

HFCWO and The Vest® Airway Clearance System

Studies: Long-Term Home Care Airway Clearance Patients

Article Citation	Type of Study	Number (n) & Type of Subjects	Protocol	Results
Warwick WJ, Hansen L. The long-term effect of high frequency chest compression therapy on pulmonary complications of cystic fibrosis. <i>Pediatr Pulmonol</i> 1991; 11: 265-271.	Retrospective Self-controlled	16 cystic fibrosis patients	<ul style="list-style-type: none"> Daily HFCC for 30-minute sessions of 5-minute periods at 6 different frequencies. Therapy time ranged from 30-240 minutes in 1-4 treatments/day for a mean of 21.6 months (range = 7-26 months). Results compared with pre-HFCC CPT administered 1-4x/day for a mean of 23.2 months (range = 14-27 months). Coughing and huffing techniques employed. 	<ul style="list-style-type: none"> 94% of patients' PFT regression line slopes became more positive during self-administered HFCC therapy as compared to slopes when CPT was used. No treatment-associated adverse events observed.
Anbar RD, Powell KN, Iannuzzi DM. Short-term effect of ThAIRapy Vest on pulmonary function of cystic fibrosis patients. <i>Am J Respir Crit Care Med</i> 1998; 157 (suppl 3): A 130.	Retrospective Self-controlled	68 cystic fibrosis patients	<ul style="list-style-type: none"> Daily HFCWO administered for an average of 19 ± 13 minutes for at least 6 months. Results compared with pre-HFCWO PFTs from previous 0-6 months. 	<ul style="list-style-type: none"> Improvement in FEV₁ of patients who had performed CPT prior to switching to The Vest® System was 7%. Improvement in patients who did not use CPT prior to beginning therapy with The Vest® System was 11%. HFCWO therapy with The Vest® System improved lung function of subjects in the short term regardless of prior use of CPT.
Giarrappa P, Berger K, Chaikin A, Axelrod F, Davey C, Becker B. Assessing Efficacy of High Frequency Chest Wall Oscillation in Patients with Familial Dysautonomia. <i>Chest</i> 2005; 128:3377-3381.	Retrospective-prospective Self-controlled	13 familial dysautonomia patients	<ul style="list-style-type: none"> Twice daily HFCWO for 20 to 30 minute sessions. Pulmonary function tests, chest radiograph and blood tests at study entrance. Retrospective chart review 12 months prior to entry provided baseline data for respiratory illnesses, medications, doctor visits, hospitalizations, and absenteeism. Daily log recording of prospective data for same parameters and HFCWO treatment adherence. Evaluations at 1, 3, 6, 9, and 12 months for pulse oximetry, spirometry and log review. Exit blood tests and chest radiographs. 	<p>HFCWO was associated with significant improvements in the following measured outcomes:</p> <ul style="list-style-type: none"> Pneumonias (p = 0.0156) Hospitalizations (p = 0.0161) Antibiotic courses (p = 0.0005) Antibiotic days (p = 0.0002) Doctor visits (p = 0.0005) Absenteeism (p = 0.0002) FVC (p = 0.02) PEFR (p = 0.03)
Landon C, Goldie W, Evans JR. Airway Clearance Therapy utilizing High Frequency Chest Wall Oscillation for medically fragile children. Unpublished clinical study data, 2001.	Retrospective-prospective	15 medically fragile children (MFC)	<ul style="list-style-type: none"> 15 MFC who had been treated with CPT received The Vest® System Therapy for at least 12 months. Prospective data for total days hospitalized compared with retrospective. 	<p>After using The Vest® System, the subjects showed an aggregate...</p> <ul style="list-style-type: none"> Three-fold reduction in total hospital days per therapy month (0.08 hospital days per therapy month with The Vest® System vs. 0.37 hospital days per therapy month pre-HFCWO). 90% tolerance.

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Plioplys AV, Lewis S, Kasnicka I. Pulmonary vest therapy in quadriplegic cerebral palsy. <i>J Am Med Dir Assoc</i> 2002; 3: 318-321.	Retrospective-prospective Self-controlled	7 quadriplegic cerebral palsy patients with frequent lung infections	<ul style="list-style-type: none"> 12 month prospective daily therapy with The Vest® System. Twelve month retrospective clinical data collected from nursing records maintained daily according to residential facility protocol provided baseline data for therapy schedules, pneumonias, hospitalizations, seizures, and effective suctioning. Twelve month prospective data collected for same parameters during therapy with The Vest® System. 	<ul style="list-style-type: none"> Clinical outcomes after 12 months of The Vest® System Therapy showed: <table border="1"> <thead> <tr> <th></th> <th>Before VT</th> <th>During VT</th> <th>P value*</th> </tr> </thead> <tbody> <tr> <td>Pneumonias (n)</td> <td>36</td> <td>18</td> <td>P = 0.026</td> </tr> <tr> <td>Hospitalizations (n)</td> <td>9</td> <td>3</td> <td>P = 0.16</td> </tr> <tr> <td>Seizures (n)</td> <td>267</td> <td>43</td> <td>P = 0.125</td> </tr> <tr> <td>Effective suctioning (n)</td> <td>4,825</td> <td>10,455</td> <td>P = 0.008</td> </tr> </tbody> </table> 		Before VT	During VT	P value*	Pneumonias (n)	36	18	P = 0.026	Hospitalizations (n)	9	3	P = 0.16	Seizures (n)	267	43	P = 0.125	Effective suctioning (n)	4,825	10,455	P = 0.008
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Wen AS, Woo MS, Keens TG. Safety of chest physiotherapy in asthma. <i>Am J Respir Crit Care Med</i> 1996; 153 (Suppl): A 77.	Randomized, Crossover, Controlled	13 asthmatic patients	Subjects randomized and then crossed over to receive either: <ul style="list-style-type: none"> Nebulized bronchodilator (NB) treatment NB plus 30 minutes of HFCWO PFTs measured before and after a treatment PFTs include FEV₁, RV/TLC, R_{aw}, SG_{aw}, P_{Et}CO₂, SpO₂ 	<ul style="list-style-type: none"> No episodes of bronchospasm occurred in 13 asthmatic subjects receiving HFCWO. There was no significant difference between the therapies on PFT results. No treatment related adverse events were observed. 																				

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