EDITORIAL

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Physical activity in chronic obstructive pulmonary disease: clinical impact and risk factors

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Physical inactivity is common in patients with chronic obstructive pulmonary disease (COPD) compared with healthy control subjects [1], as well as in patients with other chronic diseases such as ischemic heart disease and rheumatoid arthritis [2]. In COPD, physical inactivity is not only a feature of advanced disease [3]; it is already reduced in the early stages of the disease, before onset of respiratory symptoms [4]. In a previous study, physical activity was reduced early in the course of the disease, and gradually decreased over time in COPD patients to a greater extent than in non-COPD subjects [1,5].

Physical inactivity is an important predictor of COPD outcome. Lower levels of physical activity are associated with a higher risk of exacerbation and exacerbation-related hospitalization [6,7], and also increase the risk of all-cause mortality in patients with COPD [7,8]. Thus, it is not surprising that physical activity maintained over time resulted in a protective effect against disease exacerbation and hospitalization. However, as physical activity decreased over time, the risk of exacerbation reached that of individuals who entered the study with low levels of physical activity and who maintained these low levels [9]. Therefore, a gradual decline in physical activity also predicts mortality. According to this study, the benefits of physical activity are not sustained over a long time period in COPD.

In COPD, physical activity is determined by several causes, including physiological, behavioral, social, and cultural factors [10]. In a cross-sectional study, decreased physical activity was associated with a decline in lung function, decreased heart function, systemic inflammation, and muscle weakness in patients with COPD [11,12]. Van Remoortel et al. [13] demonstrated that physical inactivity was more strongly associated with the presence of comorbidities than was airflow limitation. However, no prospective study has objectively assessed the association between physical activity and the presence of comorbidities over time in COPD. In a study by Watz et al. [14], physical activity was only weakly associated with lung function. However, there exists an inverse association between daily physical activity and dynamic hyperinflation [15], which is strongly correlated with the degree of exertional dyspnea [16]. In contrast to pulmonary function, lower extremity strength and exercise tests are associated with lower levels of physical activity in COPD patients [11,17], and daily symptoms such as dyspnea and fatigue are associated with physical

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activity levels [11,18]. Self-efficacy, defined as an individual's belief in their ability to be successful in something, is weakly associated with daily physical activity [19,20]. Moreover, impaired health status is somewhat correlated with physical activity, as confirmed in a 5-year longitudinal observational study.

In the current issue, Lee et al. [21] assessed physical activity in elderly patients with COPD and identified clinical factors associated with low levels of physical activity. This is the first study to analyze physical activity patterns and predictors of low-level physical activity in elderly patients with COPD. Patients older than 65 years were divided into three groups according to their level of physical activity (low, moderate, and high), and their health-related quality of life and levels of anxiety and depression were measured. The authors found that severe dyspnea and the presence of depression were independently associated with low-level physical activity. Unfortunately, this study is cross-sectional in nature; thus, the authors were unable to explain the causal relationship between low physical activity and the identified risk factors. A recent prospective study demonstrated that depression affects the rate of reduction of physical activity after 6 months in COPD patients [22]. Therefore, it is presumed that the results of the authors' study will be of clinical significance. Physical activity is usually self-reported and, unlike physical fitness, which is measured objectively, it tends to be overestimated. The 6-minute walk test is a widely used and validated test to measure physical fitness in COPD. To identify the risk factors that affect physical activity in clinical settings, it is necessary to develop a method that can easily measure physical fitness.

Conflict of interest

No potential conflict of interest relevant to this article was reported.

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