CORRESPONDENCE

Author's response: Airway anatomy in COPD: many dimensions to consider

We thank Bokov and Delclaux for their thoughtful comments[1] on our paper[2] and offer the following comments.

The homothety factor, as defined by Bokov and Delclaux,[1] describes a structural aspect of the airway tree not directly addressed in our study, which we agree is important and likely also influences airflow in asthma and COPD. However, we believe the suggestion that the two factors, tracheal area and homothety factor, alone characterise the whole bronchial tree omits important structural characteristics, such as airway lengths and branch angles, which also influence airflow.[3 4] We have been quite interested in the role played by airway geometry in assessing disease-specific airflow patterns and distribution patterns of inhaled particles.[5]

Bokov and Delclaux hypothesise that narrowing and removal of the smallest airways in COPD leave larger airways to be detected by CT.[1] We agree that this is a logical conclusion of our results; however, it does not bias our results as stated, because we compared airways at matched hierarchical locations.[2] Indeed, our findings support the recommendation that comparative studies of airway morphology by disease state using CT or any other technique, should ensure similar hierarchical locations of sampled airways between groups to avoid bias introduced from the hierarchical gradient of airway properties in the tracheobronchial tree.[6]

We agree that airway dimensions are important in diseases other than COPD and, similar to the writers, have found markedly smaller airway lumen diameters in patients with asthma—including adults with a history of remitted childhood asthma.[7]

Most certainly, as Bokov and Delclaux emphasise, airway structure, both inherent and acquired, plays a critical role in regard to regional lung function and environmental impact on the lung. With the detailed anatomy available from advances in imaging technologies, a wealth of new data is available for exploration.

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