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Respiratory rate as an important predictor of weaning from mechanical ventilation

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Background: There is not an ideal predictor of weaning from mechanical ventilation (MV). In a large meta-analysis, despite methodological limitation, respiratory rate (RR) was considered a promising predictor. I have published one study that evaluates RR as a predictor of weaning failure from MV in 2012.

Methods: We prospectively evaluated 166 patients scheduled for weaning from MV. RR was compared with the following outcomes: Weaning success/failure or extubation failure.

Results: Weaning success was present in 76.5% and weaning failure in 17.5% of patients. There were 6% of reintubations. The predictive power for RR weaning failure, RR best cut-off point > 24 breaths per minute (bpm), was: Sensitivity 100%, specificity 85%, and accuracy 88% (ROC curve, $p < 0.0001$). Of the patients with weaning failure, 100% were identified by RR during screening (RR cut-off > 24 bpm). There were 15% false positives, weaning successes with RR > 24 bpm.

Conclusion: RR was an effective predictor of weaning failure. The best cut-off point was RR > 24 bpm, which differed from those reported in the literature (35 and 38 bpm). Only 6% of patients were reintubated, but RR or other weaning criteria did not identify them.

Biography

Emidio Jorge Santos Lima is a MD, Master in Computer Modeling and PhD in Knowledge Diffusion. He has developed clinical studies, in the last 9 years, on weaning from mechanical ventilation. He is Professor at University Salvador – Laureate International Universities Network and has published Book and papers in reputed journals. Recently he started, with The University of Paris – France, an international multicenter study on lung ultrasound score as one predictor of weaning from mechanical ventilation.

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