



Editorial

Variability in COPD: The PLATINO Study Viewpoint[☆]

Variabilidad en la EPOC. Una visión a través del estudio PLATINO

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Chronic obstructive pulmonary disease (COPD) is the respiratory problem with the greatest prevalence and socioeconomic impact in the world. It is the only chronic disease whose morbidity and mortality continue to increase. For its diagnosis, the guidelines of recent decades clearly establish the need for spirometry to confirm the presence of airflow obstruction.^{1,2}

Data from epidemiologic studies in different regions provide information about the high prevalence COPD,^{3–7} with an estimated total percentage of 10%.⁸

On the other hand, COPD is a complex and heterogeneous disease, with an important interpersonal variability in its biological characteristics and clinical, functional and radiological presentation, as well as its progression.^{9,10}

The ECLIPSE¹¹ study has shown that individuals with the same degree of airflow limitation have important differences in their symptoms, exercise capacity, exacerbations and quality of life, which would probably implicate a different prognosis and treatment.

This interpersonal variability in COPD is not adequately described with the isolated analysis of forced expiratory volume in one second (FEV1), which has led to attempts at characterizing the disease based on different attributes or phenotypes.

Recently, in individuals with COPD, phenotypes have been defined as “a single or combination of disease attributes that describe differences between individuals with COPD as they relate to clinically meaningful outcomes (symptoms, exacerbations, response to therapy, rate of disease progression, or death).¹² Individuals with the same phenotype would have similar anatomical or physiological mechanisms to possibly guide the therapeutic approach.

In 2005, the first data were published about the prevalence of COPD in Latin America, from the PLATINO study (Spanish acronym for the Latin American Project for Research in Pulmonary Obstruction).⁷ It is a population study with a cross-sectional design carried out in 5 cities (São Paulo, Ciudad de México, Montevideo,

Santiago de Chile and Caracas) that measures the prevalence of COPD in individuals over the age of 40 using a validated questionnaire and pre- and post-bronchodilator spirometry.¹³ For the diagnosis and the stratification of the severity of the disease, the Global Initiative for Chronic Obstructive Lung Disease (GOLD) criteria were used.¹

The epidemiological situation of COPD in these developing countries is unsettling, with prevalences that go from 7.8% in Mexico City to 19.7% in Montevideo.⁷ Other data of PLATINO indicate that COPD is frequently underdiagnosed (89%), incorrectly diagnosed (63%) and undertreated, as only one-fourth of patients receive treatment.^{14,15} One of the main factors related with these problems is the limited use of spirometry as a diagnostic tool.¹⁶ All this generates a real challenge for public health-care programs.

But more than the data on COPD epidemiology in Latin America, the PLATINO study offers a unique opportunity for studying the characteristics of the disease and potential phenotypes (heterogeneity of COPD) in a population sample. Regardless of the severity, among the individuals diagnosed as COPD in the PLATINO study it is possible to characterize patients subgroups (potential phenotypes) according to symptoms, state of health, exertion limitations, repercussions on nutritional state, response to bronchodilators, presence of exacerbations and comorbidities.^{17–19}

If the COPD subjects are stratified by severity (GOLD criteria), the individuals in stages 3–4 compared with those in stage 2 present: more dyspnea according to the modified Medical Research Council scale (mMRC+2, 62.2% vs 27.1%), greater exercise limitation (80.8% vs 55.8%) and poorer state of health (good to excellent, 32.6% vs 58.6%).¹⁶ However, some individuals in advanced stages present little dyspnea and exertion limitation and report having a good state of health, while subjects with mild disease report much dyspnea, functional incapacity and deterioration in state of health. Although individuals with COPD are mostly within the low to normal weight ranges (27.4% with low or normal weight vs 10% overweight),¹⁷ a subgroup of patients in advanced stages are obese. Although acute reactivity to bronchodilators¹⁸ predominates in individuals with mild disease (51.2% in stage 1 vs 6.8% in stages 3–4) and exacerbations¹⁹ are more frequent in advanced disease (28.9% in stages 3–4 vs 4.2% in stage 1), in each stage of the disease it is possible to distinguish subgroups of individuals with greater bronchial reactivity or those who have more exacerbations. One aspect, which is not minor, that arises from the PLATINO study is the difference

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of COPD by gender.²⁰ Compared with men, women with COPD present more dyspnea, worse state of health, more physical limitation, greater response to bronchodilators, less nutritional impact, greater number of exacerbations, more comorbidities and more disease severity with less tobacco consumption.

All these data show once again, in an unselected population, the great interpersonal variability of the clinical manifestations of COPD. This information can help classify the patients into different subgroups or phenotypes with probable prognostic or therapeutic implications for clinical as well research objectives.

Only the long-term follow-up of patients would allow us to better understand the complexity of COPD and the true clinical relevance of the potential phenotypes. This is the future.

The cross-sectional nature of the first phase of the PLATINO study did not provide data about the natural history of COPD in terms of morbidity, disability and mortality. In 2008, the second phase of PLATINO was begun: the study of the PLATINO cohort. This is a follow-up study of the individuals participating in the original sample, 5 years later, likewise using questionnaire and spirometry, adding the extraction of blood samples for the analysis of inflammatory and genetic markers.

To date, the follow-up has been completed at the first 2 centers, Montevideo and Santiago de Chile, with an excellent response rate (85%), and data have been collected on incidence, mortality and clinical evolution of the individuals with COPD. This will doubtlessly enable us to characterize and better understand the great interpersonal variability shown in the initial phase of the study. It goes beyond saying that there are many objectives and research opportunities that have been created by the data collected in this second phase of the project. Initially, the intention is to verify the stability of the diagnosis used in the PLATINO study (post-bronchodilator spirometry), evaluate the different definitions of the disease and describe the natural history of COPD in a sample of individuals aged over 45 and in the different phenotypes proposed in terms of survival, morbidity, functional and occupational capacity, quality of life, hospitalizations, exacerbations and comorbidities, among others.

While the initial phase of PLATINO has characterized the interpersonal variability of COPD, the data that are arising from the cohort study (follow-up phase) will be able to validate these phenotypes and their consequences, providing a greater understanding of the natural history of the disease.

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