Abstract

BACKGROUND: The rapid shallow breathing index (RSBI) is the most widely used index within intensive care units as a predictor of the outcome of weaning, but differences in measurement techniques have generated doubts about its predictive value. OBJECTIVE: To investigate the influence of low levels of pressure support (PS) on the RSBI value of ill patients. METHOD: Prospective study including 30 patients on mechanical ventilation (MV) for 72 hours or more, ready for extubation. Prior to extubation, the RSBI was measured with the patient connected to the ventilator (DragerTM Evita XL) and receiving pressure support ventilation (PSV) and 5 cmH2O of positive end expiratory pressure or PEEP (RSBI_MIN) and then disconnected from the VM and connected to a Wright spirometer in which respiratory rate and exhaled tidal volume were recorded for 1 min (RSBI_ESP). Patients were divided into groups according to the outcome: successful extubation group (SG) and failed extubation group (FG). RESULTS: Of the 30 patients, 11 (37%) failed the extubation process. In the within-group comparison (RSBI_MIN versus RSBI_ESP), the values for RSBI_MIN were lower in both groups: SG (34.79±4.67 and 60.95±24.64) and FG (38.64±12.31 and 80.09±20.71; p<0.05). In the between-group comparison, there was no difference in RSBI_MIN (34.79±14.67 and 38.64±12.31), however RSBI_ESP was higher in patients with extubation failure: SG (60.95±24.64) and FG (80.09±20.71; p<0.05). CONCLUSIONS: In critically ill patients on MV for more than 72h, low levels of PS overestimate the RSBI, and the index needs to be measured with the patient breathing spontaneously without the aid of pressure support.

Keywords

Ventilatory weaning, mechanical ventilation, physical therapy.