How to Start Rehabilitation Setting for Cardiac Cases

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Abstract: Cardiac rehabilitation is a multidisciplinary program of exercise program, education, risk factor modification, and psychosocial counseling that reduces mortality and hospital stay, improves quality of life in patients with heart disease. Cardiac rehabilitation program is important for management of heart disease. The programs demands a multidisciplinary approach based on the premise that decisions on the goals of treatment should be made by the insight of several professions, therefore the practitioner requirements for cardiac rehabilitation should have competencies across various disciplines such as medicine, nursing, exercise physiology, physical and occupational therapy, psychology, sociology, pharmacology, and education. Standard facilities also required by hospitals to provide an ideal setting of cardiac rehabilitation.

1 INTRODUCTION

Cardiac rehabilitation is a multidisciplinary program of exercise program, education, risk factor modification, and psychosocial counseling resulted in reduces mortality and hospital stay, improves quality of life in patients with heart disease. Cardiac rehabilitation is a coordinated program, multifaceted interventions designed to optimize a cardiac patient's physical, psychological, and social functioning, in addition to stabilizing, slowing, or even reversing the progression of the underlying atherosclerotic processes, thereby reducing morbidity and mortality. The purposes of cardiac rehabilitation is to improve regular physical activities and to control the modifiable risk factors. Another purposes are education that emphasize the importance of the healthy lifestyle and help manage psychosocial problems. Centre for Medicare and Medicaid Services (CMS) recommends cardiac rehabilitation interventions as a multidisciplinary program that not only involves exercise therapy in cardiac patients but also involves counseling and education for patients who are already in stable condition, thus improves the transition from the hospital to the community. It believes that cardiac rehabilitation improves exercise tolerance, reduces symptoms of heart disease, lipid levels, frequency of smoking, stress levels and increases adherence to treatment and the patient's psychosocial life. This is in turns lead to increase independence and improvement in general sense of wellbeing (Mampuya, 2012).

Cardiac rehabilitation program is an important part of the management of heart disease. The concept of cardiac rehabilitation initially focused on exercise therapy, later developed into a comprehensive secondary prevention strategy in dealing with risk factors, nutrition, psychological and social factors that can affect patient's recovery process. Cardiac rehabilitation which acts as a secondary prevention relies on early detection and application of several interventions (education, counseling and behavior) to encourage lifestyle changes and modify the risk factors. Clinical research has shown that early detection and modification of risk factors can reduce the incidence of heart disease (Piepoli et al, 2010).

2 DISCUSSION

2.1 Phase of Cardiac Rehabilitation

In its implementation, the cardiac rehabilitation program is classified into several phases: Phase I is an immediate effort while the patient is still in the treatment period, the main objective of this phase is to reduce or eliminate the adverse effects of

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'deconditioning' due to prolonged bed rest, early education and so that the patient is able to do their daily activities independently and safely. Phase II, which is carried out as soon as the patient is discharged, is an intervention program to restore patient function to the optimum, immediately controlling for risk factors, education and additional counseling regarding a healthy lifestyle. Phase III are maintenance phases, where the patient is expected to be able to carry out a rehabilitation program independently, safely, and maintain a healthy lifestyle forever, assisted or together with the family and surrounding community. Since 1994, the American Heart Association (AHA) has declared that cardiac rehabilitation is not limited to physical exercise programs, but must include multidisciplinary efforts aimed at reducing or controlling modifiable risk factors (Price et al, 2016).

2.2 Cardiac Rehabilitation Setting

One of the fundamental component of rehabilitation is educating the patients and their families. The ability of each practitioner to educate the disease situation will affect their attitudes and promote changes in lifestyle which is the key of success for rehabilitation program. Where possible, all cardiac rehabilitation practitioner should be able to overcome the cultural and linguistic barrier of the patient and family.[5] Cardiac rehabilitation programs demands a multidisciplinary approach, therefore the practitioner requirements for cardiac rehabilitation should have competencies across various disciplines: medicine, nursing, exercise physiology, physical and occupational therapy, psychology, sociology, pharmacology, and education. The interprofessional approach of the cardiac rehabilitation is based on the premise that decisions on the goals of treatment should be made by the insight of several professions and a common framework. To obtain insight into an interprofessional approach the practitioner should have participated in the patients services offered by other proffesions and have regularly been updated within the individual competence through staff meetings and interproffesional conferences.

