



PM R XXX (2016) 1-7

www.pmrjournal.org

Narrative Review

Pulmonary Rehabilitation in Lung Cancer

Q2 Hongmei Wang, MD, Xin Liu, MD, PhD, Shawn J. Rice, MS, Chandra P. Belani, MD

Abstract

Lung cancer remains a challenging disease with high morbidity and mortality despite targeted therapy. Symptom burden related to cancer impairs quality of life and functional status in patients with lung cancer and in survivors. Pulmonary rehabilitation has been recognized as an effective, noninvasive intervention for patients with chronic respiratory disease. It is well established that pulmonary rehabilitation benefits patients with chronic obstruction pulmonary disease through improved exercise capacity and symptoms. Evidence is increasing that the benefit of pulmonary rehabilitation can be applied to patients with lung cancer. Comprehensive pulmonary rehabilitation has made its way as a cornerstone of integrated care for patients with lung cancer.

Introduction

Pulmonary rehabilitation is a multidisciplinary intervention for patients with symptoms related to compromised pulmonary function. It has been defined as an intervention based on a systematic patient assessment and culminates in patient-tailored therapies [1]. Therapy options can include exercise training, education, and behavioral changes. Pulmonary therapy endeavors to improve the psychological and physical condition of patients with chronic respiratory disease, which can promote long-term adherence to healthy behaviors [1]. The primary goals of pulmonary rehabilitation are to enhance exercise capacity, functional status, and quality of life, which can induce behavioral change to facilitate an active lifestyle. These goals can be attained through exercise, educating patients and family, and behavioral and psychosocial interventions facilitated by the collective input of a multidisciplinary health care team.

Pulmonary rehabilitation is an evidence-based therapy for patients with respiratory disorders. It is considered a core element for comprehensive integrated care [2]. The efficacy of pulmonary rehabilitation has been well established in the management of patients with chronic obstructive pulmonary disease (COPD). Patients with COPD can achieve benefits from pulmonary rehabilitation that include increased 6-minute walk distance [3], improved muscle strength,

reduced COPD exacerbations [4], and decreased length of hospital stay [3]. There is also increased recognition that pulmonary rehabilitation can benefit patients with other respiratory conditions such as restrictive lung disease [5,6], pulmonary hypertension [7], and lung cancer [8,9]. The role of pulmonary rehabilitation in lung cancer has gained increasing attention with positive effects on patients, but it hasn't been well described because of limited research to date.

Lung cancer is among the most prevalent cancers and remains the leading cause of cancer-related death worldwide despite aggressive treatments. The pathologic types are classified into small cell lung cancer (15%) and non-small cell lung cancer (NSCLC, 85%) [10]. NSCLC is further divided into adenocarcinoma, squamous cell carcinoma, and large cell carcinoma to guide the choice of therapies histologically. The clinical manifestations of primary lung cancer depend on the location [11]. Local growth of central lesions can cause cough, dyspnea, hemoptysis, or features of large airway obstruction. Peripheral tumors, in addition to causing cough and dyspnea, can lead to pleural effusion and pain if parietal pleura or the chest wall become involved. Cancer-induced lipolysis and proteolysis results in weight loss and muscle wasting [12]. Patients with lung cancer are often deconditioned with skeletal muscle weakness, exercise intolerance, and functional disability. Although targeted therapy continues to increase treatment options for lung cancer, few

therapeutic approaches are available to relieve symptom burden such as fatigue, dyspnea, cachexia, depression, and sleep disturbance, which significantly impair the overall quality of life. Patients with lung cancer also have a high incidence of concomitant chronic respiratory disease, which leads to ventilatory impairment or gas exchange disturbance. In a recent study of patients with newly diagnosed lung cancer [13], it was found that 73% of men and 53% of women presented with clinically significant COPD. Performance status determines the therapeutic decisions and may exclude patients from receiving a specific therapy [14]. Low exercise tolerance is associated with worse outcomes after surgery [14], suboptimal response to chemotherapy [15], and reduced survival [16]. Chest physiotherapy along with exercise training has been shown to reduce symptoms, increase exercise tolerance, and improve quality of life [17-20].

