

# Clinical Trial Overview

## High-Frequency Chest Compression: Mechanically Ventilated Patients

A comparison of the safety and efficacy of high frequency chest compression (HFCC) and percussion and postural drainage (P&PD) and in the treatment of long-term mechanically ventilated patients showed equivalent safety and efficacy; 80% of therapists believed HFCC reduced work load.

<b>Title</b>	Whitman J, Van Beusekom R, Olson S, Worm M, Indihar F. Preliminary evaluation of high-frequency chest compression for secretion clearance in mechanically ventilated patients. <i>Respir Care</i> 1993; 38:1081-1087.																						
<b>Design</b>	Randomized Crossover																						
<b>Method</b>	<p>Nine long-term mechanically ventilated patients were randomized to receive identical crossover schedules of 2 consecutive days each of HFCC or PD &amp; D therapy. Primary diagnoses included amyotrophic lateral sclerosis (ALS), multiple sclerosis (MS), chronic obstructive pulmonary disease (COPD) cerebral vascular accident (CVA) and muscular dystrophy (MD). Suctioning was performed before each treatment session.</p> <ul style="list-style-type: none"> <li>• HFCC at 8 Hz and 16 HZ for 5 minutes each during both inhalation and exhalation throughout 10 minute session</li> <li>• 3 or 4 X daily P &amp; PD (5 pulmonary regions for 2 minutes each)</li> <li>• 15 ° Trendelenberg positioning used to drain lower lobes</li> <li>• Safety measured by monitoring physiologic variables and patient comfort</li> <li>• Efficacy measured by comparing mean sputum wet weight/therapy session</li> </ul>																						
<b>Results</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Measure (% change)</th> <th style="width: 20%;">HFCC</th> <th style="width: 20%;">P&amp;PD</th> <th style="width: 30%;">P values</th> </tr> </thead> <tbody> <tr> <td>Blood Pressure</td> <td>0.02% (7.2%)</td> <td>1.06% (6.2%)</td> <td>P = 0.59</td> </tr> <tr> <td>Heart Rate</td> <td>1.71% (2.5%)</td> <td>4.21% (3.2%)</td> <td>P = 0.09</td> </tr> <tr> <td>SpP<sub>2</sub></td> <td>0.90% (0.9%)</td> <td>0.41% (1.81%)</td> <td>P = 0.59</td> </tr> <tr> <td>Comfort Level</td> <td>135.0% (79.2%)</td> <td>151.2% (170.1%)</td> <td>P = 0.92</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>• Equivalent efficacy: HFCC = 3.60 (3.4gm) P&amp;PD = 3.39 (2.1) gm. No significant difference between therapies (p= 0.77)</li> <li>• Equivalent safety</li> <li>• 80% of staff judged that HFCC use saved time</li> </ul>			Measure (% change)	HFCC	P&PD	P values	Blood Pressure	0.02% (7.2%)	1.06% (6.2%)	P = 0.59	Heart Rate	1.71% (2.5%)	4.21% (3.2%)	P = 0.09	SpP <sub>2</sub>	0.90% (0.9%)	0.41% (1.81%)	P = 0.59	Comfort Level	135.0% (79.2%)	151.2% (170.1%)	P = 0.92
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