

Obstructive Lung Diseases

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BASELINE CLINICAL CHARACTERISTICS OF ADULT NON-CYSTIC FIBROSIS BRONCHIECTASIS PATIENTS ON HIGH FREQUENCY CHEST WALL OSCILLATION AND OTHER AIRWAY CLEARANCE THERAPIES: ANALYSIS FROM THE UNITED STATES BRONCHIECTASIS RESEARCH REGISTRY

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PURPOSE: Non-Cystic Fibrosis Bronchiectasis (NCFBE) is characterized by permanent dilatation of the airways and a vicious cycle of inflammation, leading to impaired mucous clearance, recurrent infection, and progressive airway damage. Use of Airway Clearance Therapies (ACTs) is part of clinical practice. In this study, we aimed to evaluate the characteristics of adults with NCFBE receiving High Frequency Chest Wall Oscillation (HFCWO) therapy and other ACTs, utilizing the U.S. Bronchiectasis Research Registry.

METHODS: A retrospective cohort study was conducted. Adult patients seen clinically between 2008-2019 with NCFBE who were using ACTs were grouped into two mutually exclusive cohorts; HFCWO and other ACTs (positive expiratory pressure devices, chest percussion, postural drainage, directed cough, active cycle breathing, or others). Descriptive statistics of demographics and clinical characteristics were assessed in the 24-months prior to enrollment.

RESULTS: A total of 992 patients met inclusion criteria. The mean age was 63.2 years (SD=14). Seventy-nine percent were female. The average BMI was 22.9 (SD=4). Of the total cohort, 266 (27%) were using HFCWO, while 726 (73%) were using other ACTs. Disease severity was based on the modified bronchiectasis severity index (BSI). Eighteen percent of patients using HFCWO had mild disease, vs. 26% in the other ACTs cohort. Thirty-six percent of patients in the HFCWO group had moderate disease, vs. 48% in the other ACTs group. Forty-six percent of patients using HFCWO had severe disease, vs. 25% in the other ACTs group. Eighty-four percent of patients in the HFCWO group had at least one exacerbation within the past two years, compared to 66% in the other ACTs group. In the HFCWO group, 29% of patients had one exacerbation, and 25% had more than three exacerbations in the prior two years. In the other ACTs group, 33% had one exacerbation, and 22% had more than three exacerbations. In the HFCWO group, 33% reported having at least one hospital admission within the past two years, vs. 19% in the other ACTs group. Fifty-eight percent of patients in the HFCWO group had one hospitalization, and 10% had more than three hospitalizations. In the other ACTs group, 64% had one hospitalization, while 4% had more than three hospitalizations. There was a statistically significant difference between the HFCWO and other ACT groups in severity of disease ($p<.0001$), incidence of acute exacerbations ($p<.0001$), and rate of hospitalizations ($p<.0001$).

CONCLUSIONS: Patients with bronchiectasis using HFCWO had more severe disease than those using other ACTs, as characterized by higher BSI scores and a greater number of exacerbations and hospitalizations. Further analysis to control for potential confounders and to explore longitudinal trends is recommended.

CLINICAL IMPLICATIONS: HFCWO therapy is more commonly used in bronchiectasis patients with moderate to severe disease.

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