Cancer rehabilitation is defined by Silver and colleagues as "medical care that should be integrated throughout the oncology care continuum and delivered by trained rehabilitation professionals who have it within their scope of practice to diagnose and treat patients' physical, psychological and cognitive impairments in an effort to maintain or restore function, reduce symptom burden, maximize independence and improve quality of life in this medically complex population" [21]. Impairment-driven cancer rehabilitation has been reported to play a critical role in minimizing disability and maximizing quality of life [22]. Pulmonary rehabilitation has also been increasingly recognized as a cost-effective intervention for patients with chronic lung disease by integrating exercise training and education into an individualized program. Studies of patients with lung cancer who initially were considered nonsurgical candidates because of poor maximum oxygen uptake (VO_2 max) were conducted [23,24]. Pulmonary rehabilitation achieved significant improvements in VO_2 max, which allowed the patients who met eligibility criteria for lung surgery to undergo successful resection. Although lung cancer type is an important contributor to health and wellness outcomes for patients with lung cancer receiving pulmonary rehabilitation, such studies have not yet been undertaken. A few trials [25-27] suggest that exercise training is safe and feasible in patients with advanced stage lung cancer and that increased physical activity may improve exercise tolerance and symptom burden; however, the regimens have been diverse in terms of location, duration, and exercise intensity. The optimal regimen to be recommended remains unclear. In this article we review, generally, how pulmonary rehabilitation can be used with patients who have lung cancer to improve their quality of life during and after tumor resection and/or chemotherapy by focusing on validated approaches for pulmonary rehabilitation.

Principles of Pulmonary Rehabilitation in Patients With Lung Cancer

Pulmonary rehabilitation for patients with lung cancer has 3 key elements: a specific plan for each patient, a multidisciplinary team, and recognition of all the elements of the disease (Figure 1). Comprehensive assessment of the patients for pulmonary rehabilitation is critical to develop an appropriate, individualized plan of care. The exercise capacity, quality of life, and dyspnea should be assessed by utilizing specific measurement tools to provide information that will guide exercise prescription and to evaluate the effectiveness of the rehabilitation program. Physicians and allied health care professionals including nurses, respiratory personnel, physical therapists, dietitians, and social workers all play important roles in the rehabilitation program. For patients with lung cancer, the important psychological, emotional, and social aspects of the disease, in addition to the physical aspects, also need to be adequately addressed.

Exercise Training

Physical inactivity is common in patients with lung cancer, especially in advanced stages, because of disease-related symptoms and treatment adverse effects. Exercise training under the supervision of rehabilitation professionals is the foundation of pulmonary rehabilitation programs [28]. It involves a set of planned and structured activities with the goal of improving strength, endurance, and exercise capacity. Exercise training is applicable to any stage of lung cancer. However, it should be prescribed with consideration of overload, progression, specificity, and reversibility [29]. In patients with NSCLC, 8 weeks of aerobic interval exercise training has been shown to improve exercise capacity and alleviate fatigue and dyspnea [19]. Chen et al [18] found that a 12-week home-based walking exercise program was effective in managing depression and anxiety in lung cancer survivors. Quist et al [17] reported that a 6-week structured, supervised hospital-based and group-based exercise program in patients with advanced-stage lung cancer, such as NSCLC IIIb-IV and extensive disease small cell lung cancer, leads to improved physical and functional capacity, reduced anxiety level, and uplift in emotional well-being without any effect on overall health-related quality of life.

Pulmonary complications related to chemotherapy and radiotherapy are often exacerbated in patients with lung cancer. Fatigue and loss of appetite/weight are common complications of chemotherapy and radiotherapy. The latter will be discussed in the nutritional support section. Interventions aimed at improving pulmonary function and exercise tolerance can be achieved in these patients through pulmonary rehabilitation management [30]. In a trial of 18 patients with advanced lung cancer (stage IIIA-B

Download English Version:

<https://daneshyari.com/en/article/5575147>

Download Persian Version:

<https://daneshyari.com/article/5575147>

[Daneshyari.com](https://daneshyari.com)