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Effect of Pulmonary Rehabilitation and Inspiratory Muscle Training on Patients With Unilateral Diaphragmatic Eventration

Abstract:

Introduction: Diaphragmatic eventration (DE) is the abnormal elevation of one part or the entire hemidiaphragm. This can be caused by lack of muscle or nerve function while maintaining its anatomical attachments. The symptomatic patients of DE usually suffer from shortness of breath while rest or during physical activity along with reduced functional capacity.

Purpose: This study aims to investigate whether patients suffering from DE can derive benefits from pulmonary rehabilitation (PR) focusing on inspiratory muscle training (IMT).
Design: A case series involving quasi-experimental study to test effectiveness of PR and IMT program on participants who completed six weeks of program.

Methods: Four participants with DE who underwent six weeks regimen of PR focusing on IMT were recruited. The outcome measures of this study are: level of dyspnea measured by modified medical research council (mMRC), pulmonary function test (PFT) to test lung capacity and volume by looking at forced vital capacity (FVC) and forced expiratory volume in one second (FEV1) respectively, and 6-minute walk test (6MWT) to test the functional capacity of the participants. The analysis was conducted using dependent t test to evaluate pre-post outcome measures.

Results: Four participants completed six weeks of PR with the focus on using IMT device. The dependent t-test for FEV1 and FVC revealed that there was a significant improvement after six weeks, $t(3) = -3.154$, $p < 0.05$, $t(3) = -2.529$, $p < 0.05$ respectively. The dyspnea scale (mMRC) showed significant improvement after six weeks $t(3) = 5.196$, $p < 0.05$. The functional capacity measured by the distance covered in 6MWT was improved significantly after six weeks $t(3) = -3.360$, $p < 0.05$.

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Conclusion: This study showed that pulmonary rehabilitation focusing on IMT can improve patients with DE alleviating dyspnea, as well as improving functional capacity. There might be an improvement of the pulmonary function and functional capacity of the patient without the need of surgical intervention.

Biography: Dr. Amal Albatini, Ph.D., CCRP, is a senior clinical researcher and certified cardiac rehabilitation professional at the Kuwait Cardiac Rehabilitation Centre, Chest Diseases Hospital in the Sabah Medical Area, Shuwaikh, Kuwait. With a strong background in cardiovascular rehabilitation and clinical research practices, she plays a key role in advancing evidence-based rehabilitation programs for patients recovering from cardiac conditions. Dr. Albatini's work focuses on improving functional outcomes, enhancing patient education, and optimizing long-term cardiac health through multidisciplinary care. She is recognized for her commitment to clinical excellence, research integrity, and her contributions to the development of modern cardiac rehabilitation services in Kuwait. And pic updated

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