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The effectiveness of a home-based cardiac rehabilitation program using individualized exercise (physiotoools-R) compared to hospital-based cardiac rehabilitation programs and standard care on the exercise capacity, psychological well-being and quality of life of CHD patients post-CABG surgery

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Background: Saudi Arabia is facing significantly increased mortality rate from Cardio Vascular Diseases (CVDs). Studies have reported that participation in Phase III cardiac rehabilitation (CR) program is associated with a reduction in morbidity and mortality for patients following CABG. Currently, there is no phase III provision of CR for coronary heart disease (CHD) patients in the KSA (King Saudi Arabia).

Aim: To evaluate the effectiveness of home CR program using individualized exercise (physiotoools-R) compared to a phase III hospital CR program and standard care with home instructions on the exercise capacity, psychological well-being, physiology, body composition and quality of life of CHD patients after CABG surgery.

Method: A total of 73 eligible participants were recruited from the King Faisal Heart Institute (KFHI), in Riyadh. All the participants had CHD and were 6-8 weeks post-CABG surgery. Participants were randomly assigned to one of three groups: A hospital CR group (n=25), a home CR group (n=24) and a control group (n=24). Measurements were at baseline post 8 weeks of CR intervention and then again after 4 weeks of observation. Hospital CR program of group based aerobic circuit training and a similar structured individualized exercise program using physioools-R were used as intervention groups for 8 weeks, three times a week for two hours per session, then four weeks of observation as follow up. The control group followed standard care which comprised home instructions about self-walking and post-operation precautions.

Result: The ISWT (incremental shuttle walking test) distance is clinically improved after in both intervention groups compared to baseline $p < 0.001$. However, after four weeks of observation follow up, the ISWT distance of the hospital group decreased, but unpredictably, it continued to improve in the home group $p < 0.001$. No significant change was reported in the control group $p > 0.05$. Similarly, all outcome measures: METs (measurement of exercise tolerance), HADS-A (hospital anxiety and depression scale-A), HADS-D (hospital anxiety and depression scale-D), PCS (population cohort study) and MCS (mechanical circulatory support) showed statistically significant improvement post-CR intervention $p < 0.001$.

Conclusion: The findings confirm that home CR using an individualized exercise has similar or possibly even better, effects in comparison to hospital-based Phase III CR in improving the exercise capacity, psychology, quality of life and body composition of CHD patients post-CABG surgery. Therefore, applying a home CR program for patients in remote areas will reduce the re-hospitalization rate and will contribute to improving the quality of life of those patients. Continuous improvement of the home group post follow up was the challenge.

Biography

Mohammed Abdullah Takroni a cardiac rehabilitation specialist graduated from king Saud University at 1992 with a bachelor degree in physical therapy, in Fellowship program in cardiopulmonary rehabilitation at Duke University and Medical (DUMC), North Carolina, USA, 1996. Master degree in physical therapy from King Saud University 2008, and also Master degree in sport medicine and rehabilitation, Manchester Metropolitan University (MMU), United Kingdom, 2009. PhD, in Cardiovascular and pulmonary Rehabilitation, Glasgow Caledonian University, Glasgow, UK, 2011. Member of the American Association of Cardiovascular and pulmonary Rehabilitation (AACVPR), member of the Irish Association of cardiopulmonary rehabilitation (IACR), member of the British Association for Cardiovascular Prevention and Rehabilitation (BACPR), member of Saudi Heart Association (SHA). Develop the Cardiac Rehabilitation programs at King Faisal specialist hospital and research center (KFHS&RC), Riyadh, Saudi Arabia. Innovated the Vascular, Pulmonary, and post open-heart surgery and heart transplantation protocols which are applied now in most of the Cardiac centers in Riyadh and around the kingdom. Participate in several symposiums, local and international. Presented several lectures and study days inside an outside the kingdom as cardiac rehabilitation specialist. Currently, head section of cardiac rehab team king Faisal Heart Institute, king Faisal specialist hospital and research center, and the inpatient supervisor, physical therapy department.

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