

Physiotherapy Management in Cardiac Rehabilitation Phase-I

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ABSTRACT

Cardiac diseases are the considered one of the prevalent disease in community nowadays. It involves myocardial infarction, coronary artery disease, valvular disease. Patients suffering from these conditions have taken the surgical treatment. Surgical procedures are common among all the patients and coronary graft bypass surgery to reduce the complications and symptoms such as dyspnea, chest pain, and fatigue is frequently used procedure. These procedures leads towards the post-operative complications and recovery depends upon the early ambulation and physical activity. Physiotherapy is need of the time to improve the symptoms and quality if life of these patients. Multiple techniques of physiotherapy are beneficial and necessary in cardiac rehabilitation phase-I.

Keywords: Aerobic training, Chest Physiotherapy, Coughing, Cardiac rehabilitation, Phase-I, Mobility, Post Surgical.

INTRODUCTION

Cardiovascular illnesses are expected to be the leading cause of disability worldwide. These diseases are responsible for one-tenth of fatalities in persons under the age of thirty five, one-third of fatality in those among the ages of thirty five and forty five, and three-quarters of deaths in people beyond forty five¹⁻³. It goes without saying that reducing post-CABG problems and increasing heart function in patients having this surgical procedure is critical⁴. Cardiac rehabilitation treatments may minimize medical costs by preventing recurrence^{5,6}.

These methods offer a variety of activities intended at improving surgery patients' physiological, mental, and social well-being while also reducing the course of their illness. Programs that include information about modifying risk factors for cardiovascular disease, lifestyle modification, and mental health support are also essential. Mobility, freedom, high mental efficiency, minimizing tension, keeping a healthy personal connection, and restoring capabilities are all goals of cardiac rehabilitation exercise^{7,8}.

Patients with myocardial infarction who were moved to the rehabilitation department within 24 hours were studied. Phase 1 rehabilitation strategies such as consolation, counseling of patients, their families, and spouses; potential risk evaluation, mobility, and discharge planning are used to rehabilitate MI patients. Financial information and instruction were offered, as well as the restoration of patients to normal life and activities. Following the patient's medical recovery, a rehab evaluation and mobilization were undertaken. Protocols employed in Phase 1 Rehab for mobilization comprised after acute myocardial infraction HR \leq 120 bpm or resting heart rate more than 20 bpm, and after surgery resting heart rate +30 bpm, according to ACSM recommendations. The patients were engaged in intermittent activity for 3 to 5 minutes at a time. A one-to-two-minute rest interval was required between exercises. From the first to the third day, mobilization was done 3 to 4 times once a day⁹.

Phase-1 Cardiac Rehabilitation (CR) proposed by Babu et al on individuals affected with ST-Elevation Myocardial Infarction (STEMI). Protocol of phase-1 cardiac rehabilitation included the relaxation and breathing exercises, participants performed the distal extremity movements such as active motion of foot or wrist and were instructed to do these five times a day. At the 3rd day of rehabilitation walk, standing or trunk bending or independent going to toilet, body stretching as well as spinal extension were recommended to patients. At the day five, movement outside the room or climbing up or down the stair was prescribes. Results indicated that in a significantly quicker recovery of arterial blood pressure to normal during the 6minute walk test, with no significant increase in rating of perceived exertion even during 6MWT, implying a training advantage between these individuals¹⁰.

Physical therapy techniques in Phase I Cardiac Rehabilitation which mostly concentrates on cough and huff methods, chest expansion tasks as well as diaphragmatic breathing. Hanging down the lower leg treatment bed resumed on the second day of surgery. Walking outside the room began on the 3rd day of surgery. Ascending or descending stair exercise began on the fourth day of surgery. Assisted cough and carrying limitations were the most usually utilized sternal considerations, while a 6-minute walk test was used to determine fitness levels prior to discharge¹¹.

Educational needs of patients who had been treated for a myocardial ischemia cannot be neglected. Patients must be educated how crucial it is to understand about each information items until being discharged from the inpatient setting. According to the findings medication, comorbidities, and regular exercise all received great marks. Transportation, resuming to employment, and seeking assistance were among the difficulties raised in reply to an existential question¹². Benefits of stationary cycling and walking on CABG patients by Hirschhorn et al. were documented. These exercises were to be done at a moderate intensity, according to the patients, twice a day from the third day of surgery until discharge from the hospital, for a total of 10 minutes¹³.

Canadian physiotherapy treatment by Overend et al. exhibited that spirometry, diaphragmatic breathing technique as well exercises of all extremity including the upper and lower limb, these all were considered at the first day of surgery, in elderly individuals who received preventive care after heart surgery. Whereas patients were asked to sit by lowering the leg below the treatment table, mobilization from treatment bed was also performed on patient at the 3rd day of surgery. Patients were also performed the walking to cover the distance of fifty to one hundred and twenty. Patients do this walk two to five times in a day at the 3rd day of surgery. Patients are asked not to handle the weight more than 5lb, study. Concluded that after first day of surgery therapist of Canada provide cardiopulmonary treatment¹⁴.

Potential risk elimination and patient lifestyle adjustment are now the center of prevention and treatment and cardiology rehabilitation services, according to a study conducted by Eshan. The goal of this research was to determine the impact of pre-discharge counseling on the lifestyles of patients who had complained of coronary disease. This study was an experimental study. Patients received pre-discharge instruction aimed at encouraging lifestyle changes and the adoption of a better health. They had emphasized the three main lifestyle elements, first one healthcare duty, second one diet, and third one human relationship. Finally counseling before discharging the patients from hospital, encourages individuals with acute coronary disease to maintain a healthy lifestyle after discharge¹⁵.

