EVALUATING THE EFFECTIVENESS OF EXPIRATORY MUSCLE TRAINING WITH INCENTIVE SPIROMETER IN POST CABG PATIENTS

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ABSTRACT

The number of people who are diagnosed as having coronary artery disease is increasing all over the world. As with any surgery post-operative morbidity does exist and physiotherapist tries to reduce this, aiding in early return of patient to the normal activities. Objectives: The purpose of the study is to determine the effectiveness of expiratory muscle training with incentive spirometer on functional improvement in CABG patients. Methodology: This study was carried out in the Department of cardiovascular surgery, Sri Ramakrishna hospital, S.R.I.P.M.S, Coimbatore-641044, Totally 10 patients were selected for the study by systemic random sampling and The study was carried out for a duration of 3 months and the treatment duration was carried out for the period of 7 days. The patients were treated daily for 30 minutes once daily. Results: incentive spirometer training shows statistically significant difference in all the assessment parameters after one week of training with spirometer. It is the more effective method of expiratory muscle recruitment in post CABG patients. Conclusion: Thus we conclude that “the incentive spirometer training is more effective method of expiratory muscle recruitment and it improves functional status and chest expansion range in post CABG patients”. Keywords: Atherosclerosis, spirometer, fracture, Osteoporosis

INTRODUCTION

BACKGROUND

The number of people who are diagnosed as having coronary artery disease is increasing all over the world. It has been attributed to sedentary life styles, high stressful environment and poor dietary habits. This is coupled with risk factors like diabetes mellitus, hypertension and personal habits like smoking etc. In overwhelming majority of cases, diseases of the coronary arteries are due to atherosclerosis. 50% of patient with CAD present with sudden death (cardiac arrest) as their first symptom. CAD is the commonest cause for death in western world. 3.8 million men & 3.4 million women in worldwide die each year because of CAD. Coronary artery disease is because of the blockage of the arteries or vessels that carry oxygen and nutrients to the heart due to atherosclerotic plaque formation on the inner lining of the arteries. 50% of patient with CAD present with sudden death (cardiac arrest) as their first symptom. CAD is the commonest cause for death in western world. 3.8 million men & 3.4 million women in worldwide die each year because of CAD with the risk factors of Smoking, High cholesterol, Hypertension, Diabetes, Emotional stress, Obesity and Sedentary life. Coronary Artery Bypass Grafting (CABG) is the most common surgery performed in the world for CAD. Coronary Artery Bypass Grafting is a surgical procedure where by a blocked section of artery is literally “bypassed” by attaching a healthy segment of blood vessel (arteries and veins) around the diseased area. For CABG, the heat is assessed through a midline incision. The surgery can be performed with cardiac – pulmonary bypass i.e., OPCAB (On Pump CAB) or without cardio –pulmonary bypass (Off Pump CAB). As with any surgery post-operative morbidity does exist and physiotherapist tries to reduce this, aiding in early return of patient to the normal activities.

OBJECTIVES

The purpose of the study is to determine the effectiveness of expiratory muscle training with incentive spirometer on functional improvement in CABG patients.

NEED FOR THE STUDY

The use of anesthesia, blood loss coupled with restricted mobility and pain due to incision primarily affects the oxygen transport. This leads to Sub optimal mucociliary escalation. Decrease lung volume and capacities, Mucus retention in lungs and Requirement of increased work of breathing, the ventilation is further affected by pain though various modalities and techniques are available but nevertheless none of the technique so far has been shown to the required improvement. Hence the post-operative treatment still remains to be optimized and lacks the much-needed standardization. The Incentive spirometer training focus on normalizing respiratory pattern, promoting ventilation, the whole body relaxation, clearing the lung from mucus retention and reducing work of breathing. This is important to control the immediate post-operative morbidity.

PROCEDURE

The purpose of this study is to record the Efficacy of incentive spirometer training in reducing post-operative pulmonary complications in CABG patients. The research design was selected so that it may serve as a guideline for planning and implementing a study in a way that is most likely to achieve the goal.

METHODOLOGY

This study was carried out in the Department of cardiac vascular surgery, Sri Ramakrishna Hospital, S.R.I.P.M.S, Coimbatore – 641044. After getting informed consent signed, patients who had undergone median sternotomy incision for CABG in the age group of 50-60 and Both sexes were taken for the study and subjects with age group below 50 and above 60, Unstable vital signs, COPD and other lung pathology, Neuromuscular/Musculoskeletal disorders, Rib fracture, Osteoporosis, Metastatic cancer thorax and smokers were excluded out of the study. Totally 10 patients were selected for the study by systemic random sampling and The study was carried out for a duration of 3 months and the treatment duration was carried out for the period of 7 days. The patients were treated daily for 30 minutes once daily. Baseline assessment of Chest expansion three levels, Visual Analogue Scale and Six Minute Walk Test were done and after 7 days all the patients have been assessed with the same parameters to analyze the effectiveness of the treatment regimen.

STATISTICAL ANALYSIS

The analysis of the data collection reviews that there is significant improvement in all parameters with the use of incentive spirometer and by practicing expiratory muscle training for 7 days duration has improved the functional status.
The assessment parameters after one week of intervention Walked in the 6

Vol Six Minute Walk Distance Test

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