Pulmonary disease characteristics that are clinically recognized

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ABSTRACT

To determine the prevalence and analyze the most relevant clinical characteristics of three clinical phenotypes of COPD, emphysema, chronic bronchitis or COPD-asthma. Observational, multicenter study performed with COPD patients recruited in pulmonology outpatient services. The stratification in three phenotypes was performed with

Imaging tests, pulmonary function, and a standardized clinical questionnaire. The presented an emphysematous phenotype, were chronic bronchi tic and the other presented a phenotype showing mixed characteristics with asthma. There were no significant differences in the smoking level, in the geometric values or time of disease evolution.

Key Words: Etiological; Undernutrition; *Pleural disease; Interventional pulmonology*

INTRODUCTION

The primary clinical recommendations define COPD as having a persistent, nearly irreversible airflow restriction. The main criticism of these recommendations is that they focus too much on the use of forced spirometry in the diagnosis and severity evaluation of COPD, which prevents an accurate evaluation of the "many faces of the disease." Although a more accurate classification based on the many phenotypes would undoubtedly make COPD more complex, the evidence we now have suggests that it is not justified to continue believing that a classification based solely on Spiro metric criteria is a good classification. In light of what we currently know about COPD, we may state that ongoing exposure to environmental toxins or smoke-related gases results in a blockage of the airway, but with noticeably different inflammatory reactions and damage to the pulmonary parenchyma. In the case of emphysema, such damage ultimately results in destruction. Burrows1 distinguished the emphysematous phenotype from the bronchi tic phenotype more than 40 years ago. Since the initial description, several observational studies have supported the existence of a subset of patients with peculiar traits, such as the presence of emphysema in imaging studies and a decline in the diffusion test. These patients are typically those who tended to produce little sputum and had a lower rate of infection. On the other hand, those who have a higher prevalence of chronic bronchitis frequently have well-preserved diffusing abilities and rarely exhibit signs of emphysema in their chest X-rays. Exacerbations of this condition linked to bacterial infection data are frequently observed in these patients. Last but not least, there is a group that has traits with bronchial asthma but has typically been left out of clinical trials. A larger concentration of eosinophils in the secretions and bronchial mucosa, according to certain research, suggests that these patients represent a specific phenotype with distinct characteristics. As a result, from a clinical standpoint, it is conceivable to recognize various COPD phenotypes, whose evaluation could aid in a better comprehension and management of the condition. This study's goals are to identify the prevalence of each phenotype in a group of stable COPD patients and to examine the key clinical traits in each of them. This multicenter, cross-sectional, epidemiologic investigation was conducted in Spain's pulmonology outpatient facilities. There were no outside influences on the investigator's choice of the patient's best course of medical therapy or care. In a single visit, all the information required to evaluate the

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protocol's anticipated goals was collected. Over the course of two months, each investigator randomly chose the first COPD patients who met all inclusion criteria and none of the exclusion ones. A standardized case report form was used to collect information on the patient's demographics, comorbidities, characteristics of chronic obstructive pulmonary disease, and use of medical resources. All study variables were subjected to a descriptive analysis, which presented the mean with standard deviation for continuous variables and the absolute and relative frequencies for qualitative variables. Pearson's chi-square test was used to evaluate quantitative variables between independent samples. As an alternative, Fisher's exact test was utilized for qualitative variables. The ANOVA test or its non-parametric equivalent, the H-Kruskale-Wallis test, was used for quantitative variables. Tiotropium was the most often used COPD treatment, excluding short-acting bronchodilators, which were mostly used as rescue medication. Tiotropium was followed by the combination of long-acting b-2 adrenergic agonists (LABA) and inhaled corticoids (IC). In the subgroup of phenotypic patients, the prevalence of patients taking a fixed combination of LABA/IC was considerably greater, but patients with the chronic bronchitis phenotype were more likely to use cardiovascular medicines, utilize home ventilation (HF), and use CPAP. There were no differences between the various COPD phenotypes in the CCQ-specific questionnaire. The SF12 general questionnaire's results on quality of life indicated that phenotypic patients had physically healthier conditions. The London Chest Activity of Daily Living (LCADL) scale revealed that patients with type phenotypic experienced more dyspnea during ADL, self-care, and leisure activities. The key finding of our research is that, in clinical practice, three patient profiles corresponding to the three traditional COPD phenotypes may be distinguished for a given level of smoking. Patients with pulmonary emphysema had lower BMIs, decreased lung functions, and more severe dyspnea. The primary distinction between those with chronic bronchitis and other patients is that they have higher concentrations of comorbidity, particularly in SAS and cardiovascular risk factors. The BMI of this group was significantly greater than that of the other two groups. Therefore, obesity may represent a bias that helps to explain, at least in part, the variations in other comorbidities.

Last but not least, the COPD group is small in the general population and is more common in women.

