHABILITATION IMPACT: Cardiovascular telerehabilitation using wrist HR monitors is a feasible and effective rehabilitation method that can help patients eliminate barriers that prevent them from using CBCR programs. Especially in the current global situation with the COVID-19 pandemic, this topic is becoming increasingly important.

(Cite this article as: Batalik L, Dosbaha F, Hartman M, Konecny V, Batalikova K, Spinar J. Long-term exercise effects after cardiac telerehabilitation in patients with coronary artery disease: 1-year follow-up results of the randomized study. Eur J Phys Rehabil Med 2021;57:807-14. DOI: 10.23736/S1973-9087.21.06653-3)

KEY WORDS: Telerehabilitation; Cardiac rehabilitation; Exercise; Heart rate; Coronary artery disease; Cardiorespiratory fitness.

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Short communication

Cardiac telerehabilitation with long-term follow-up reduces GlycA and improves lipoprotein particle profile: A randomised controlled trial[☆]

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ARTICLE INFO

Keywords:

Telerehabilitation
Mobile health
Cardiac rehabilitation
Coronary heart disease
Glycoproteins
Lipoprotein particles

ABSTRACT

Background: A 10-month strategy of cardiac telerehabilitation (CTR) improved outcomes over a standard centre-based cardiac rehabilitation (CBCR), as recently published. We hypothesised that prolonged telerehabilitation could also improve proinflammatory status and lipoprotein particle composition.

Methods: A randomised controlled trial compared a prolonged CTR program with CBCR in post-ACS patients. Patient's age was 18–72 years with low-risk criteria. Blood samples were drawn at baseline, at 4- and 10-months follow-up. Advanced lipoprotein characterization was performed using the NMR-based Liposcale test. Signals from glycoproteins (GlycA and GlycB) were also assessed.

Results: The final analysis included 31 patients in the CTR group and 25 patients in the CBCR group. GlycA decreased in the CTR group ($p = 0.007$). LDL particle number (LDL-P) increase in both groups, but it was at the expense of small-sized LDL in the CBCR group ($p = 0.012$). Triglycerides in intermediate-density lipoprotein (IDL-TG) increased only in the CBCR group ($p = 0.043$). The triglyceride-to-HDL (TG/HDL) ratio decreased only in the CTR group ($p = 0.006$). The TG/HDL ratio was correlated with GlycA (Spearman's correlation coefficient: 0.558, $p < 0.001$) but not with CRP ($p = 0.101$).

Conclusions: Our results showed that a 10-month CTR program reduced GlycA levels, the TG/HDL ratio and avoided unfavourable long-term changes in lipoprotein particle composition.

Registration at <http://ClinicalTrials.gov>. NCT number: 04942977

1. Introduction

We recently demonstrated that a 10-month extended follow-up strategy of cardiac telerehabilitation (CTR) achieved better outcomes than a standard, centre-based cardiac rehabilitation (CBCR) programme;

Cardiac rehabilitation is recommended for patients with acute coronary syndrome (ACS) (class I, level of evidence A). CTR has proven to be as safe [4], beneficial and cost-effective as CBCR over the same duration [5], and while cardiac rehabilitation reduces major cardiovascular events, the benefit appears to be linear, with greater risk



Artikel 6

Journal of Medical Systems (2022) 46:94
<https://doi.org/10.1007/s10916-022-01878-0>

BRIEF REPORT



Telerehabilitation: Future of Phase II Cardiac Rehabilitation: Review of Preliminary Outcomes

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Abstract

In this brief communication, we reported Telehealth Home-Based Cardiac Rehabilitation (CR) program structure and preliminary outcomes from patients that completed a 12-week program after coronary artery bypass graft surgery (CABG). We aim to advocate the use of Telerehabilitation as a Phase II CR in patients immediately after the CABG. This approach was innovative and encouraging because the patients were still in subacute phase. The program can serve as a continuation of care for the patients after being discharged from a hospital while regaining their functional ability at home. Our preliminary outcomes demonstrated improvements in resting heart rate, activity level, nutrition status, self-efficacy for managing cardiac diseases, muscle strength, endurance and depression. There were no adverse events during the virtual sessions. Patient satisfaction score was high.

Keywords Telehealth Rehabilitation · Cardiac Rehabilitation · Telemedicine · Coronary artery bypass graft surgery

Introduction

Cardiac rehabilitation (CR) is a structured program of exercise, education and risk factor modifications that aims to accelerate recovery following an acute cardiac event (i.e., heart attack or heart surgery) and to reduce the risk of recurrent cardiac events [1]. CR is designed to help patients with cardiac diseases return to optimal fitness, functional ability and independence following the cardiac events.

CR is divided into three phases. Phase I (Acute Phase) occurs in the hospital right after the event. This phase usually lasts between 2 and 5 days, depending on the patient

Phase) is a medically supervised program at an out-patient facility that usually starts approximately 1 month following cardiac event and is considered the most important phase of CR [2]. Patients exercise in the facility while the staff (e.g., physical therapist (PT), exercise physiologist) monitors the patient's responses to exercise (i.e., heart rate, SpO₂, blood pressure, exertion levels, respiratory rate). Phase III (Self-Maintenance) refers to the long-term physical activities and lifestyle modifications that a patient performs ongoing conditioning independently out-of-hospital with medical guidance [3]. The three phases are designed for the patients to



Neth Heart J (2020) 28:443–451
<https://doi.org/10.1007/s12471-020-01432-y>



Cardiac telerehabilitation as an alternative to centre-based cardiac rehabilitation

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Abstract Multidisciplinary cardiac rehabilitation (CR) reduces morbidity and mortality and increases quality of life in cardiac patients. However, CR utilisation rates are low, and targets for secondary prevention of cardiovascular disease are not met in the majority of patients, indicating that secondary prevention programmes such as CR leave room for improvement. Cardiac telerehabilitation (CTR) may resolve several barriers that impede CR utilisation and sustainability of its effects. In CTR, one or more modules of CR are delivered outside the environment of the hospital or CR centre, using monitoring devices and remote communication with patients. Multidisciplinary CTR is a safe and at least equally (cost-)effective alternative to centre-based CR, and is therefore recommended in a recent addendum to the Dutch multidisciplinary CR guidelines. In this article, we describe the background

and core components of this addendum on CTR, and discuss its implications for clinical practice and future perspectives.

Keywords Cardiac rehabilitation · Cardiac telerehabilitation · Telemonitoring · Coronary artery disease · Chronic heart failure

Introduction

In December 2018, an addendum to the Dutch Multidisciplinary Guideline for Cardiac Rehabilitation concerning cardiac telerehabilitation (CTR) was published [1]. In this article, we describe the background and core components of this addendum on CTR, and discuss its implications for clinical practice and future perspectives.

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1963