

Functional Performance and Patient-Reported Burden in Bronchiectasis: Associations with Bronchiectasis Severity

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Background:

Bronchiectasis is a chronic airway disease characterized by permanent dilation of the bronchi due to recurrent infection and inflammation, often presenting with chronic cough, daily sputum production, and recurrent respiratory infections. Disease severity in bronchiectasis is commonly assessed using composite clinical indices, such as the Bronchiectasis Severity Index (BSI), while patient-reported quality-of-life instruments capture subjective disease burden. Objective measures of physical performance may reflect an additional dimension of disease severity related to physical function and frailty.

Objective:

The objective of this study was to evaluate the relationship between objective physical performance, patient-reported quality of life, and bronchiectasis severity as measured by the BSI. We hypothesize that poorer physical function is associated with higher bronchiectasis disease severity.

Methods:

We performed a cross-sectional analysis of adults with bronchiectasis enrolled in the BE-Frail study. Objective functional performance was assessed using the Short Physical Performance Battery (SPPB). Patient-reported disease burden was measured using the Quality of Life–Bronchiectasis (QoL-B) questionnaire, specifically the Physical Functioning domain. Bronchiectasis disease severity was measured by the Bronchiectasis Severity Index (BSI). Associations between SPPB scores, QoL-B domain scores, and BSI were evaluated using Spearman correlation coefficients. Demographic and clinical characteristics were summarized descriptively.

Results:

A total of 38 patients were included; 30 (78.9%) were female, with a mean age of 65.6 ± 12.6 years. SPPB scores were inversely correlated with BSI ($\rho = -0.35$, $p = 0.03$). QoL-B Physical Functioning ($\rho = -0.31$, $p = 0.064$) showed a trend toward inverse correlation with BSI that did not reach statistical significance.

Conclusion:

Objective functional performance and patient-reported quality of life capture distinct dimensions of bronchiectasis severity. The relationship between physical performance and disease severity in bronchiectasis is poorly characterized, and functional assessment tools such as the SPPB may provide meaningful insight beyond existing severity indices. Further studies are needed to validate these findings and better define the role of functional performance testing in bronchiectasis assessment.