Preserved Ratio Impaired Spirometry and Interstitial Lung Abnormalities in Smokers

To the Editor:

I read with great interest the paper by Wan and coworkers evaluating the preserved ratio impaired spirometry (PRISm) functional pattern (FEV₁/FVC ≥ 0.7 and FEV₁ > 80%) in their longitudinal study of a large cohort of current or ex-smokers (1). The prevalence of this heterogeneous condition is remarkable (12.4% and 12.5% at baseline and follow-up, respectively) and its association with increased mortality, comparable to that observed in Global Initiative for Chronic Obstructive Lung Disease (GOLD) 2 subjects, deserves special consideration. Individuals with PRISm are characterized by a significantly lower TLC% predicted and percent emphysema, as measured on quantitative computed tomography scans, in comparison with GOLD 0 and GOLD 1–4 groups.

In the study cohort, the PRISm status was not stable at 5-year follow-up; in particular, the authors report a transition to GOLD 0 in 22% of the subjects with PRISm and a transition to PRISm in about one-third of baseline GOLD 0 individuals. The latter group was characterized by a lesser amount of emphysema and air trapping on computed tomography scans, an increase in body mass index, and decreased TLC% predicted and percent emphysema at baseline. Moreover, this group exhibited the largest functional decline (either FEV₁ or FVC) in comparison with all other groups, suggesting a restrictive physiologic impairment.

Interstitial lung abnormalities have been found in a substantial minority of a cohort of smokers enrolled in the COPDGene (Genetic Epidemiology of Chronic Obstructive Pulmonary Disease) study (1 out of 12) and were associated with a reduced TLC and a lesser amount of emphysema. Smokers with interstitial lung abnormalities were more likely to have an “unclassified” spirometric pattern, analogous to PRISm (2). Under this definition are grouped various morphological pictures that may represent static imaging findings or the early stage of a progressive fibrosing disease (3).

The evidence of many similarities between smokers identified as carriers of interstitial lung abnormalities and those functionally classified as having PRISm makes me think that at least a small subset of baseline GOLD 0 subjects who transitioned to the PRISm group could have developed a smoke-related interstitial disorder.

Author disclosures are available with the text of this letter at www.atsjournals.org.

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References


Reply to Marruchella

From the Authors:

On behalf of our coauthors, we thank Dr. Marruchella for his interest in the longitudinal analysis of Preserved Ratio Impaired Spirometry (PRISm) (FEV₁/FVC ≥ 0.7 and FEV₁ < 80% predicted) in the COPDGene (Genetic Epidemiology of Chronic Obstructive Pulmonary Disease) study (1) and for bringing attention to the possible role of interstitial lung abnormalities in PRISm. Among the first 2,500 subjects enrolled in phase 1 of the COPDGene study, a significantly higher prevalence of interstitial lung abnormalities on chest computed tomography imaging was noted among the PRISm subgroup, then referred to by the moniker “GOLD-Unclassified,” relative to the remainder of the COPDGene cohort (22% vs. 10–13% among GOLD 0–4) (2). This same research group subsequently extended their visual assessment.

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Supported by Department of Veterans Affairs, Rehabilitation Research and Development grant IK2RX002165, and NHLBI grants U01 HL089897 and U01 HL089856. The COPDGene study (NCT00608764) is also supported by the COPD Foundation through contributions made to an Industry Advisory Committee comprised of AstraZeneca, Boehringer-Ingelheim, GlaxoSmithKline, Novartis, Pfizer, Siemens, and Sunovion. The funding agencies had no role in the design, collection, analysis, interpretation of data, drafting of the above correspondence or the decision to submit for publication.

Originally Published in Press as DOI: 10.1164/rccm.201901-0018LE on February 25, 2019