題名:Effect of Proportional Pressure Support on The Breathing Pattern and Breathing Effort

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摘要:研究目的：PPS不需設定潮氣容積、呼吸次數、流量等相關資料，僅需依病人肺部的彈性和阻力，給予不同比例的容積協助(volume assist, VA)，和流量協助比例(flow assist, FA)，機器隨著病人每口呼吸做適當的調整，因此本研究想探討不同比例PPS對於急性呼吸衰竭患者呼吸用力與呼吸型態之影響。研究方法：本研究收案對象爲8位住內科加護病房之病人，使用人工呼吸器＞72小時，使用壓力支持通氣模式。所有病人皆放置食道球導管，經由BICRO-CP100肺監視器，測量病人呼吸力學與呼吸作功等數據。每位病人以隨機方式設定80% FA+VA (80%PPS)、50% FA+VA (50%PPS)、20% FA+VA (20%PPS)，每一測試中間使用CMV mode 20分鐘，讓病人獲得充分休息。研究過程紀錄之呼吸型態、呼吸用力相關參數。研究結果：病患平均年齡是77歲，平均肺的彈性係數是34.37L/cmH2O，平均氣道阻力是16cmH2O/L/sec，平均呼吸器使用天數是11天。當PPS支持比例(80%, 50%, 20%)愈低時呼吸作功愈大(0.69±0.24J/min, 0.88±0.21J/min, 1.29±0.26J/min, p<0.05)。PPS支持比例不同(80%, 50%, 20%)，潮氣容積(0.5±0.08L, 0.41±0.03L, 0.4±0.04, p>0.05)無顯著差異。呼吸次數(26.09±3.38f/min, 28.22±2.64f/min, 28.56±2.64, p>0.05)無顯著差異。結論：比例式輔助通氣模式可依氣道阻力與肺部彈力的不同，給予氣流與容積的協助，不同比例的輔助通氣模式，支持比例愈高可有效減小呼吸作功，不同的支持比例並不影響病人的呼吸型態，可呈現病人最自然的呼吸型態。

Background: Proportional Pressure Support (PPS) is a new mode on EVITA-4 ventilator with a characteristic of Patient-orientated spontaneous breathing pattern. PPS amplify the ventilation in proportion to the patient's own effort. It is through volume assist (VA) and flow assist (FA) to decrease the elastic work and resistive

work respectively. We are interested in the effort of PPS on breathing pattern and breathing effort. Method: The study was performed on 8 patients from mechanical ventilation on different support levels of PPS ventilation for 10 min with respiratory parameter measured by putting on esophageal balloon and pneumotachograph and connected to BICORE CP-100 monitor with MacLab for replay and analysis. Result:(The form abridges) The breathing pattern stayed the same on different support levels of PPS. The desired minute ventilation, tidal volume and respiratory rate independent of the mechanical load. However, the breathing effort, presented by WOBp and PTP, had statistically significant difference. Conclusion: These results demonstrate that PPS would not change breathing pattern, but can reduce in-spiratory effort.