Anxiety, Depression, and Cognitive Impairment in Patients with Chronic Respiratory Disease

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KEYWORDS

• Anxiety • Depression • Cognitive impairment • Chronic respiratory disease

KEY POINTS

- Depression, anxiety and cognitive impairment are common among persons with COPD, and psychological symptoms are associated with worse outcomes.
- Psychological symptoms may affect adherence to pulmonary rehabilitation programs, and screening for these symptoms should be considered.
- Pulmonary rehabilitation may improve depression and anxiety symptoms although the effect on cognitive function is not as clear.

INTRODUCTION

Feelings, beliefs, and expectations are important influences on the outcomes from pulmonary rehabilitation. Depression, anxiety, and cognitive impairment are common among patients with chronic obstructive pulmonary disease (COPD) and may both affect the delivery of pulmonary rehabilitation and be modified by pulmonary rehabilitation. Evaluation for these conditions should therefore be considered during the baseline assessment for pulmonary rehabilitation.[1,2]

There has been increasing awareness that depression is a common feature of many chronic illnesses, including respiratory conditions.[3] In lung disease, the psychological comorbidity of anxiety also seems to play an important role, given the relationship between anxiety and dyspnea. In recent years, the links between chronic illness, decreases in cognitive function, and these emotional states have begun to be made. The interrelationships among the physiologic aspects of pulmonary rehabilitation and these psychological and cognitive concerns are complex. In addition, it is not clear how and to what degree pulmonary rehabilitation modifies, ameliorates, or eliminates these emotional states or decreases in cognitive function.

A goal of pulmonary rehabilitation is to change patient health behaviors. This change can be facilitated by increasing physical activity in a supervised setting, ideally maintaining this increased physical activity after the formal pulmonary rehabilitation sessions are complete. Changing health behaviors in chronic illness is challenging, and there is increasing evidence that addressing comorbid psychological symptoms such as depression is an important component of health behavior change.[4]

In this article, the prevalence of depression, anxiety, and cognitive impairment in persons with COPD, and the extent to which these conditions limit or modify the effectiveness of pulmonary rehabilitation, are reviewed; in addition, whether

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pulmonary rehabilitation may ameliorate these psychological and cognitive impairments is discussed.

Depression

Depression is an adjustment disorder that exists on a continuum from feelings of being blue or sad to major depressive illness. Simple mood disturbance such as mild anxiety or depression is typically associated with an identifiable life stressor, which is commonplace in chronic disease. An individual with a simple mood disturbance who begins pulmonary rehabilitation should be able to adequately participate in the program and, with encouragement, have positive outcomes. However, someone with a major depressive disorder needs to be treated aggressively within and beyond the rehabilitation program. Unless this major depression is recognized and addressed, patients probably do not realize their potential gains in pulmonary rehabilitation outcomes.

The defined criteria for the diagnosis of a major depressive disorder are that at least 5 of the symptoms in **Box 1** must be present nearly every day during a 2-week period.

To meet the diagnostic criteria for depression, these symptoms need to have caused clinically significant distress or impairment in social, occupational, or other important areas of functioning. If one of these symptoms existed previously, then it must have changed from the previous occurrence to be considered in the assessment. The symptoms must not be caused by the direct physiologic effects of a substance or a general medical condition or be associated with bereavement unless it has persisted for 2 months.

Some of the symptoms of depression such as poor appetite, sleep disturbance and fatigue are also associated with COPD and, therefore, may present a challenge to providers who are evaluating patients. Also, few studies of the impact of depressive symptoms on COPD outcomes have used strict *Diagnostic and Statistical Manual of Mental Disorders* (DSM) criteria for depression but instead have relied on symptom scales such as the Hospital Anxiety and Depression Scale (HADS)[5] or the Beck Depression Inventory (BDI) scale.[6]

Box 1
Symptoms used to diagnose a major depressive disorder

- Depressed mood most of the day or markedly diminished interest or pleasure in all, or almost all, activities most of the day (must be one of the symptoms)
- Significant weight loss when not dieting or weight gain (eg, 5%) or decrease or increase in appetite
- Insomnia or hypersomnia
- Psychomotor agitation or retardation
- Fatigue or loss of energy
- Feelings of worthlessness or excessive or inappropriate guilt (not merely self-reproach or guilt about being sick)
- Diminished ability to think or concentrate
- Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan

Data from Diagnostic and statistical manual of mental disorders, fourth edition text revision. Washington, DC: American Psychiatric Association; 2000.

PREVALENCE OF DEPRESSION

Depression and anxiety are the most common psychosocial concerns seen in chronic pulmonary patients enrolled in pulmonary rehabilitation.[7] Estimates of the prevalence of depression range from 10% to close to 80% (depending on the instrument and method used to screen), although the prevalence is most commonly reported as between 25% and 50%.[8–10] The higher percentages likely reflect the presence of symptom burden rather than clinically defined disease. Also, the prevalence of depression may be higher in patients with more severe COPD.[11,12] Some estimates suggest that patients with COPD are 2.5 times more likely to have anxiety and depression than healthy individuals.[11] Cross-sectional studies suggest that women, those with a body mass index less than 21 kg/m^2, and those who experience more significant dyspnea or disability are more likely to have symptoms of depression.[3,13] Patients with COPD without depression also are more than twice as likely to subsequently develop depression compared with those without COPD.[14]

Depressive symptoms in COPD are associated with worse clinical outcomes, including worse health-related quality of life,[9,15] decreased functional performance measured with the 6-minute walk test,[16] increased risk of COPD exacerbations,[17] and a higher risk of death.[18–20] Although it is not known whether treatment of depression may decrease the risk of these adverse outcomes, because there are effective treatments, it seems reasonable to address as an important potentially modifiable comorbid condition in COPD.