

## February 2013 Pulmonary Journal Club

**Effect of pressure support vs unassisted breathing through a tracheostomy collar on weaning duration in patients requiring prolonged mechanical ventilation: a randomized trial. Jubran A, Grant BJ, Duffner LA, Collins EG, Lanuza DM, Hoffman LA, Tobin MJ. JAMA. 2013;309(7):671-7.**

The rise in prolonged mechanical ventilation has fostered a growth in the need for long term acute care hospitals (LTACH). The February Journal Club reviewed the study looking at ventilator weaning through pressure support trials vs. spontaneous breathing through tracheostomy collar in a LTACH.

The study was a randomized trial performed from 2000 - 2010. It was performed at a single long term acute care facility. Patients that required mechanical ventilation for > 21 days and failed a 5 day screening procedure of spontaneous breathing were included in the study. Included patients were randomized to either a pressure support or tracheostomy collar arm. 500 patients were screened, and a total of 316 patients were included in the study, 155 patients were randomized to pressure support and 161 patients were randomized to tracheostomy collar. The primary outcome was the duration of ventilator weaning. Secondary outcomes were 6 and 12 month mortality.

The results showed that out of the initial 500 screened patients, 160 (32%) were weaned on the initial screening procedure. Among the randomized patients they found that the tracheostomy collar arm had 4 fewer days on the ventilator (15 days vs. 19 days) when compared to the pressure support arm. There were no differences in mortality or adverse outcomes.

The results of this study support prior studies looking at spontaneous breathing trials in the ICU (1). The fact that 32% of patients were weaned on initial screening suggests that we may not be aggressive enough in continuing ventilator weaning trials once the decision to be transferred to LTACH has been made. Several factors such as patient readiness, hemodynamic and lab parameters will continue to influence the method of weaning. Regardless of what method used, one constant factor that continues to be stressed is that ventilator weaning is not a static process, but rather dynamic, and largely determined by a collaborative effort between physicians and respiratory therapy.

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### **Reference**

1. Esteban A, Frutos F, Tobin MJ, Alía I, Solsona JF, Valverdúl, Fernández R, de la Cal MA, Benito S, Tomás R, *et al.* A comparison of four methods of weaning patients from mechanical ventilation. Spanish Lung Failure Collaborative Group. N Engl J Med. 1995;332(6):345-50.