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Which Score is Better in Association with Exercise Capacity and QoL in Noncystic Fibrosis Bronchiectasis Patients? FACED or BSI?

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Objectives: An orphan disease bronchiectasis has become more important with the increase of awareness. With the increased use of high-resolution CT scan, patients began to receive further diagnosis of bronchiectasis. Two validated different scoring systems were developed to determine the severity of bronchiectasis: 1. FACED scoring 2. Bronchiectasis severity Index (BSI). In this study, we aim to compare these two scoring systems according to the 6-minute walking distance and disease-specific quality of life (SGRQ) questionnaire.

Methods: Smoking history, emergency and hospital admissions were obtained from non-cystic bronchiectasis patients admitted to our hospital. Body mass index were calculated accordingly. Detailed pulmonary function tests were performed to all participants including body plethysmography and CO diffusion capacity. Arterial blood gas sample were obtained from the participants. Dyspnea perceptions were determined according to MRC dyspnea scale. 6 minutes walk test was used to determine exercise capacity. SGRQ was applied to determine quality of life. Their psychological status was determined by the hospital anxiety depression scale. Both FACED and BSI scores were calculated for all participants, and participants were divided into 3 groups as mild, moderate and severe. All data, especially walking distance and quality of life data, were compared between these two scoring systems.

Results: There were a total of 183 participants, 153 of whom were men. A significant and strong correlation was found between FACED and BSI scores ($p < 0.001$, $r = 0.639$). As the severity of bronchiectasis increased, walking distance was significantly decreased and quality of life was significantly worsened by both FACED and BSI scoring ($p < 0.001$ both). Anxiety and depression scores did not differ significantly between two groups ($p = 0.975$, $p = 0.410$). A statistically significant but weak negative correlation was found between FACED score and walking distance ($r = -0.373$; $p < 0.001$). There was a significant negative correlation between BSI and walking distance and this correlation was stronger than FACED ($r = -0.533$; $p < 0.001$). Similarly, there was a significant positive correlation between SGRQ score and both FACED and BSI, but this correlation was stronger in the BSI score (FACED $r = 0.360$; $p < 0.001$, BSI $r = 0.475$ $p < 0.001$).

Conclusion: Although both FACED and BSI scores were correlated with walking distance and quality of life in patients with bronchiectasis, BSI was more sensitive.

Keywords: Bronchiectasis, BSI, FACED, quality of life, exercise capacity