Alterations of pulmonary function in patients with inflammatory bowel diseases

Sir,

I have two comments on the outstanding study by Ji *et al*. on the altered pulmonary function in patients with inflammatory bowel diseases (IBDs).[1]

First, the authors employed spirometry to estimate pulmonary function tests (PFTs). Based on the American Thoracic Society (ATS)/European Respiratory Society (ERS) Task Force 2005 guidelines on spirometry standardization, the authors found that 51.52% of the studied cohort but none of the controls showed at least one abnormal PFTs ($P < 0.05$) and that the majority with decreased PFTs measurements were in the active phase of diseases.[1] I presume that the study results ought to be cautiously taken. This is based on the following three points. (1) There has been considerable debate over the past few years on the use of threshold criteria for the detection of PFTs impairments. The flaw lies in the methods used to derive reference equations, which involve arbitrary and circular criteria for exclusion of some members of the population, use potentially nonrepresentative reference populations, and include predictive variables that are really risk factors for disease or for adverse outcomes of disease.[2] (2) The quality analysis of spirometry in hospitals in China performed according to ATS/ERS standardization has shown that it needs to be improved. Evaluation of a total of 345 spirometry test reports showed that 82.5% (282/342) met the start-of-test criteria for quality control while 333 reports could be analyzed for free of artifacts, of which 65.8% (219/333) were consistent with the criteria of smooth expiration; the remaining 114 reports failed to meet the criteria for various reasons. On the other hand, 235 reports were analyzed for end-of-test criteria, with 50.6% (119/235) complying to criteria, while 22.6% (78/345) of the reports were tested for more than 3 times, among which 65 reports with the data of each maneuver could be analyzed for repeatability. Moreover, 95.4% (62/65) of the reports met the repeatability criteria, which accounted for 18% (62/345) of the total reports collected.[3] (3) The rapid expansion of more racially and ethnically diverse populations like China challenges pulmonary function reference equations. Recent studies have found that ancestry and genetic variation are determinants of lung function and have suggested a role for genetic ancestry or gene variants in constructing lung function reference equations.[4] It is, therefore, advocated that spirometric measurements need to be obtained using equations derived from individual ethnic or racial groups.[4] I presume that establishing new age, gender, and ethnic-specific spirometric reference equations is fundamental to better evaluate pulmonary function among Chinese population, including IBDs patients.

Second, the authors nicely discussed various factors contributing to the development of impaired pulmonary function in IBDs patients. I presume that the following factor might be additionally contributory. Alpha1-antitrypsin (A1AT) level in the serum and the colon tissue has been found to be decreased in IBDs patients, indicating that pulmonary function impairment in IBDs patients might manifest as decreased A1AT levels and it was correlated with chronic airway inflammation, remodeling of airway, and obstructive changes.[5]

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Conflicts of interest

There are no conflicts of interest.

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