

Original Article

Managing Symptoms in Patients with Advanced Lung Cancer During Radiotherapy: Results of a Psychoeducational Randomized Controlled Trial

Carmen W.H. Chan, BSN, MPhil, PhD, RN,
Alison Richardson, BN (Hons), MSc, PhD, RN, PGDip Ed, RNT,
and Janet Richardson, BSc (Hons), PhD, RN, PGCE, RNT, CPsychol
The Nethersole School of Nursing (C.W.H.C.), The Chinese University of Hong Kong, Hong Kong, SAR; School of Health Sciences (A.R.), University of Southampton, Southampton, United Kingdom; and Faculty of Health (J.R.), University of Plymouth, Plymouth, United Kingdom

Abstract

Context. Breathlessness, fatigue, and anxiety are distressing symptoms for patients with advanced lung cancer. Usually managed as isolated symptoms, they often can occur simultaneously. Previous research often has addressed management of discrete symptoms rather than considering them as a cluster, which, in reality, is the situation faced by patients.

Objectives. This study aimed to examine the effectiveness of a psychoeducational intervention (PEI) on the symptom cluster of anxiety, breathlessness, and fatigue, compared with usual care.

Methods. A pretest/post-test, two-group, randomized, controlled trial was conducted. Education on symptom management and coaching in the use of progressive muscle relaxation were delivered to patients one week prior to commencing radiotherapy (RT), and repeated three weeks after beginning RT. Symptom data were collected at four time points: prior to the intervention, three weeks, six weeks, and 12 weeks postintervention.

Results. One hundred forty lung cancer patients receiving palliative RT were recruited from a publicly funded hospital in Hong Kong. Doubly multivariate analysis of variance revealed a significant difference (time \times group interaction effect, $P=0.003$) over time between the PEI and usual care control group on the pattern of change of the symptom cluster. Significant effects on the patterns of changes in breathlessness ($P=0.002$), fatigue ($P=0.011$), anxiety ($P=0.001$), and functional ability ($P=0.000$) also were found.

Conclusion. PEI is a promising treatment for relieving the symptom cluster and each of the individually assessed symptoms. More effort needs to be directed at

Address correspondence to: Carmen W. H. Chan, BSN, MPhil, PhD, RN, The Nethersole School of Nursing, The Chinese University of Hong Kong, Hong Kong, SAR. E-mail: whchan@cuhk.edu.hk

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Key Words

Symptom cluster, breathlessness, fatigue, anxiety, psychoeducational intervention, progressive muscle relaxation, advanced lung cancer

Introduction

Lung cancer is the leading cancer diagnosis for both genders in Hong Kong.¹ The majority of patients with lung cancer either presents with advanced disease or develops metastases soon after the initial diagnosis. Although radiation therapy (RT) can manage endobronchial or extrinsic lesions of lung cancer and lengthen a patient's life,² it also can cause severe side effects that compromise quality of life. Patients with advanced lung cancer undergoing RT are particularly vulnerable to the symptoms of breathlessness, fatigue, and anxiety,^{3–5} which impact on patient function.^{6–8}

Patients with lung cancer often experience symptoms concurrently and they usually have overlapping and interactive effects.^{9,10} A symptom cluster is defined as three or more concurrent symptoms that are moderately correlated with each other.¹¹ Providing an intervention aimed at treating a symptom cluster as a whole could lead to greater effectiveness and efficiency, which potentially maximizes the use of clinicians' and patients' efforts.

Although the concept of symptom clusters is now acknowledged to be at the cutting edge of science in symptom management,^{12,13} few published accounts of intervention trials attempt to treat symptoms together as a cluster. Early in 1995, Lenz et al.¹⁴ published a theory of unpleasant symptoms that focused on explaining the impact of experiencing multiple symptoms. This theory laid a foundation for the current trend to investigate the treatment of multiple symptoms simultaneously. Given et al.'s⁸ study demonstrated the "value-added" role of a psychoeducational intervention (PEI) in reducing the overall symptom burden of 12 common symptoms. In 2004, Given et al.¹⁵ conducted a similar study demonstrating the positive effect of a PEI on 15 symptoms. However, these studies did not test or define the

multiple symptoms as a cluster; in other words, the association and concurrent existence of these symptoms were not tested.

A recent review indicated that the intensity of a symptom cluster comprising breathlessness, fatigue, and anxiety worsens during RT, and these symptoms cluster together in patients treated with RT.^{5,16} There are several studies that demonstrate correlations and similarities between breathlessness, fatigue, and anxiety.^{16–18} For instance, stress is identified as a common trigger for all these symptoms.¹⁹ The episode of breathlessness, fatigue, and anxiety usually begins with a trigger, which is either physical or emotional stress.^{3,16–19} Physical stress includes pain and labored breathing, whereas emotional stress may include fear, worry, and anger.

PEIs intend to prepare patients for the symptom experience, to clarify misconceptions, to alleviate stress and negative affects, to enhance a sense of control over the illness, and to promote self-care practice.^{6,8,15} In the last few decades, large numbers of studies evaluating PEIs in patients with cancer have been conducted.¹² Progressive muscle relaxation (PMR) appears to be the most prevalent intervention to be studied, followed by patient education. Although PEI has been advocated to manage cancer symptoms, breathlessness and fatigue appear to be neglected and understudied symptoms. Despite the reported benefits of PEI in the management of anxiety, there have been fewer studies of PEI in patients with lung cancer, in contrast to other cancers.¹⁹ In addition, no research has been reported to date on the impact of a PEI on the intensity and distress generated by these symptoms when considered as a cluster.

Reduced patient functioning is considered a common outcome of symptom experience, as supported by several theories and

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