

CARDIAC REHABILITATION FOR PEOPLE WITH NON-OBSTRUCTIVE CORONARY ARTERY DISEASE

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BACKGROUND:

Cardiac rehabilitation (CR) is a suite of lifestyle and medical interventions that reduces cardiovascular mortality [2] and hospital admissions [3], and increases quality of life (QoL) [4]. A BACPR priority is ensuring that all patients who can benefit from CR are offered it. People with non-obstructive coronary artery disease (NOCAD) could benefit from CR but more research is needed before CR is recommended for this group [1].

One in five people who have an angiogram have NOCAD [5]. People with NOCAD have up to four times the risk of myocardial infarction within one year, compared to people with no coronary artery disease [5]. A small systematic review [6], including four randomised controlled trials (RCTs) [n=151], found that exercise training improved QoL and delayed the onset of angina in people with NOCAD. However, key components of comprehensive CR, such as weight management, smoking cessation, counselling, or lifestyle education [1], were not investigated. These can enhance the benefits of CR. Further, changes in cardiovascular risk factors were not reported. A pilot study found that exercise training and weight management led to reduced body mass, triglycerides, total cholesterol, and HbA1c in people with NOCAD [7]. Thus, CR could prevent/delay a definitive cardiac event in people with NOCAD. However, data on healthcare use, morbidity, and mortality, have not been reported. Further, the effect of comprehensive CR has not been investigated. A definitive RCT is needed.

AIMS:

- 1) Conduct preparatory work for a grant application to the National Institute for Health Research/British Heart Foundation that will investigate the benefits of CR in people with NOCAD
- 2) Develop research links between the BACPR and British Cardiovascular Intervention Society (BCIS)

PROPOSAL PLAN:

- A. At three UK Hospitals, audit the number of patients diagnosed with NOCAD and the proportion of people with acute coronary syndrome who have a history of NOCAD.
- B. Report on the capacity of UK CR programmes to deliver CR to people with NOCAD by conducting a survey of ~300 UK CR programmes
- C. With staff and patients, co-refine the content of CR for people with NOCAD taking in to consideration educational material and preferred mode of delivery (e.g. group- or home-based), through interviews.

IMPACT:

The work will lead to a definitive RCT which could change healthcare policy and enable people with NOCAD to access CR. This could prevent definitive cardiac events from occurring and improve the quality of life of people with NOCAD.

REFERENCES:

1. Cowie, A., et al., *Standards and core components for cardiovascular disease prevention and rehabilitation*. Heart, 2019. **105**(7): p. 510-515.
2. Anderson, L., et al., *Exercise-based cardiac rehabilitation for coronary heart disease*. Cochrane Database Syst Rev, 2016(1): p. CD001800.
3. Powell, R., et al., *Is exercise-based cardiac rehabilitation effective? A systematic review and meta-analysis to re-examine the evidence*. BMJ Open, 2018. **8**(3): p. e019656.
4. Hurdus, B., et al., *Association of cardiac rehabilitation and health-related quality of life following acute myocardial infarction*. Heart, 2020. **106**(22): p. 1726-1731.
5. Maddox, T.M., et al., *Nonobstructive coronary artery disease and risk of myocardial infarction*. JAMA, 2014. **312**(17): p. 1754-63.
6. Kissel, C.K. and D. Nikoletou, *Cardiac Rehabilitation and Exercise Prescription in Symptomatic Patients with Non-Obstructive Coronary Artery Disease-a Systematic Review*. Curr Treat Options Cardiovasc Med, 2018. **20**(9): p. 78.
7. Bove, K.B., et al., *Comprehensive treatment of microvascular angina in overweight women - a randomized controlled pilot trial*. PLoS One, 2020. **15**(11): p. e0240722.