2.3 Cardiac Rehabilitation Program

Cardiac rehabilitation encompass baseline patient assessments, nutritional, psychosocial and physical activity counseling, risk factor management (lipids, hypertension, weight, diabetes, and smoking) and exercise training. Practitioner must be able to perform assessments, educate and provide effective interventions in the following fields: cardiopulmonary and musculoskeletal anatomy, physiology, and pathology; cardiovascular disease risk factors; nutrition; physical functioning and exercise therapy; psychosocial; health behavior; vocational; and pharmacy (Schou and Zwister, 2019). All professions must be given the opportunity for further education and continous update within science (Schou and Zwister, 2019).

Phase I (inpatients) program consists of early mobilization, identification and education of cardiovascular risk factors, medication instruction, and discharge planning. The practitioner must conduct baseline cardiovascular, pulmonary, musculoskeletal, and psychosocial assessments. Based on the data collected, an individualized program of physical activity and education could be determined. Multidisciplinary team includes certified nurse specialist; registered dieticians; physical and occupational therapists, exercise specialists and physiologists; pharmacists; social workers; and discharge planners. The staffs should know their competency relative to clinical indications and contraindications for cardiac rehabilitation. Staff who is in charge of early mobilization and physical activity of patients must be familiar with the adverse responses which require discontinuation of the activity. For large patient populations, the program may have a Cardiac Rehabilitation Coordinator or Cardiac Rehabilitation Educator (usually a nurse) who coordinates the above team of providers and responsible for special patient populations (e.g., higher-risk patients).

Phase II (outpatients) program requires staff who have the following competencies: cardiovascular, pulmonary, and musculoskeletal assessment; risk factor management, pyschosocial assessment and intervention; behavioural counselling, electrocardiogram (ECG) interpretation; medical emergency management; and exercise therapy theory and practice. The staff must be able to perform individual patient assessments, help patients to set achievable goals and evaluate progress toward goals. Patient monitoring in phase II include rating of perceived exertion (RPE), recording of heart rate, blood pressure, respiratory rate and symptoms pre and post activity. For home-based programs, staff (usually nurse) interact with patients via telephone and do periodic visits. The staff should have competency in the areas of exercise assessment, prescription, and evaluation. One competent practitioner supervise a low intensity physical activity program for groups of less than 10 patients. For groups of 10-15 patients, or for a moderate

intensity physical activity program, a second person needed with current cardiopulmonary resuscitation accreditation. Patient with conditions that need specific medical assessment prior to participating in the physical activity program include those with unstable angina, uncontrolled hypertension, severe aortic stenosis or uncontrolled diabetes, complicated acute myocardial infarction, untreated heart failure or cardiomyopathy and those with symptoms such as shortness of breath on low exertion or a resting heart rate over 100 beats/minute. It is highly recommended that cardiac rehabilitation staff obtain certification(s) in their respective fields. In phase 3, the practitioner will prescribe specific exercises to help improve endurance level and activity tolerance. Typical exercises performed during phase 3 are treadmill walking, rowing, biking, upper body ergometer, upper and lower body strength exercises and flexibility exercises. Phase 3 often occurs in a group exercise setting. This helps patient to socialize with others and keep the patient feel motivated during phase 3 cardiac rehabilitation (Sears, 2019).

2.4 Standard Facilities

Standard facilities required by hospitals to provide services as well as possible for the patient. The main electricity source of the building must be use electricity from the State Electricity Company. Buildings, rooms or special equipment must have a standby power supply whose power can meet continuity of service with these requirements. Air conditioner is needed for patients to feel comfortable in the rehabilitation building. The manager of the medical rehabilitation building must consider temperature and humidity, including consideration of the room function, number of users, location, room volume, type of equipment, the use of building materials, ease of maintenance and care, and principles of energy saving and environmental sustainability. Building should be equipped with audio-visual facilities and sound system (Price, 2016).

