



# Discordance between old and new criteria for stratifying patients with COPD

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## TO THE EDITOR:

Medical decisions must be based on accurate patient evaluations and on robust scientific information. The objective of clinical guidelines is to produce useful recommendations by identifying the most relevant scientific information that should be adapted and applied (with caution) in individual patients. This is particularly true in COPD, a highly complex, heterogeneous disorder. The objective of this study was to evaluate how the questionnaires used in symptom evaluation and the Global Initiative for Chronic Obstructive Lung Disease (GOLD) ABCD assessment tool can affect COPD classification.

This was a cross-sectional study conducted at the Outpatient Pulmonary Clinic of the *Hospital da Senhora da Oliveira*, in the city of Guimarães, Portugal. We included consecutive patients over 40 years of age who had been diagnosed with COPD according to the GOLD criteria<sup>(1)</sup> and in whom the disease was stable. The study was approved by the Research Ethics Committees of the *Hospital da Senhora da Oliveira* and of Minho University, in the city of Braga, Portugal, as well as by the Portuguese Data Protection Authority. All participating patients gave written informed consent. We followed the Strengthening the Reporting of Observational Studies in Epidemiology guidelines.<sup>(2)</sup>

We applied a questionnaire designed to collect demographic and clinical data. Symptoms were evaluated with the COPD Assessment Test (CAT) and the modified Medical Research Council (mMRC) scale (for dyspnea). The number of episodes of acute exacerbation of COPD (AECOPD) in the last year was evaluated. We defined AECOPD in accordance with the GOLD criteria: as an acute worsening of respiratory symptoms that results in the need for additional treatment, as well as prompting an unplanned medical visit. All participants underwent pulmonary function tests in accordance with the recommendations of the American Thoracic Society and the European Respiratory Society,<sup>(3,4)</sup> and the results were referenced by using the Global Lung Function Initiative predictive equations.<sup>(5)</sup> Statistical analyses were then performed.

We studied a total of 303 outpatients with COPD. The main demographic, clinical, and functional characteristics of the patients are shown in Table 1. Only 207 patients (68.3%) completed the CAT and mMRC questionnaires.

Applying the proposed GOLD cut-off points for degree of dyspnea (mMRC grade) or level of symptom severity that requires regular treatment (CAT score), we found discordance between the two measures in 47 (22.7%) of the 207 patients: 32 (15.5%) were categorized as group A and B; and 15 (7.2%) were categorized as group C and D. In 38 of those patients, the CAT score was  $\geq 10$  and the mMRC grade was  $< 2$ , whereas the other 9 patients presented an mMRC grade  $\geq 2$  and a CAT score  $< 10$ . The distribution of patients and the mean FEV<sub>1</sub> (% of predicted) in each GOLD group, for the two different (2016 and 2017) versions of the GOLD guidelines are also presented in Table 1. When we applied the 2017 GOLD criteria, 74 patients (24.4%) were moved from a higher severity group to a lower severity group.

In the present study, there was significant discordance between the CAT scores and mMRC grades, showing that the impact of COPD goes beyond just dyspnea. Therefore, in the 96 patients who did not complete the CAT, the symptomatic impact might have been undervalued and the proposed treatment might have been significantly different than what they really needed. These observations are consistent with those of other studies.<sup>(2)</sup> In a study conducted in Spain, the 2011 revision of the GOLD guidelines, which leaves the choice of method for determining the symptomatic impact (mMRC scale or CAT) up to the physician, was evaluated in terms of the comparison between the two measures.<sup>(6)</sup> The authors found that the classification of COPD patients varied depending on the measure employed, more than 25% of patients being classified in different "horizontal" categories, with different proposed treatments.

The GOLD ABCD assessment tool is currently used in order to guide pharmacological treatment. We observed discordance between the 2016 and 2017 revisions of the GOLD guidelines in 24.4% of the patients in our sample. Many of them, previously classified as belonging in group C or D, were reclassified as belonging in group A or B, for which the proposed pharmacological treatment is significantly different. Our data are corroborated by those of previous studies. One recent study compared the 2011 and 2017 revisions of the GOLD ABCD assessment tool in a sample of 1,532 patients with COPD.<sup>(7)</sup> The authors found that approximately 47% of the 1,070 patients who were classified in the higher-severity groups when the 2011

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**Table 1.** Demographic, clinical, and functional characteristics of patients with COPD, together with a comparison between the 2016 and 2017 Global Initiative for Chronic Obstructive Lung Disease criteria in terms of the distribution of patients and mean FEV<sub>1</sub>.<sup>a</sup>

Characteristic	(N = 303)
Male gender	241 (79.5)
Age, years	67.5 ± 10.2
Age ≥ 65 years	186 (61.4)
≤ 3 years of schooling	89 (29.4)
Monthly income < €530	197 (65.7)
Smoking history, pack-years	49.3 ± 32.4
mMRC scale grade ≥ 2	185 (61.1)
CAT score ≥ 10	152 (72.4)
≥ 2 episodes of AECOPD in the last year	115 (38.0)
Post-bronchodilator FEV <sub>1</sub> , % of predicted	53.2 ± 19.7
<b>GOLD 2016</b>	
Group	
A	51 (16.8)
B	66 (21.8)
C	23 (6.6)
D	163 (53.8)
FEV <sub>1</sub> , % of predicted, by group	
A	76.17 ± 14.20
B	65.76 ± 12.81
C	47.01 ± 14.98
D	41.78 ± 19.68
<b>GOLD 2017</b>	
Group	
A	70 (23.1)
B	120 (39.6)
C	7 (2.3)
D	106 (35.0)
FEV <sub>1</sub> , % of predicted, by group	
A	66.67 ± 20.07
B	53.61 ± 17.45
C	59.20 ± 21.75
D	43.40 ± 16.02

<sup>a</sup>Values expressed as mean ± SD or as n (%). mMRC: modified Medical Research Council; CAT: COPD Assessment Test; AECOPD: acute exacerbation of COPD; and GOLD: Global Initiative for Chronic Obstructive Lung Disease.

revision was used were reclassified into lower-severity groups, leading to treatment de-escalation, when the 2017 revision was used. Tudoric et al.<sup>(8)</sup> compared the 2016 and 2017 GOLD criteria, demonstrating two “vertical” shifts in the distribution of patients with COPD, more than one third of the patients being reclassified from group D to group B when the 2017 criteria were applied.

Medical decisions and pharmacological treatment can be significantly different when distinct validated tools, such as standardized questionnaires and clinical guidelines, are used. The undervaluation of symptoms can result in a greater need for rescue medication, lower quality of life, or lower exercise capacity. Nevertheless,

the transition from the 2016 to the 2017 revision of the GOLD ABCD assessment tool would be expected to have a significant effect on therapeutic strategies. The worsening of the prognosis in groups A and B, due to the higher mean airflow limitation, is likely to make any acute exacerbation more serious. For example, the discontinuation of inhaled corticosteroids can be harmful in some of these patients.

Standardized questionnaires, such as the CAT and mMRC, should be used in concert, and the results should be integrated into a detailed clinical history. The changes in the classification of COPD severity in the 2017 revision of the GOLD ABCD assessment tool must be applied with caution to avoid undertreatment.

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