

# Psychiatric Aspects of Lung Disease in Critical Care

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## KEYWORDS

- Psychiatric aspects of pulmonary disease • Critical care • Anxiety • Depression
- Intensive care unit • Demoralization • Neuropsychiatric symptoms
- Psychiatric aspects of lung disease

## KEY POINTS

- Psychiatric conditions are common in patients with chronic lung disease and new psychiatric symptoms arise with pulmonary decompensation in critical care units.
- Substance use disorders (SUDs) are associated with the development of multiple acute and chronic pulmonary conditions, significantly contributing to morbidity and mortality of patients with lung disease.
- Differential for anxiety in intensive care unit (ICU) patients with lung disease includes underlying pulmonary or another medical condition, medications, assistive devices in ICU, and primary psychiatric conditions.
- Clinicians must be aware of potential neuropsychiatric side effects of medications used in patients with lung disease in the ICU, including steroids, immunosuppressants, beta-blockers, and antibiotics.
- Clinicians managing psychiatric symptoms in patients with lung disease must be aware of psychotropic drug properties (eg, half-life, mechanism of action), concerns (eg, QTc), side effects (eg, withdrawal, toxicity, acute reactions), and drug–drug interactions.

## INTRODUCTION

Lung disease is highly associated with psychiatric disorders. These psychiatric disorders can occur as risk factors to lung disease (eg, tobacco use disorder in patients with chronic obstructive pulmonary disorder [COPD]), as a co-occurring condition (eg, cystic fibrosis [CF] and depression); as a result of a pulmonary condition (eg, panic attacks in patients with worsening respiratory disease), or as a treatment side effect (eg, steroid-induced mania). Respiratory conditions and respiratory failure are among the most common indications for admission to critical care units. Timely and appropriate recognition and management of psychiatric conditions in these patients can have significant positive effects on patient outcomes. Thus, it is crucial for intensivists

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Disclosure Statement: The author has nothing to disclose.

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Crit Care Clin ■ (2017) ■–■

<http://dx.doi.org/10.1016/j.ccc.2017.03.014>

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to be aware of the incidence and manifestations of psychiatric disorders in their patients, psychological and neuropsychiatric effects of the treatments in critical care, and management strategies to treat psychological and neuropsychiatric symptoms of patients with pulmonary conditions in an intensive care unit (ICU).

## EPIDEMIOLOGY OF PSYCHIATRIC ILLNESS IN CHRONIC LUNG DISEASE

Psychiatric conditions are prevalent among patients suffering from chronic lung disease. Adults with asthma have a 50% higher likelihood of having a depressive or anxiety disorder compared with healthy population.<sup>1</sup> Depression and anxiety have been recognized as important comorbidities in patients with CF. A multisite study across 154 CF centers in Europe and the United States found elevated symptoms of depression in 10% of adolescents and 19% of adults; and elevated symptoms of anxiety in 22% of adolescents and 32% of adults.<sup>2</sup> These incidences were 2 to 3 times higher than those observed in community samples. Anxiety and depression were associated with decreased pulmonary function, increased number of hospitalizations, elevated health care costs, and diminished quality of life (QoL).<sup>2</sup> A meta-analysis of 8 controlled studies found a significantly increased prevalence of depression in 27.1% patients with COPD, as compared with 10.0% in controls.<sup>3</sup> Patients with COPD are 10 times more likely to have panic disorder (PD).<sup>4</sup> Depression and anxiety have negative consequences on outcomes in subjects with COPD. In a meta-analysis of 16 studies, the relative risk of mortality in COPD subjects with depression or anxiety was 1.83 and 1.27, respectively, as compared with COPD subjects without psychiatric comorbidities.<sup>5</sup> In addition, depression and anxiety were associated with a greater incidence of COPD exacerbations, hospitalizations for exacerbations, and hospital length of stay.<sup>5</sup> Approximately one-third of patients with pulmonary arterial hypertension (PAH) suffer from mental disorders, with 1 study demonstrating 15.9% incidence of major depressive disorder (MDD) and 10.4% incidence of PD.<sup>6</sup> The prevalence of psychiatric disorders in PAH increases with the degree of functional impairment and it is associated with worse QoL.<sup>6</sup>

Lung cancer is the third most common form of cancer among all malignancies in the United States and is the leading cause of cancer deaths.<sup>7</sup> Depression and anxiety are present in one-third of patients recently diagnosed with non-small cell lung carcinoma and are associated with decreased QoL, poor treatment adherence, and worse prognosis.<sup>8</sup> Subjects with lung cancer and depression were found to have decreased median survival of 6.8 months compared with nondepressed subjects surviving a median of 14 months (hazard ratio [HR] 1.9).<sup>8</sup>

### *Substance Use Disorders and Pulmonary Disease*

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Substance use disorders (SUDs) are associated with the development of multiple acute and chronic pulmonary conditions, significantly contributing to morbidity and mortality.<sup>9</sup> The pulmonary damage can occur with either systemic or inhalational route of drug administration and is mediated either via direct toxic effect of the substance or the presence of impurities and contaminants in the various substances. Toxicity may be immediate after exposure (eg, acute lung injury or hypersensitivity reaction) or delayed (eg, reactive airways dysfunction syndrome, or cancer).

Tobacco use disorder remains the most common risk factor for the development of COPD and lung cancer.<sup>10</sup> First-hand and second-hand tobacco exposure are detrimental to any pulmonary condition.<sup>10</sup> Prolonged marijuana smoking is associated with lung cancer and may result in respiratory symptoms suggestive of obstructive lung disease.<sup>9</sup> In addition, marijuana smoking is associated with allergic

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