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The quest for smooth extubation: I banned air from the ETT cuff for good. . .

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BJAN-D-21-00216 - Letter to the Editor**The quest for smooth extubation: I banned air from the ETT cuff for good...****Marcelo Sperandio Ramos**

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Dear Editor,

It is known for a fact that tracheal extubation may be associated with the risk of some complications. The Difficult Airway Society (DAS) developed a guideline for the management of tracheal extubation in 2012.[1] While the DAS guideline provides an excellent starting point in developing strategies for achieving a successful extubation, it does not provide a distinction between successful extubation and “smooth” extubation. The concept of smooth emergence was mentioned in the DAS guideline as desirable for the success of certain surgical procedures, but it did not specify which procedures. Despite much of the discussion regarding extubation techniques in the literature, there is no precise definition of “smooth extubation”. Coughing during emergence from general anesthesia is common among intubated patients (40 to 76%). Among the physiological consequences of peri-extubation coughing we can cite complications as neck hematoma after thyroidectomy or carotid endarterectomy, wound dehiscence after laparotomy, and intracerebral hemorrhage after intracranial surgery. As such, the quest for a “smooth extubation” has been pursued in the literature. Multiple medications have been shown to reduce emergence coughing, such as lidocaine (IV, intracuff, topical, laryngotracheal), dexmedetomidine, fentanyl, and remifentanyl. Beyond the humanitarian aspect, the “smooth” extubation should be a goal to be pursued even in ordinary anesthesia, because it is a potentially avoidable source of complications. It is uncertain; however, which combination of measures and/or medication is the most effective for reducing this adverse event. Studies are limited by small sample sizes and heterogenous

interventions. These limitations are also reflected in the published systematic reviews and meta-analyses.[2] It should be noted that the COVID-19 pandemic has heightened the importance of developing our knowledge of effective techniques to achieve smooth emergence. Smooth extubation may contribute to reduce the transmission of COVID-19 to healthcare workers by reducing coughing, bucking, and aerosolization.[3] Among methods used to apply local anesthetic to the mucosa, intracuff lidocaine, in addition to local anesthetic effect, prevents the diffusion of nitrous oxide into the ETT cuff, without delaying awakening. Inflation of the endotracheal tube cuff with lidocaine would create a reservoir of local anesthetic, which diffuses across the cuff membrane to anesthetize the mucosa and attenuate stimulation during extubation. Intracuff alkalized (or even nonalkalinized) lidocaine significantly reduces coughing and other intubation-related complications during the extubation process. Lidocaine efficacy has long been known since it was evaluated in a Cochrane review in 2009.[4] Lidocaine administered as a cuff inflation medium reduces sensory input from the tracheal mucosa through its continuous topical anesthetic effect. Alkalinized lidocaine could have a potential advantage over its non-alkalinized variety, with a quicker onset, duration, and quality of the block, despite the possibility of completely losing its anesthetic action due to precipitation if a minimal error in the addition of bicarbonate occurs. By filling the cuff with lidocaine, diffusion of the drug crosses across the hydrophobic PVC walls of the ETT cuff attenuates sensory impulse from the tracheal mucosa. Thus, the tracheal mucosa in direct contact with the ETT cuff wall can be anesthetized locally with a longer than expected effect of lidocaine and with intact supraglottic reflexes, preventing aspiration. Albeit buffered lidocaine could achieve better results, even plain 2% lidocaine injected into the ETT cuff, not only reduces the incidence of a sore throat but also enables improved ETT tolerance and helps in producing smooth extubation in patients with hyperactive airways.[5] Based on all the mentioned literature and my observation during my clinical practice, I switched room air for lidocaine into the cuff since 2000, and since then I have been employing lidocaine for filling the cuffs for good.

Conflicts of interest

The authors declare no conflicts of interest.

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