



Comparing the Effectiveness of Two Exercise Therapy Programs for Cardiac Rehabilitation

Ravi Kiran*

Department of Cardiology, King George's Medical University, Lucknow, India

Abstract

As one of the leading causes of morbidity and mortality in Canada, cardiovascular diseases highlight the significance of disease prevention and risk reduction programs. A crucial component of comprehensive cardiovascular care is cardiac rehabilitation (CR). Over 200 CR programs have been established all over the country, varying in length, number of in-person supervised exercise sessions, and home exercise frequency recommendations. The efficiency of healthcare services must constantly be reevaluated in a healthcare environment that is becoming increasingly cost-conscious. By comparing the peak metabolic equivalents that study participants achieve in each of the two CR programs implemented by the Northern Alberta Cardiac Rehabilitation Program, this study compares and contrasts their effects. We hypothesize that, in comparison to our "Traditional" CR program, which required biweekly in-person exercise sessions for five weeks, our "Hybrid" CR program, which is structured as an eight-week program with weekly in-person exercise sessions and a prescribed home exercise program, has similar patient outcomes. The study's findings may have an impact on how to reduce barriers to rehabilitation participation and the effectiveness of CR programs over time. Future rehabilitation programs' structure and funding may be influenced by it.

Keywords: Cardiovascular; Exercise; Cardiac Rehabilitation

Introduction

In Canada, cardiovascular diseases remain one of the leading causes of morbidity and mortality highlighting the significance of disease prevention and risk reduction initiatives. There are currently over 200 cardiac rehabilitation (CR) programs established across the country. These CR programs vary in duration, the number of in-person supervised exercise sessions, and the recommendations for exercise frequency at home. Cardiac rehabilitation (CR) has long been recognized as a key component of comprehensive cardiovascular care and there is a lack of research comparing these various CR exercise therapy programs' efficacy [1].

Prior to the COVID-19 pandemic, a number of Canadian centers designed their CR programs as biweekly in-person exercise sessions that lasted anywhere from five weeks to a year. This "Traditional" CR program of biweekly exercise was also implemented for five weeks by the Northern Alberta Cardiac Rehabilitation Program (NACRP). The NACRP restructured their CR program in 2013 to focus on fewer in-person visits with the combined objectives of decreasing healthcare costs, promoting participant self-sufficiency, expanding participant scheduling flexibility, and reducing healthcare costs [2,3]. As a result, a "Hybrid" CR program was created, combining in-person sessions with a home exercise program for eight weeks to reduce sessions to once per week.

By comparing the peak metabolic equivalents (METs) achieved by study participants in each program, this study compares and contrasts the effects of our Hybrid CR program with those of the Traditional CR program. We hypothesized that the Hybrid CR program's outcomes are comparable to those of the Traditional CR program in no way [4].

Over the course of time, CR programs have taken on various forms. The CR program at the TRI was initially focused on exercise therapy, specifically progressive long-distance jogging or biking as aerobic exercises. Patients would receive individualized exercise prescriptions upon enrolling in the program, based on their age and the presence of post-MI complications [5]. Heart rate and symptom response to each exercise were tracked to gauge progress through the program. Patients

would be required to complete one in-person and four at-home exercise sessions per week as part of this CR program, which would last at least two years. A personalized jogging workout, a ten-minute cool-down, and twenty minutes of light warming up would be part of the in-person sessions. Daily diary sheets were required for home workouts to record jogging distance, duration, and pre- and post-workout pulse rates [6].

Discussion

Numerous CR programs have since expanded to include the "Core Components of Cardiac Rehabilitation" in recognition of the multifaceted nature of prevention. These "Core Components," as defined by the International Council of Cardiovascular Prevention and Rehabilitation, include exercise training, nutritional and psychosocial support, patient and family education, and the provision of strategies for reducing cardiovascular risk. However, the structured exercise therapy program remains the foundation of CR, which, as a recent meta-analysis demonstrated, significantly lowers the risk of cardiovascular morbidity and mortality [7].

Increased peak METs are linked to a decrease in cardiac morbidity and mortality, and it is well known that aerobic exercise lowers the risk of recurrent cardiac events. In both our Hybrid and Traditional CR Programs, aerobic exercise capacity, measured by peak METs, significantly increased. In addition, there was no difference in the number of adverse events in the Hybrid CR Program when comparing post-rehabilitation MACE incidents between our study arms, despite the low total number of adverse events. There was no evidence that

*Corresponding author: Ravi Kiran, Department of Cardiology, King George's Medical University, Lucknow, India, E-mail: Ravi_kiran@rediffmail.com

Received: 02-Jan-2023, Manuscript No. jcp-23-87561; Editor assigned: 04-Jan-2023, PreQC No. jcp-23-87561 (PQ); Reviewed: 18-Jan-2023, QC No. jcp-23-87561; Revised: 20-Jan-2023, Manuscript No. jcp-23-87561 (R); Published: 27-Jan-2023, DOI: 10.4172/jcp.1000185

Citation: Kiran R (2023) Comparing the Effectiveness of Two Exercise Therapy Programs for Cardiac Rehabilitation. J Card Pulm Rehabi 7: 185.

Copyright: © 2023 Kiran R. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

the Hybrid CR Program, which has fewer in-person visits but a longer duration of rehabilitation, is significantly different from the Traditional CR programs that are widely used at other rehabilitation facilities.