Based on Cardiac Rehabilitation Staffing by Lawson, cardiac rehabilitation programs have an ideal setting of place as follow :

- Reception area: its most important function is receiving patients and coordinating each patient's programme. The area includes a counter; workplaces with computers, telephones and telefax; and archives.
- Waiting room: The waiting room is located in the centre of the Unit and has chairs for patients and family members.
- Toilet and bathroom: Located near the waiting room, with facilities for both men and women.
- Consultation rooms: the are includes a computer, telephone, examination table and sphygmomanometer.
- Weighing: The scale is electronic and is calibrated regularly. It can weigh patients up to 200 kg
- Testing room: A consultation room has a testing cycle and examination table to test aerobic functioning
- Exercise facilities: the facilities is equip with music system, parallel bars, wall bars, mats, balls and other equipment. Next to the aerobics room is an exercise room with cycles, a computer station and a blackboard for educational purposes
- Kitchen: The Unit has a kitchen in which the dietitian and the patients and their families cook
- Dining and consultation room: The dietitian's consultation room has a table used for meetings and for eating the meals prepared in the cooking classes
- Group room: Room where patients is being educated, this room has a table, chairs, computer with a projector, whiteboard, screen, overhead projector and television with videocassette player.
- Workplaces: The workplaces that can accommodate any staff member
- Storage depot

Physical activity can trigger adverse cardiac events. Cardiac Rehabilitation Unit should give high priority for patient safety. The program requires two staff members that have been trained in basic cardiac resuscitation to be present whenever patients are in the exercise rooms. The equipment required for safety are (Schou and Zwister, 2019):

- Cardiac resuscitation cart: A cart including a defibrillator and other cardiac resuscitation equipment is located in the waiting room. Pharmaceuticals for cardiac resuscitation are in the medicine cabinet for safety reasons
- Pharmaceuticals: In accordance with the guidelines of the Copenhagen Hospital Corporation, pharmaceuticals are kept in a locked medicine cabinet. There is medicine to treat all types of acute illness, such as cardiac arrest, heart and lung disease and acute diabetic conditions.
- Acute illness: The program should have a protocol when a emergeny arise related to congestive heart failure, tachycardia, syncope, chest pain and other acute illness

- Cardiac arrest: The following procedure for cardiac arrest are alarm is sounded, initiaton of resuscitation and treatment, then transfer patient to intensive care accompany by the physician

2.5 Barriers of Cardiac Rehabilitation Participation

Social, psychological, and demographic variables have an effect on participation in cardiac rehabilitation. These factors include age, sex, race, doctor's recommendations, patient's knowledge of his illness, patients' expectations of cardiac rehabilitation, feelings of self-efficacy, mood and self-defense mechanisms (Tedjasukmana and Putra, 2016). All of these studies also showed differences in participation in cardiac rehabilitation in women, the elderly and minorities.[11] Gender differences could affect participation in cardiac rehabilitation, women have lower participation than men. Barriers to women's participation are lack of income sources, transportation difficulties, and lack of social or emotional support. Other obstacles to patient participation are motivation, interest and time. Although studies show the elderly have a greater need for cardiac rehabilitation and get good results with a low rate of undesirable events, the elderly are more often not referred or do not attend cardiac rehabilitation. Race and ethnic minorities have high rates of cardiovascular disease and associated risks, but low participations in cardiac rehabilitation are mainly due to lack of access, low referral rates and insurance protection (Torres, 2017).

3 CONCLUSION

Cardiac rehabilitation program is an important part of the management of heart disease. Cardiac rehabilitation which acts as a secondary prevention relies on early detection and application of several interventions (education, counseling and behavior) to encourage lifestyle changes and modify the risk factors. Clinical research has shown that early detection and modification of risk factors can reduce the incidence of heart disease. One of the fundamental component of rehabilitation is educating the patients and their families. The programs demands a multidisciplinary approach based on the premise that decisions on the goals of treatment should be made by the insight of several professions, therefore the practitioner requirements for cardiac rehabilitation should have competencies across various disciplines such as medicine, nursing, exercise physiology, physical and occupational therapy, psychology, sociology, pharmacology, and education. To obtain insight into an interprofessional approach the practitioner should have participated in the patients services and have regularly been updated within the individual competence through staff meetings and interproffesional conferences. Standard facilities also required by hospitals to set an ideal setting of cardiac rehabilitation program.

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