We read with great interest the recent article "Managing Initial Mechanical Ventilation in the Emergency Department" published in the Annals of Emergency Medicine.[1] As a vital life support technology, appropriate use of mechanical ventilation in the ED is of critical importance to patient-oriented outcomes, including survival. The ED is a challenging place to perform mechanical ventilation as resources (eg, non-critical care ventilators, respiratory therapy support, RN/ physician training, etc.) can be limited. Patients may also stay in the ED for an extended period of time, thus bringing appropriate evidence-based ventilator strategies to the ED is of critical importance. Unfortunately, we feel that this report presents an overly simplistic approach to ventilator management.

As a few examples: recommendations appear to be largely based upon the author's standard clinical practice. Tidal volume is suggested to be set at 8 ml/kg IBW and only titrated down if the plateau pressure is greater than 30 cmH2O; however current evidence supports further reduction to 6ml/kg IBW as soon as possible in most patients.[2] In addition, pressure targeted modes, which are often more comfortable for awake patients who can trigger breaths[3] are implied to be unsafe. Strategies to improve synchrony are avoided in favor of recommending 60-80 L/min constant fixed flow breaths for all patients. This strategy is likely to require deeper levels of sedation and/or paralytics, strategies which are associated with increased morbidity and mortality.

The PEEP discussion also seems inadequate. Specifically, the PEEP-FiO2 algorithm ignores three large trials in which a meta-analysis suggested a higher PEEP-FiO2 strategy is beneficial in severe lung injury.[4] Moreover, use of applied PEEP to improve breath triggering in the setting of intrinsic or auto PEEP is ignored, and other strategies to titrate PEEP are not acknowledged. Suggesting a PEEP of 0 cmH2O for patients with severe airflow obstruction (ie, COPD) is likely to result in many patients being unable to trigger the ventilator, impose an increased work of breathing, and require paralysis or deep sedation. Alarm settings, troubleshooting and alarm interpretation are also largely ignored.

Several statements about EtCO2 monitoring are incorrect.[5] In particular, a low EtCO2 is usually indicative of hypocapnia, which is a known risk factor associated with worse outcomes in patients with cerebral injury and EtCO2 can aid in the real-time assessment of ventilation in this setting.[6] Finally, there is no mention of strategies for pediatric/infant patients or rescue strategies for patients with severe hypoxemic or hypercapnic respiratory failure.

Given the complexity of the technology, RTs well versed in all aspects of ventilator operations should be integral members of the ED team managing patients requiring life support. When well-designed, evidence-based protocols are in place, appropriately trained RTs are well qualified to manage mechanical ventilation in the ED in partnership with physicians. Importantly, this strategy also allows teaching house staff optimal ventilator management strategies. In our institution all mechanical ventilation (invasive and noninvasive) in the ED and ICU is managed by RT driven protocols. We encourage the emergency medicine and respiratory therapy professions to work to engage and collaborate to maximize patient outcomes.

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