Exercise-induced Oxygen Desaturation in Chronic Obstructive Pulmonary Disease Patients

Desaturación de oxígeno inducido por el ejercicio en pacientes con enfermedad pulmonar obstructiva crónica

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Interest in the causes and characteristics of chronic obstructive pulmonary disease (COPD) and its clinical manifestations has grown in the last 10 years. The range of clinical symptoms and other specific characteristics of COPD patients have led it to be considered more as a syndrome than a disease, and many investigators have been motivated to define new phenotypes that reflect the particular features or responses of these patients. GesEPOC guidelines classify phenotypes as non-exacerbator and exacerbator, predominant emphysema or chronic bronchitis, while the GOLD classification includes moderate, severe and symptomatic or at-risk. It is clear that we are about to see a surge in COPD classifications, as it seems likely that guidelines will emerge in the near future that try to account for any particular characteristics that modify the clinical course or prognosis of the disease.

One characteristic that has been well defined but little understood is exercise-induced oxygen desaturation. About one third of COPD patients are thought to suffer desaturation during exercise, so this phenomenon is encountered relatively often in these patients. Nevertheless, consensus has not yet been reached on the definition of desaturation: some authors define it as a drop in blood oxygen saturation of 4% or more, while others, it is a drop in blood oxygen saturation of 4% along with a reduction in minimum saturation to below 90% oxygen saturation in hemoglobin. This phenomenon has been mostly observed in patients with more severe disease in terms of FEV1, and in patients with predominant emphysema phenotype. Although oxygen saturation may be detected during maximal effort on a cycle ergometer or during shorter exercise tests, it is mostly observed during submaximal effort on the 6-min walk test. This test is widely used and can be implemented in any center. In addition to the number of meters walked, it can be used to determine how the patient walked or how oxygen saturation changed during the test. Thus, the qualitative compo-

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desaturators, but the clinical impact in these patients has still to be defined.

The next question to be addressed is whether COPD patients with exercise-induced desaturation are candidates for oxygen therapy during exercise. Current guidelines are unclear in this regard, and ambulatory oxygen therapy is recommended if it improves dyspnea or exercise tolerance. Oxygen therapy may be really effective in patients with large or early desaturations. More studies are needed to provide new data on the clinical consequences of severe exercise-induced desaturations during exercise in COPD patients and the possible benefits of oxygen therapy.

References