

CORRESPONDENCE

patient with a suspected difficult airway, we suggest combining preoxygenation with apneic diffusion oxygenation. This can be easily achieved by pharyngeal insufflation of oxygen throughout the period of apnea.⁴ During apneic diffusion oxygenation, oxygen will diffuse from the lung to the pulmonary capillaries according to its concentration gradient. The oxygen molecules can diffuse from the pharynx into the alveoli, even in the "cannot-intubate, cannot-ventilate" situation, in which the airway may not be completely patent. The combination of preoxygenation and apneic diffusion oxygenation can be particularly advantageous in patients with a suspected difficult airway and in patients with a decreased safety margin secondary to decreased functional residual capacity (FRC) or increased oxygen consumption, or both, such as small children, pregnant women, obese persons, and patients with respiratory distress syndrome.

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In Reply:—Drs. Baraka, Salem, and Ninos make an interesting and valid point, *i.e.*, apneic oxygenation *via* insufflation of oxygen through a pharyngeal catheter is a low-risk, possible high-benefit method of increasing the duration of Normoxia during apnea that follows preoxygenation. I assume that Drs. Baraka, Salem, and Ninos use this method when they have a high index of suspicion of difficulty with management of the airway (for any reason) preoperatively, because one would not want to need to locate an appropriate catheter (and connections to an oxygen source) while trying to solve a "cannot-ventilate, cannot-intubate" situation. Another method that I have used very occasionally to prolong the duration of normoxia during apnea is to insert a 2-inch 16-gauge catheter through the cricothyroid membrane preinduction, electively, using local anesthesia and achieve apneic oxygenation by insufflation of oxygen through this catheter.¹ In addition, the transcricothyroid-membrane, 16-gauge catheter provides an immediate-ventilation plan B by connection to a jet ventilator preset at 25 psi using a 0.5-s inspiratory time.² Wishing to avoid further trivial semantic debates,^{3,4} I would be the first to admit that this preproblem solution could also be considered as an atraumatic form of a very early, aggressive postproblem solution.

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References

1. Benumof JL, Dagg R, Benumof R: Critical hemoglobin desaturation will occur before return to an unparalyzed state following 1 mg/kg intravenous succinylcholine. *ANESTHESIOLOGY* 1997; 87:979-82
2. Bourke DL: Succinylcholine duration on critical hemoglobin desaturation in the healthy adult (letter). *ANESTHESIOLOGY* 1998; 88:1686-7
3. Benumof JL: Succinylcholine duration on critical hemoglobin desaturation in the healthy adult (reply to letter). *ANESTHESIOLOGY* 1998; 88:1688
4. Teller LE, Alexander GM, Frumin MJ, Gross JB: Pharyngeal insufflation of oxygen prevents arterial desaturation during apnea. *ANESTHESIOLOGY* 1988; 69:980-2

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References

1. Dallen L, Wine R, Benumof JL: Spontaneous ventilation *via* tracheal large bore intravenous catheters is possible. *ANESTHESIOLOGY* 1991; 75(3):531-3
2. Benumof JL, Gaughan SD: Concerns regarding barotrauma during jet ventilation (letter). *ANESTHESIOLOGY* 1992; 76:1072-3
3. Bourke DL: Succinylcholine duration on critical hemoglobin desaturation in the healthy adult (letter). *ANESTHESIOLOGY* 1998; 88:1686-7
4. Benumof JL: Succinylcholine duration on critical hemoglobin desaturation in the healthy adult (reply to letter). *ANESTHESIOLOGY* 1998; 88:1688

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