The design of future CR programs may be affected by this study's findings. Enrollment in CR programs is continuing to rise across the nation in tandem with the growing emphasis on disease prevention and risk reduction. CR program directors and policymakers are looking for ways to maintain program effectiveness and address barriers to care in a more resource-constrained environment as healthcare costs rise alarmingly nationwide.

Program access is a well-known obstacle to effective CR. In-person visits result in higher healthcare costs, but the Hybrid CR program is able to enroll a greater number of patients at any given time than the Traditional CR program because it requires fewer in-person visits.

Program attrition, which is caused by both personal and structural obstacles is another obstacle. Structural obstacles are caused, in part, by the inconvenience or inability to attend all in-person exercise sessions. Personal barriers include a preference for training activities that are distinct from those offered in typical CR programs or for solo training over group-based therapy. The Hybrid CR Program may assist in overcoming this obstacle. For many patients, the inconvenience of traveling on-site or having to take time off from work to attend CR is reduced with a reduction in the number of in-person visits. Additionally, fewer in-person visits may aid program compliance in the event of reluctance to participate in group therapy [8].

The variable lack of long-term effectiveness of CR programs is another identified obstacle. Due to the program's length and financial and resource constraints, CR places a greater emphasis on short-term fitness goals. Programs and services are increasingly evaluated based on their long-term outcomes in our increasingly cost-conscious healthcare environment. According to previous research, patients who participated in center-based CR programs frequently found themselves ill-equipped to independently pursue long-term exercise goals after the program's conclusion. With the additional eight-week home exercise program included in the Hybrid CR program, it may be possible to overcome this obstacle. It is possible that home exercise programs may enable patients to develop skills that enable them to independently manage and maintain their fitness.

Conclusion

One of the limitations of our study was the overall small sample size. Other studies have demonstrated that home-based CR is a safe and similarly effective alternative to center-based CR. Particularly small was the Hybrid arm's small sample size. During the time that patients were enrolled in the Hybrid program, our facilities' electronic medical record (EMR) system underwent two consecutive upgrades. Patients who were enrolled after the EMR change were unable to access patient data, resulting in unmatched study arms. Although Hybrid

CR participants still demonstrated an improvement in their peak METs post-rehabilitation, it was not possible to assess the exercise intensity of these sessions because the home-exercise regimens were unsupervised. Patients may have been pushed harder to achieve higher METs in their post-rehabilitation stress test because CR staff was not blinded to their pre-rehabilitation stress tests. However, this may also have occurred during the Traditional CR program. Last but not least, it was not possible to measure the amount of effort each patient put into their stress tests before and after rehabilitation. This opens the door to the possibility that patients put in more effort during their post-rehab exercise stress tests, which may have led to a perceived increase in peak METs. This could also have happened during the Traditional CR program. Additionally, the relatively fit study participants may have underestimated the difference between the two arms. Finally, the difference in METs achieved prior to and following CR was the sole focus of our investigation. We did not look at and compare other measures of effective CR programming, like controlling lipids, controlling blood pressure, quitting smoking, or changing mood and psychosocial factors.

Acknowledgement

None

Conflict of Interest

None

References

1. Grace SL, Bennett S, Ardern CI, Clark AM (2014) Cardiac Rehabilitation Series: Canada. *Prog Cardiovasc Dis* 56: 530-535.
2. Anderson L, Oldridge N, Thompson DR, Dorthe Zwisler A, Rees K, et al. (2016) Exercise-Based Cardiac Rehabilitation for Coronary Heart Disease Cochrane Systematic Review and Meta-Analysis. *J Am Coll Cardiol* 67: 1-12.
3. Kabboul NN, Tomlinson G, Francis TA, Grace SL, Chaves G, et al. (2018) Comparative Effectiveness of the Core Components of Cardiac Rehabilitation on Mortality and Morbidity: A Systematic Review and Network Meta-Analysis. *J Clin Med* 7: 514.
4. Woodruffe S, Neubeck L, Clark RA, Gray K, Ferry C, et al. (2015) Australian Cardiovascular Health and Rehabilitation Association (ACRA) core components of cardiovascular disease secondary prevention and cardiac rehabilitation 2014. *Heart Lung Circul* 24: 430-441.
5. Hamm LF, Sanderson BK, Ades PA, Berra K, Kaminsky LA, et al. (2011) Core competencies for cardiac rehabilitation/secondary prevention professionals: 2010 update: Position statement of the American Association of Cardiovascular and Pulmonary Rehabilitation. *J Cardiopulm Rehabil Prev* 31: 2-10.
6. Buckley JP, Furze G, Doherty P, Speck L, Connolly S, et al. (2013) BACPR scientific statement: British standards and core components for cardiovascular disease prevention and rehabilitation. *Heart* 99: 1069-1071.
7. Candido E, Richards JA, Oh P, Suskin N, Arthur HM, et al. (2011) The relationship between need and capacity for multidisciplinary cardiovascular risk-reduction programs in Ontario. *Can J Cardiol* 27: 200-207.
8. Martin BJ, Hauer T, Arena R, Austford LD, Galbraith PD, et al. (2012) Cardiac rehabilitation attendance and outcomes in coronary artery disease patients. *Circulation* 126: 677-687.