
Impact of the ERS/ATS 2022 Guidelines for Interpretation of Lung Function Test Results When Assessing the Response to Biologics in Asthma

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To the Editor:

In 2022, the American Thoracic Society (ATS) and the European Respiratory Society (ERS) updated their standards for the interpretation of pulmonary function tests [1]. The main changes regarding spirometry are set out below.

1. The use of 80% predicted to define normal was no longer recommended. Instead, the general use of the lower limit of normal (LLN) or 5th percentile and the upper limit of normal (ULN) or 95th percentile was advocated (ie, Z-scores or percentiles). These guidelines now recommend the equations developed by the Global Lung Initiative (GLI) for referencing normal spirometry, diffusion capacity, and lung volumes. According to the GLI, bronchial obstruction should be diagnosed when the ratio of forced expiratory volume in 1 s (FEV₁) to forced vital capacity (FVC) is not >5th percentile and FVC is >5th percentile. This recommendation is the result of an expert consensus aimed at identifying, in a standardized and unbiased way, values that fall outside the range of those expected in the general population. It also implies accepting that the change will result in 5% of healthy individuals being incorrectly classified as having an abnormal result. However, on the other hand, it overcomes the disadvantage of classifying a significant percentage of the elderly population as having obstructive disease.

The newly formulated concept of “clinical remission” [2] and several of the tools developed to quantify the response to biologics in asthma [3], eg, the FEOS score [4], incorporate lung function as one of the domains to be improved by treatment. In all cases, FEV₁ was chosen as the parameter for estimating bronchial obstruction. However, its interpretation is based on outdated recommendations. Considering that scores to measure response should be simple, that it will be mandatory to assume some limitation (spirometry is not a simple technique to perform and interpret), that most published studies on biological response use FEV₁, and that this parameter has also traditionally been used in the estimation of lung function trajectories in asthma patients, we propose, at least, to replace the 80% predicted cut-off point by the Z-score value (−1.65).

2. Bronchodilator responsiveness (BDR) testing: changes in FEV₁ and FVC following administration of a bronchodilator (the choice of protocol for administering bronchodilator is not specified) should be expressed as the percent change relative to the individual's predicted value. A positive response is defined as an increase of >10% of the predicted value. This approach minimizes sex and height differences in assessing BDR. However, some authors have argued that individuals who would have been considered responsive by the old criteria but not by the new (accounting for the impact of low baseline FEV₁, which results in a more stringent method of classifying the change) will not receive optimal treatment with bronchodilators [5]. Although we do not believe that the BDR test result is decisive in the choice of treatment for an asthma patient, it could modify the diagnostic process of the disease. In a real-life cohort of asthma patients, Betancor et al [6] observed that only 26% of patients exhibited positive BDR using the new ERS/ATS 2022 recommendation and 33% using the ERS/ATS 1991 BDR criteria. In accordance with these results, Li et al [7] studied a sample of 4457 patients with asthma and found that the percentages for 2005-BDR+ and 2022-BDR+ were 63.32% and 52.84%, respectively. This change in the definition of BDR is not likely to impact the estimation of response to biologics, since it has been shown in real-life studies that its result is not a predictor of success or failure of treatment [8].

Translating the ERS/ATS 2022 recommendations into clinical practice requires a paradigm shift that will be easier if clinical studies reflecting their impact are available. Using the FEV₁ Z-scores as the therapeutic target for biological therapy, rather than the FEV₁ percent predicted, seems more reasonable, although it is not without limitations.

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Conflicts of Interest

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