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IMPACT OF A STRUCTURED CARDIAC REHABILITATION PROGRAM FOLLOWING CORONARY ARTERY BYPASS GRAFTING IN AN ELDERLY PATIENT: A CASE REPORT

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Abstract : ***Background****: Coronary artery bypass grafting (CABG) is a common surgical intervention for coronary artery disease, particularly in elderly individuals. Postoperative cardiac rehabilitation is essential to enhance functional recovery, reduce perceived exertion, and facilitate a safe return to activities of daily living.*

Case Presentation: *This case report describes a 72-year-old patient who underwent CABG in May 2025 and subsequently participated in a supervised cardiac rehabilitation program for 2.5 months. The rehabilitation protocol was progressive in nature, beginning with daily sessions for 3 weeks, followed by twice-weekly sessions for 2 weeks, alternate-day sessions for 2 weeks, and concluding with two weekly follow-up sessions.*

Intervention: *The rehabilitation program focused on improving general mobility, flexibility, respiratory capacity, muscle strength, and cardiopulmonary endurance. Interventions included range-of-motion exercises, diaphragmatic breathing exercises, incentive spirometry, resistance training using weight cuffs, functional endurance exercises, and later progression to circuit training. Vital signs including heart rate, blood pressure, and oxygen saturation were closely monitored before, during, and after each session.*

Outcome: *The patient demonstrated significant improvement in exercise tolerance, with Borg's Rating of Perceived Exertion reducing from 13/20 at baseline to 7/20 post-rehabilitation. The patient was able to resume day-to-day activities independently following completion of the program.*

Conclusion: *This case report highlights the effectiveness of a structured and progressive cardiac rehabilitation program in improving functional capacity and perceived exertion in an elderly post-CABG patient.*

Keywords: *Cardiac rehabilitation, CABG, elderly patient, physiotherapy, perceived exertion, functional recovery*

Introduction

Coronary artery disease is a leading cause of morbidity and mortality worldwide, particularly among the elderly population. Coronary artery bypass grafting (CABG) is frequently performed to restore myocardial perfusion in patients with advanced coronary artery disease. Despite surgical success, patients often experience reduced exercise tolerance, impaired functional capacity, and decreased quality of life postoperatively. Cardiac rehabilitation is a comprehensive, multidisciplinary intervention aimed at improving physical, psychological, and functional outcomes following cardiac surgery. This case report documents the impact of a structured cardiac rehabilitation program on functional recovery in an elderly patient following CABG.

Case Presentation

A 72-year-old patient underwent elective coronary artery bypass grafting in May 2025. Following surgical stabilization and clearance, the patient was referred for supervised cardiac rehabilitation. At the initiation of rehabilitation, the patient presented with reduced endurance, early onset of fatigue, and difficulty performing activities of daily living. No post-operative complications were reported at the time of rehabilitation initiation. Baseline assessment using Borg's Rating of Perceived Exertion (RPE) scale revealed a score of 13/20, indicating moderate perceived exertion during physical activity.

Rehabilitation Protocol

The cardiac rehabilitation program was conducted over a total duration of approximately 2.5 months and was structured as follows:

Phase 1: Daily sessions for 3 weeks
Phase 2: Two sessions per week for 2 weeks
Phase 3: Alternate-day sessions for 2 weeks
Phase 4: Two weekly follow-up sessions

The program was individualized and progressively advanced based on patient tolerance and physiological response.

Intervention

The rehabilitation intervention comprised the following components:

1. General Mobility and Flexibility

Active range-of-motion exercises for both upper and lower limbs were prescribed to maintain joint mobility, prevent stiffness, and promote circulation.

2. Breathing Capacity Training

Diaphragmatic breathing exercises and incentive spirometry were incorporated to enhance lung expansion, improve ventilation, and strengthen respiratory muscles.

3. Strengthening Exercises

Progressive resistance training using weight cuffs was implemented to improve muscular strength of major upper and lower limb muscle groups.

4. Cardiopulmonary Endurance Training

Functional endurance exercises such as sit-to-stand, spot marching, and step-up and step-down activities were included, with gradual progression in repetitions and intensity.

5. Circuit Training

In the later stages of rehabilitation, a circuit training program was introduced, combining cardiopulmonary endurance activities with musculoskeletal endurance exercises to enhance overall functional capacity.

Monitoring and Safety

Vital parameters including heart rate, blood pressure, and oxygen saturation (SpO_2) were monitored pre-exercise, during exercise, and post-exercise. Adequate rest intervals were provided between exercise bouts to ensure patient safety and optimal recovery.

Outcome Measures

Exercise tolerance was assessed using Borg's Rating of Perceived Exertion (RPE) scale. Functional ability and tolerance to daily activities were evaluated through patient-reported outcomes and clinical observation.

Results

Following completion of the cardiac rehabilitation program, the patient demonstrated marked improvement in exercise tolerance. The Borg RPE score reduced from 13/20 at baseline to 7/20 post-rehabilitation. The patient reported reduced fatigue and was able to independently resume activities of daily living with improved confidence and endurance.

Discussion

This case report demonstrates the beneficial effects of a structured, supervised cardiac rehabilitation program in an elderly patient following CABG. Progressive exercise prescription, close monitoring of vital signs, and individualized advancement played a key role in improving functional outcomes. The reduction in perceived exertion and enhanced ability to perform daily activities align with existing evidence supporting cardiac rehabilitation as an essential component of post-CABG care.

Conclusion

A structured and progressive cardiac rehabilitation program can significantly improve exercise tolerance, functional capacity, and perceived exertion in elderly patients following CABG. This case report reinforces the importance of supervised rehabilitation in facilitating safe recovery and return to daily activities.