



THE ROLE OF HFCWO IN PREVENTING EXACERBATIONS IN PATIENT WITH BRONCHIECTASIS/COPD OVERLAP SYNDROME (BCOS)

Andre' R. Holmes, MD, FCCP

INTRODUCTION: Chronic obstructive pulmonary disease (COPD) and bronchiectasis frequently overlap, with it being widely reported that up to 50% of patients with COPD also have bronchiectasis. Evidence suggests that patients with this overlap syndrome have greater sputum production, frequent exacerbations, worse lung function, more bacterial infections, and increased mortality. A High-Resolution CT is the current gold standard for diagnosing bronchiectasis. Classic findings include dilated bronchi that fail to taper, bronchi visible in the peripheral 1 cm of the lungs and increased bronchial:arterial ratio >1. Other non-specific findings including bronchial wall thickening, tree-in-bud changes, and mucus plugging may also be present. Management of bronchiectasis is aimed at preventing exacerbations, controlling chronic infection, reducing inflammation, and improving bronchial hygiene. This case presents a patient diagnosed with bronchiectasis/COPD overlap syndrome (BCOS) who demonstrated significant clinical improvement after using HFCWO for daily airway clearance therapy (ACT).

CASE PRESENTATION: Patient is a 72-year-old male with history of severe COPD and weak cough experiencing multiple chest infections requiring antibiotics with 3 hospital admissions over the past year for multifocal pneumonia and COPD exacerbation who again presented to the ER with a weak cough and COPD exacerbation. Chest CT was performed, which reported diffuse bronchial wall thickening, scattered areas of mucus plugging, moderate to severe emphysema with bibasilar consolidation and multifocal pneumonia. Labs revealed a WBC count of 24.2. Patient was admitted to the hospital and started on IV antibiotics, LABA/SABA, glucocorticoid and mucolytic nebulizer treatments, and managed on oxygen at 2L/min. Incentive spirometry and PEP therapy were started for airway clearance. Patient was discharged from hospital after 2 days and referred to a pulmonary clinic for follow-up.

Follow-up appointment with pulmonary noted the patient's current airway clearance therapy was not effectively mobilizing secretions and patient would benefit from

high frequency chest wall oscillation (HFCWO) therapy. The chest CT was also reviewed by the pulmonologist, which revealed dilated lower airways and mild traction bronchiectasis with lower lobe mucus plugging and debris. Patient was diagnosed with J47.0, bronchiectasis with acute lower respiratory infection. HFCWO was ordered from SmartVest® and patient was started on therapy for 15 minutes BID. The patient was continued on his home oxygen via 2L/min nasal cannula and nebulizer treatments. Follow-up visits revealed significant patient improvement after daily use of HFCWO therapy. Patient self-reported that the therapy has helped to bring up sputum and his breathing has improved.

RESULTS: After using SmartVest for 1-year, no infections or exacerbations were reported. Patient had only 1 hospital admission for COPD without an active infection. Patient continues to use SmartVest for daily airway clearance therapy and continues to bring up sputum regularly and states that his breathing has improved substantially.

DISCUSSION: The use of SmartVest for daily airway clearance therapy played a significant role in preventing infections, exacerbations, and hospitalizations. Daily airway clearance therapy is recommended for all patients with bronchiectasis. Patient follow-up is essential to ensure their current ACT is effectively mobilizing secretions and patient is compliant with therapy for improved outcomes. Additional review of chest CT scan may be useful to look for bronchiectasis in COPD patients who are experiencing multiple infections or exacerbations.

CONCLUSION: The use of SmartVest HFCWO for airway clearance therapy played a significant role in preventing future infections, exacerbations, and hospitalizations in patient with BCOS.

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