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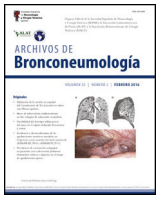

Editorial

Nutritional Abnormalities and Muscle Dysfunction in Idiopathic Pulmonary Fibrosis☆

Alteraciones nutricionales y disfunción muscular en la fibrosis pulmonar idiopática

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Interstitial diseases constitute a heterogeneous group of diseases, some of which may progress to fibrosis, causing respiratory failure, limitation in activities of daily living, and even death. One of the most important of these diseases is idiopathic pulmonary fibrosis (IPF), a fibrosing interstitial pneumonia of unknown origin which causes significant morbidity and which still has a poor prognosis.[1] Interest in this entity has been growing in recent years due to advances in knowledge of its pathophysiology and improved imaging techniques, and the appearance of new treatments (i.e., nintedanib and pirfenidone) that might delay the advance of fibrosis.[1] Although it has been known for some time that the pulmonary effects of IPF can limit the exercise capacity of patients, the impact of this limitation on their daily physical activity is less well characterized. Observations from other respiratory diseases have shown that limitations in lung function are successively accompanied by extrapulmonary factors, as other systems (cardiovascular, musculoskeletal) become deconditioned by the reduction in physical activity. Another aspect closely related with deconditioning that is rarely studied is the nutritional status of patients, which may also lead to muscle problems. The prevalence of nutritional disorders in patients with IPF and hypoxemia has been estimated to be 30%,[2] and can be as high as 56% in patients who are candidates for lung transplantation.[3] The predominant nutritional profile in advanced disease is normal weight but with a loss of lean mass,[3] a disparity that can be explained by the frequent presence of a high percentage of body fat. Loss of weight and lean mass are independent prognostic factors of the disease,[3,4] so it is essential that patients are correctly evaluated, not only with the calculation of body mass index (BMI), but also with a determination of body composition (e.g., bioelectrical impedance analysis). A significant consequence of the loss of lean mass is muscle dysfunction. Despite this, only a few studies have focused on this aspect of the disease. The findings clearly show weakness in both the respiratory and the peripheral muscles,[5–7] which undoubtedly contributes to the reduction in physical activity and poor quality of life of patients.[5,8]

Loss of weight and lean mass in IPF could be explained not only by deconditioning and ingestion difficulties, both mainly due to dyspnea, but also by the presence of oxidative stress and pulmonary and systemic inflammation that increase during exacerbations,[9] hypoxia, aging, and the most common comorbidities associated with IPF, such as diabetes mellitus type II (10%–35% of patients),[10] all of which induce a loss of protein content.[11] It is also well known that up to 30% of IPF patients also have pulmonary emphysema,[12] an entity associated with nutritional disorders. Finally, there is the deleterious effect of certain treatments, such as systemic corticosteroids, that cause a negative protein balance and that can also induce acute and chronic myopathies. Nintedanib, with its gastrointestinal and anorectic side effects, can also contribute to weight loss. Pirfenidone can suppress the appetite, but may, in contrast, have a positive effect on nutritional status by inhibiting transforming growth factor-beta factor (TFG-β), a cytokine that has been implicated in loss of weight and muscle mass in various diseases.[13]

Despite all this, there are no specific recommendations for the management of nutritional disorders and muscle dysfunction in IPF.[14,15] It seems logical to recommend close monitoring of lung disease, a healthy lifestyle, with appropriate diet and physical activity level, avoiding exacerbations and inappropriate use of systemic corticosteroids. The systematic use of nutritional supplements in these patients has not yet been proposed, although their use in advanced cases of malnutrition would be reasonable. Nor is there any consensus on the use of anabolic drugs. One intervention that has produced improvement, at least in terms of skeletal muscle function, is general exercise and muscle training.[6]

In summary, clinicians must pay attention not only to pulmonary progress in IPF, but also to the nutritional status and muscle function of their patients, since disorders are common and affect prognosis. Once the problem has been detected, healthy lifestyle habits should be recommended, exacerbations, hypoxia and harmful treatments should be avoided as far as possible, and training programs adapted to the possibilities of the patient must be started,

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along with nutritional supplements or even anabolic drugs in some cases.

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