

SUBJECT: Pressure Support Breath Termination Algorithms are Linked With Patient-Ventilator Synchrony

Article: Analysis of the mechanisms of expiratory asynchrony in pressure support ventilation: a mathematical approach. By Yoshitsugu Yamada and Hong-lin Du

Wave E200 Pressure Support: Better for Synchrony

In the June 2000 issue of Journal of Applied Physiology Drs. Yamada and Du published the results of a scientific examination of patient-ventilator expiratory (breath-ending) synchrony during pressure support (PS) breathing.

Their findings are important for two reasons:

Their data explains why patients ventilated with pressure support can be quite comfortable under certain conditions with certain ventilators yet experience discomfort at other times when the PS breath doesn't stop when they quit inhaling.

Their data explains why the Wave E200 PS variable termination threshold algorithm resulted in better breath termination synchrony in their earlier comparative study which was published in Respiratory Care 1998;43(12):1048-1057).

Some manufacturers have incorporated user-adjustable PS breath termination (expiratory trigger sensitivity) threshold controls on newly-released products. This manual approach may improve synchrony if the bedside clinician is proficient in assessing synchrony and employs appropriate and timely adjustment of the threshold control. In other words, the adjustment must be coordinated with changing patient conditions throughout the course of mechanical ventilation. Unfortunately, most clinicians either don't have the time or don't possess the proficiency to do this.

Newport has a smarter solution: variable adjustment of PS breath ending thresholds using an advanced software algorithm. The Newport Wave E200's advanced algorithm provides better PS expiratory synchrony compared to other ventilators such as PB 7200 and Siemens 300 (see Drs. Yamada and Du's paper published in Respiratory Care 1998;43(12):1048-1057).

Even though the competitors have released new ventilators with manually adjustable PS termination thresholds, the Newport Wave E200's advanced system for PS termination management still provides better pressure support breath termination synchrony and better patient comfort.

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