A randomized controlled trial of an eight week cardiac rehabilitation home verse hospital exercise programme for post coronary cardiac bypass patients

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ABSTRACT

Background: The prevalence and morbidity and mortality rates of Coronary Heart Disease (CHD) continue to increase towards epidemic proportions in the Kingdom of Saudi Arabia (KSA). Despite the advances in Cardiac surgery, currently there are no established out-patient phase programmes of Cardiac Rehabilitation (CR) for CHD participants in KSA.

Aim of the study: To evaluate the effectiveness of a home-based CR (Home CR) programme using individualized exercise (Physiotools-R) and out-patient phase of CR (Hospital CR) programme compared to standard care of home instructions on physical function, physiological and psychological status, body composition and the quality of life of the CHD participants post Coronary Artery Bypass Graft (CABG) surgery.

Methods: 73 participants post-CABG surgery were randomly assigned to one of three groups: Hospital CR group (n=25), Home CR group (n=24) and Control group (n=24). Outcome measures include Incremental Shuttle Walk Test (ISWT), Metabolic Equivalent Tasks (METs), Psychosocial outcomes and body composition were recorded at baseline, eight weeks of CR intervention, and after four weeks of observation follow up.

Intervention: Hospital CR programmes comprised of group based Aerobic Circuit Training, home based structured individualised exercise programme. Each programme had 2 hours sessions, 3 times a week for 8 weeks, followed by four weeks of observation follow-up. The control group followed standard care comprised usual advice on post-operation precautions.

Results: The ISWT distance showed statistically significant increase in the three groups post 8 weeks of CR intervention. The Hospital group by 71 $\pm$9.19m, the Home group by 66+0.58m and the control by 3+1.39m,(*p<0.001)*. There were no statistically significant difference between the two intervention groups (*p>0.05*); however, both intervention groups showed greater distance increase than that of control group (p<0.001). Post four weeks of observation follow-up, the primary outcome measures (ISWT, METs, HADS-A, HADS-D, and the physical components summary (PCS) and mental components summary (MCS) of the SF-36 of the Home group showed statistically significant sustained improvement compared to the Hospital and Control group that showed significant reduction(*p<0.001*).

Conclusion Home-based CR is as effective as hospital-based phase III CR programme post 8 weeks of intervention. This finding should inform the design and implementation of future cardiac rehabilitation services in KSA.



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