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• 計畫英文名稱	Breathing Pattern Variability during T-Piece Trial---A Weaning Predictor in Patients with or without Chronic Obstructive Pulmonary Disease
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• 中文關鍵字	機械通氣治療; 呼吸器脫離; T 形管脫離測試; 呼吸型態的變異性
• 英文關鍵字	Ventilator, mechanical; Ventilator weaning; T-piece weaning trial; Breathing pattern variability

• 中文摘要

我們的研究曾發現，以 5cmH2O 壓力支持型通氣進行呼吸器脫離測試時之呼吸型態的變異性分析，可做為手術後全身性發炎反應症候群及內科病患之預測脫離結果的指標。T 型管自行呼吸脫離測試是臨床上常用之方法，但不知此時之呼吸型態變異性可否做為預測呼吸器脫離結果之指標？我們以內科加護中心內使用呼吸器超過 48 小時，準備脫離的 80 名病患為研究對象，當病患以 T 型管自行呼吸時，持續記錄潮氣容積、吸及吐氣時間及尖峰吸氣流速 30 分鐘後，拔除其人工氣道。脫離成功是指停用呼吸器 48 小時不需再使用。結果發現：每分鐘通氣量、呼吸次數、潮氣容積、呼吸間隔時間、吸與吐氣時間、尖峰氣道壓、尖峰吸氣與吐氣流量、吐氣末二氧化碳分壓、血氧飽和度及脈速的平均值在成功與失敗組間無顯著差異；吐氣時間的變異係數與其餘四項呼吸型態參數(潮氣容積、呼吸間隔時間、吸氣時間與尖峰吸氣流量)之變異係數和 Poincare 散佈圖分析值的 SD1 及 SD2 均顯著地較成功組為低，顯示 T 型管自行呼吸時此四參數的呼吸型態變異性低者，容易產生呼吸器脫離的失敗，此種呼吸型態的變異性或可做為此類病患呼吸器脫離結果的預測指標。

• 英文摘要

Breathing pattern variability during pressure support weaning trial has been reported to be a weaning predictor in postoperative patients recovering from systemic inflammatory response syndrome or medical patients recovering from acute respiratory failure. T-piece weaning trial is commonly used clinically but we don't know the breathing pattern variability recorded at this period of time could be as a weaning predictor or not. Eighty mechanically ventilated medical patients were included when they were ready for weaning. Before weaning, tidal volume, total breath duration, inspiratory time, expiratory time, and peak inspiratory flow were continuously monitored for 30 minutes, while patients received T-piece weaning trial. After the patients successfully completed the trial, they were extubated. Successful weaning is defined as patients free from the ventilator for over 48 hours. There is no significant difference between the success and failure groups in the mean values of minute ventilation, respiratory rate, tidal volume, total breath duration, inspiratory／expiratory time, peak airway pressure, peak inspiratory／expiratory flow, end-tidal carbon dioxide tension, oxygen saturation, and pulse rate. The coefficient of variation of the expiratory time, and the coefficient of variation and two values of standard deviation (SD1 and SD2; indicators of the dispersion of data points in the plot) obtained from the Poincare plot of other 4 breathing pattern parameters (tidal volume, total breath duration, inpiratory time, and peak inspiratory flow) of the failure group were

significantly lower than those of the success group. These results suggest that the small breathing pattern variability recorded during T-piece weaning trial is associated with a high incidence of weaning failure in this group of patients, and this variability may potentially serve as a weaning predictor.