

The Spontaneous Breathing Trial: Separating Fact From Fiction

It should be clear to every clinician caring for mechanically ventilated patients that a spontaneous breathing trial (SBT) is the best approach to early and successful ventilator liberation.¹ It is important to make the correct decision regarding the timeliness of extubation because of the complications of a failed extubation.²

What is unclear is how to perform an SBT and how to predict successful extubation. There are a number of unanswered questions. Should the same SBT technique be used on all patients regardless of their underlying disease and duration of mechanical ventilation? Should you use a T-piece, pressure support, tube compensation, or a ventilator set for no support?³ Should CPAP be used and, if so, how much? Should the duration of an SBT be 15, 30, 60, or 120 min? What criteria should be used to make the extubation decision? The answers to these questions have been debated. Many of the answers begin with an anecdote or a statement of personal bias, which is hardly an evidence-based approach.

In this issue of *RESPIRATORY CARE*, Figueroa-Casas et al⁴ examine changes in breathing variables over the course of a 30-min SBT. This study, along with the work of Esteban et al,⁵ demonstrates that if breathing variables were to change during an SBT, it would most likely occur within the first 10–15 min.⁴ Figueroa-Casas et al⁴ showed that a $\geq 20\%$ change in breathing variables occurred after the first 10 min of the SBT in only $\leq 5\%$ of subjects. This finding is intriguing, even though the sample size was too small to determine whether it might be used to predict extubation failure. The available evidence is not sufficient to support a 10–15-min SBT, but this possibility merits further investigation. As the authors suggest, the work load of clinicians is increasing,⁶ so the potential of a shorter and predictive SBT is attractive.

Although this study was well done, there are several limitations. First, the re-intubation rate of 22% is higher than that commonly reported.⁷ The other important issue not explored in this article is whether the SBT was done in

conjunction with a spontaneous awakening trial. The combination of these 2 strategies has demonstrated improved outcomes⁸ and should be standard practice.

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Although the study by Figueroa-Casas et al⁴ adds to the body of knowledge related to SBTs, additional high-level evidence is needed. The same effort that was placed on determining appropriate tidal volume and ventilating pressure should be used to determine the best approach to conducting an SBT. Liberation from mechanical ventilation is an everyday occurrence, and it is time to establish the evidence to support the approach we use.

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Mr Loik has disclosed no conflicts of interest.

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DOI: 10.4187/respcare.03958