# Anxiety and depression in COPD
## Ansietà e depressione nella BPCO

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Chronic obstructive pulmonary disease (COPD) is a lung disease associated with chronic systemic inflammatory syndrome [1]. COPD is often associated with comorbidities that need to be evaluated because they affect the severity of the disease. Anxiety and depression are often observed in patients affected by COPD [2]. As pointed out by Tetikkurt and colleagues in this issue of *Multidisciplinary Respiratory Medicine* [3], COPD patients have to carry an important psychological burden related to their disease. In addition, in these patients, and due to unknown mechanisms, anxiety and depression increase the risk of re-hospitalization and increase mortality [4-6]. It is somewhat surprising that the degree of lung function impairment does not explain the level of anxiety and depression seen in these patients. Indeed, in most of the previous studies no correlation was found between the psychological aspects of COPD and the forced expiratory volume in 1 second ($FEV_1$) value. Instead, anxiety or depression have been shown to be correlated to the presence of respiratory symptoms. Dyspnea and reduced exercise capacity are the predominant mechanisms leading to anxiety and depression symptoms associated with COPD.

In the study by Tetikkurt and colleagues, the prevalence of these symptoms increased as the BODE index (a composite score of body mass, obstruction, dyspnea and exercise capacity) increased. The authors explain this finding arguing that dyspnea and reduced exercise capacity were the predominant mechanisms leading to the anxiety and depression associated with COPD. Indeed, dyspnea and reduced exercise capacity correlated significantly with the presence of the anxiety and depression symptoms. They conclude that the BODE index is superior to the Global Initiative for Obstructive Lung Disease (GOLD) classification for explaining anxiety and depression in COPD.

Curiously, also bronchoalveolar lavage (BAL) cytologic findings correlated significantly with the presence of the anxiety and depression symptoms. Tetikkurt and colleagues explain this finding by reasoning that BAL abnormalities reflect the distal lung damage, and as the lung damage gets worse dyspnea increases. Indeed, the correlation found between the severity of the atypical findings of BAL cytology and the Modified Medical Research Council (MMRC) index and the 6-minute walk distance (6MWD) suggests that dyspnea and the consequent functional physical limitation may be related to the severity of the peripheral lung damage identified by BAL cytology. Tetikkurt and colleagues may go a bit too far in suggesting BAL cytology as a screening tool for COPD patients to determine the presence of symptoms of anxiety or depression, or as a noninvasive tool for identifying psychiatric comorbidities. However, the results are very interesting and worth further investigating.

In conclusion, anxiety and depression are common symptoms in COPD. There is a clear association between dyspnea and anxiety or depression in COPD, and these symptoms are correlated with and contribute to the severity of the disease. Further studies are needed to better understand the relationship between psychological abnormalities and the pathophysiology of COPD.

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