When diagnostic criteria are changed, the prevalence among this category may change significantly. Although there is still disagreement over the term "phenotype" in the scientific community with regard to COPD, in clinical practice it is recognized as a disease feature that allows for the establishment of variations of clinical relevance. This is a crucial consideration because recent research has shown that COPD individuals might respond quite differently to clinical, functional, imaging, and treatment approaches for the same FEV1. Recent research from the ECLIPSE project has shown that these variations also apply to exacerbations and FEV1 decline. Since then, a wide range of methods has been used to identify COPD phenotypes. Some studies base their technique on trying to find all potential phenotype features and then create groups after completing statistical tests like factorial analyses and cluster studies. This is done in light of the method of a priori determining the most relevant phenotypes. Most phenotypic traits have no clinical significance in many circumstances, their applicability has not been proven in others, and they typically reflect disease-related changes rather than variations in patient profiles. They classified the patients into three groups using cluster analysis: the group presented with greater functional severity and a worse clinical situation from the perspective of the respiratory system; the group presented with less functional deterioration; the group was also characterized by a lower functional deterioration but a greater prevalence of obesity, cardiovascular disorders, diabetes, and systemic inflammation. These results also identify, for an equivalent degree of smoking, a group of patients with greater comorbidity in the cardiovascular sector and another more symptomatic group with characteristics of emphysema. In some ways, these data are congruent with our findings. A group that has some of the same traits as asthma may be turned away at the door. Another distinction of this study is the random selection of our patients from a group of individuals seen in outpatient visits. These results can therefore be generalized to the general COPD population receiving outpatient care. Classic ideas were revived in our study to tackle COPD heterogeneity. Even if they were still relevant, these ideas were dropped in recent years, especially after the GOLD guidelines were released. Prior to the COPD method, two universal phenotypes—type a (pulmonary emphysema) and type B—were employed (chronic bronchitis). They also had peculiar visual, functional, and pathologic characteristics that reflected the two primary clinical profiles. Later, other authors promoted a consistent understanding of COPD whose classification was based on FEV1 values, believing that this classification was out of date and of low clinical utility. As a result, important information regarding the heterogeneity of the condition was removed after the Global Initiative for Obstructive Lung Diseases was published, giving the Spiro metric values' simplicity priority. This knowledge of COPD may have been helpful at one point in time in spreading straightforward messages to large people, but it today stands in the way of advancement in the fight against this illness. However, clinical experience implies that we must continue to advance in the definition of patient profiles since many risk factors, such as comorbidity or exacerbations, may be conditioned by the patient's profile. New evaluation methods have been incorporated into risk control. It is obvious that the presence of various injuries in the airways and pulmonary parenchyma, as well as the differences seen from a clinical perspective, make it reasonable to recover this approach, even though it may be necessary to later validate their true utility in longitudinal studies. This is true even though there is a high degree of overlap between the various lesions in the airways and pulmonary parenchyma. This significance was already noted in earlier investigations. We are prompted to reevaluate the traditional phenotypes in light of the information gathered in recent years, which ranges from fundamental elements to the positioning of specific medications in the treatment of these patients. Surprisingly, the degree of aggravation was comparable among the three groups despite clear disparities in the clinical features of the patients. The present definition of a COPD exacerbation has several significant limitations, therefore a simple numerical assessment of exacerbations has limited relevance. The current study does not allow for the identification of all exacerbations' characteristics, but this should be a key goal of any longitudinal investigation, along with the potential contribution of cardiovascular conditions and other illnesses to patient deterioration and hospital admissions Surprisingly, the degree of aggravation was comparable among the three groups despite clear

disparities in the clinical features of the patients. The present definition of a COPD exacerbation has several significant limitations, therefore a simple numerical assessment of exacerbations has limited relevance. The current study does not allow for the identification of all exacerbations' characteristics, but this should be a key goal of any longitudinal investigation, along with the potential contribution of cardiovascular conditions and other illnesses to patient deterioration and hospital admissions. However, given these are patients receiving a full course of treatment for their illness, it cannot be ruled out that there are no changes in this section due to patients at higher risk for exacerbations receiving a more effective course of treatment. Although there is evidence in the literature linking chronic bronchitis to a higher risk of exacerbations, our data from a treated population prevent us from accurately classifying patients based on their history of exacerbations. In fact, it has been noted that emphysema severity, the presence of chronic bronchitis, and the presence of asthma-like symptoms all increase the risk of exacerbations. These findings compel us to suggest various exacerbation phenotypes, whose treatment and prevention should be tailored to the particular patient's pre-existing characteristics. We could only get an answer to this question by conducting a controlled trial and first reviewing the patient characteristics. Since current clinical guidelines advise that the pharmaceutical treatment should be based primarily on FEV1 levels and on the symptoms, the prescription pattern seen is not shocking. Recent experience with the development of roflumilast suggests that such a strategy may not be appropriate, as the earlier identification of patient profiles enables achieving a greater benefit when the medication is administered to the most suitable patient and when its use is restricted in those who are unlikely to benefit from it. This method can be crucial in the development of new medications whose efficacy in specific patient groups may be hidden when a broad COPD population is evaluated. It is also relevant for medications like inhaled corticoids. In a cross-sectional study like ours, when the majority of the patients are getting a large variety of medications, the influence on life quality is challenging to evaluate. However, both the LCADL and the SF12 represent the distinct clinical presentation seen in each group, with major factors, primarily respiratory (dyspnea, etc.), in individuals with a predominance of emphysema features.