Introduction:

After the subject's HR and SpO2, PEEP and Borg scale rating were recorded. Subjects remained in the same mode of ventilation with patient effort to reduce the patient's work of breathing. The goal of this study was to determine which mode of ventilation correlates to the lowest work of breathing by measuring the change in thickness of the diaphragm while mobilizing healthy normal subjects in various modes.

Recent research has demonstrated early mobilization reduces mortality and protocol significantly decreased hospital LOS of patients on mechanical ventilation. Poster presented at: American Association for Respiratory Care International Congress, October 2016; AARC 2019.

Methods:

Following IRB approval, 16 subjects (8 male, 8 female) were ventilated with the PB 8 mL/kg PBW. No authors have a conflict of interest related to this research. No authors have received research funding, sponsorship or financial support from companies related to this research.

Ventilator settings:

980 in VC A/C, VC+ A/C, PC A/C and CPAP with PSV.

The most significant limitation of this study was the difficulty in measuring the thickness of the diaphragm when the subjects breathed with a large tidal volume. When the tidal volume was too large, the diaphragm moved out of the ultrasound measurement window, making it impossible to measure the thickness of the diaphragm. Another limitation was that it was not possible to measure the thickness of the diaphragm while the subjects were pedaling; normal subject while exercising because of the chest movement and variation in VFlow Trigger 2 LPM, E sens 50%, VAll modes, Ti 0.8 second, PIP 5 cm H, CPAP with PSV, PSV 5 cm H.

Conclusions:

No significant difference between ΔDTI, ΔDE and ΔE-I between modes, during rest or exercise. Factors such as a negative PEEP value, changes in SpO2 and the decrease in PEEP. The decrease in PEEP was caused by severe SOB from a high WOB. See Table 1.

Table 1

<table>
<thead>
<tr>
<th></th>
<th>ΔDTI</th>
<th>Borg Scale</th>
<th>HR</th>
<th>SpO2</th>
<th>PEEP</th>
</tr>
</thead>
<tbody>
<tr>
<td>VC A/C - CPAP with PSV</td>
<td>-0.02</td>
<td>0.148</td>
<td>&lt;0.001</td>
<td>8.3</td>
<td>0.109</td>
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<tr>
<td>PC A/C - CPAP with PSV</td>
<td>0.00</td>
<td>0.735</td>
<td>&lt;0.001</td>
<td>10</td>
<td>0.861</td>
</tr>
<tr>
<td>VC+ A/C - CPAP with PSV</td>
<td>0.00</td>
<td>0.995</td>
<td>0.002</td>
<td>7.9</td>
<td>0.799</td>
</tr>
</tbody>
</table>

δ E-I: Change in thickness of diaphragm from expiration to inspiration.