

Breathing pattern variability: a weaning predictor in postoperative patients recovering from systematic inflammatory response syndrome

邊苗瑛

Bien MY;Hseu SS;Yien HW;Kuo BIT;Lin YT;Wang JH;Kou YR

摘要

Abstract

OBJECTIVE: To investigate whether breathing pattern variability can serve as a potential weaning predictor for postoperative patients recovering from systemic inflammatory response syndrome (SIRS). **DESIGN AND SETTING:** A prospective measurement of retrospectively analyzed breathing pattern variability in a surgical intensive care unit. **PATIENTS:** Seventy-eight mechanically ventilated SIRS patients who had undergone abdominal surgery were included when they were ready for weaning. They were divided into success (n=57) and failure (n=21) groups based upon their weaning outcome. **MEASUREMENTS AND RESULTS:** Before weaning, tidal volume, total breath duration, inspiratory time, expiratory time, and peak inspiratory flow were continuously monitored for 30 min, while patients received 5 cmH₂O pressure support weaning trial. After the patients successfully completed the trial, they were extubated. Successful weaning was defined as patients free from the ventilator for over 48 h, whereas a weaning failure was considered as reinstatement of mechanical ventilation within 48 h of extubation. 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 Poincaré plot of five respiratory parameters in the failure group were significantly lower than those in the success group. The area under the receiver operating characteristic curve of these variability indices was within the range of 0.73-0.80, indicating the accuracy of prediction. **CONCLUSIONS:** Small breathing pattern variability is associated with a high incidence of weaning failure in postoperative patients recovering from SIRS, and this variability may potentially serve as a weaning predictor.