Ask The Experts

QUESTION: What are the advantages of a using a volume ventilator rather than a bilevel unit? When is it appropriate or necessary for an individual to transition from a bilevel to a volume ventilator?

ANSWER: My response comes from experience because there is not a lot published on this particular topic.

At our clinic, transition to volume rather than pressure ventilation occurs in two situations.

The first instance is when a patient requires day-time ventilator support and has opted to use a mouthpiece interface. In this case, volume ventilators are preferred because they avoid the auto-cycling that often occurs when using pressure ventilators.

Auto-cycling is when the ventilator is initiating frequent breaths on its own (often in response to a mask leak) and not responding to the patient's signal for a breath. It makes interaction with the ventilator difficult for the patient and ventilation ineffective. Proper set-up usually avoids this.

The second situation in which we transition patients to volume ventilation is during nocturnal (night-time) mask ventilation when pressure ventilation is not tolerated or when adequate volume cannot be delivered with maximum pressures. In this case, volume ventilation with an oral or nasal mask interface can be used with the caveat that an exhalation valve must be added to the ventilator circuitry and a mask without vents must be used (vented masks are used with the pressure ventilators).

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ANSWER: I agree with Dr. Benditt. There is not a lot published. In fact, only two percent of our patients now use volume ventilators.

A volume ventilator allows the patient to take multiple breaths ("breathstacking") to assist with cough, so we use it if breathstacking would help our neuromuscular patients.

I have resorted to its use in morbidly obese individuals because some of the volume ventilator models are the most powerful available, but in this situation one misses positive pressure in expiration.

Many in our neuromuscular group use cough assist machines, and because a combination of pressure support and cough assist works well, we rarely change from pressure preset to volume modes.

We have a group of neuromuscular patients who have done well using volume ventilation for many years and are stable and happy with it. Here we would not wish to "rock the boat."

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Are you a health professional with a question for ventilator users?

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