Arnetz et al. conducted study to see if patient participation throughout an acute myocardial infarction (MI) inpatient was improved the wellbeing and social consequences in six to ten week of time period after discharge from hospital. More patient

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satisfaction perceptions of participation were related to lower cardiac problems in period of six to ten week during the inpatient rehabilitation, according to the findings. Patients who completed rehabilitation program and met their tobacco cessation and blood pressure targets, on the other hand, were much less pleased with their participation. There was no link established between interest levels and medication adherence¹⁶.

DISCUSSION

This review stated that during the first phase of rehabilitation in cardiopulmonary condition different therapy were practice most commonly breathing exercises or chest expansion exercises as well as active range of movement of all extremity and mobilization all were considered in management of cardiac condition. According to health organization, mobilization should be started as soon as possible in early phase of rehabilitation. This study was also supported by Alaparathi et al who used the mobilization technique at the first day of surgery such as body in dangling position, sit to chair as well as sitting to standing. This author also stated that breathing exercise should be incorporated during the 2nd day of surgery, postural drainage along with percussion were also used in the 3rd day of surgery. This study was also evident by Hirschhorn et al that showed that stationary pedaling on cycling and walking for 10 minutes was also beneficial in cardiac phase 1 rehabilitations.

REFERENCES

1. Go AS, Mozaffarian D, Roger VL, Benjamin EJ, Berry JD, Borden WB, Bravata DM, Dai S, Ford ES, Fox CS, Franco S. Heart disease and stroke statistics—2013 update: a report from the American Heart Association. *Circulation*. 2013 Jan 1;127(1):e6-245.
2. Shafiee Z, Babaei S, Nazari A, Atashi V. The effect of massage therapy on sleep quality of patients after coronary artery bypass graft operation. *Iranian Journal of Cardiovascular Nursing*. 2013 Sep 10;2(2):22-9.
3. Sanchis-Gomar F, Perez-Quilis C, Leischik R, Lucia A. Epidemiology of coronary heart disease and acute coronary syndrome. *Annals of translational medicine*. 2016 Jul;4(13).
4. Mahdavi M, Abbasi I, Mohammadi N. Effect of cardiac rehabilitation program on quality of life in patients undergoing coronary artery bypass graft surgery. *The Horizon of Medical Sciences*. 2015 Jul 10;21(2):67-74.
5. Ades PA, Pashkow FJ, Fletcher G, Pina IL, Zohman LR, Nestor JR. A controlled trial of cardiac rehabilitation in the home setting using electrocardiographic and voice transtelephonic monitoring. *American Heart Journal*. 2000 Mar 1;139(3):543-8.
6. Mampuya WM. Cardiac rehabilitation past, present and future: an overview. *Cardiovascular diagnosis and therapy*. 2012 Mar;2(1):38.
7. Salavati M, Falahinia G, Vardanjani AE, Rafiei H, Moosavi S, Torkamani M. Comparison between effects of home based cardiac rehabilitation programs versus usual care on the patients' health related quality of life after coronary artery bypass graft. *Global journal of health science*. 2016 Apr;8(4):196.
8. Busch JC, Lillou D, Wittig G, Bartsch P, Willemsen D, Oldridge N, Bjarnason-Wehrens B. Resistance and balance training improves functional capacity in very old participants attending cardiac rehabilitation after coronary bypass surgery. *Journal of the American Geriatrics Society*. 2012 Dec;60(12):2270-6.
9. Organization WHO. WHO global air quality guidelines: particulate matter (PM2.5 and PM10), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide. 2021
10. Babu AS, Noone MS, Haneef M, Naryanan SM. Protocol-guided phase-1 cardiac rehabilitation in patients with ST-elevation myocardial infarction in a rural hospital. *Heart views: the official journal of the Gulf Heart Association*. 2010;11(2):52
11. Alaparathi GK, Bairapareddy KC. Phase-I cardiac rehabilitation practices among physiotherapists in INDIA-A survey. *Bangladesh Journal of Medical Science*. 2020;19(2):214-22.
12. Smith J, Liles C. Information needs before hospital discharge of myocardial infarction patients: a comparative, descriptive study. *Journal of clinical nursing*. 2007;16(4):662-71.
13. Hirschhorn AD, Richards DA, Mungovan SF, Morris NR, Adams L. Does the mode of exercise influence recovery of functional capacity in the early postoperative period after coronary artery bypass graft surgery? A randomized controlled trial. *Interactive cardiovascular and thoracic surgery*. 2012;15(6):995-1003.
14. Overend TJ, Anderson CM, Jackson J, Lucy SD, Prendergast M, Sinclair S. Physical therapy management for adult patients undergoing cardiac surgery: a Canadian practice survey. *Physiotherapy Canada*. 2010;62(3):215-21.
15. Eshah NF. Predischarge education improves adherence to a healthy lifestyle among Jordanian patients with acute coronary syndrome. *Nursing & health sciences*. 2013;15(3):273-9.
16. Arnetz JE, Winblad U, Höglund AT, Lindahl B, Spångberg K, Wallentin L, et al. Is patient involvement during hospitalization for acute myocardial infarction associated with post-discharge treatment outcome? An exploratory study. *Health expectations*. 2010;13(3):298-311.