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Use Apneic Oxygenation During Rapid Sequence Intubation in the Emergency Department

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Patients provided nasal cannula oxygenation during intubation had higher odds of first-pass success without hypoxemia.

Apneic oxygenation — the provision of high-flow nasal cannula oxygen to patients during, not just before, rapid sequence intubation (RSI) in order to delay the onset of hypoxemia — has been cited as a best practice. However, there have been few studies of its utility in the emergency setting. In an observational study at an emergency department that introduced the practice, investigators compared rates of first-pass success without hypoxemia between patients who were and were not provided apneic oxygenation during RSI by resident trainees.

During the two-year study period, 380 received apneic oxygenation and 255 did not. Most patients (76%) were intubated for anticipated clinical course and need for proximate intubation, and few (17%) were intubated using direct laryngoscopy; proportions were similar for those with and without apneic oxygenation.

In a multivariate analysis adjusting for a number of potential confounders (e.g., duration of preoxygenation, reason for device selection), apneic oxygenation was associated with increased odds of first-pass success without hypoxemia (adjusted odds ratio, 2.2). Other factors associated with increased odds of this outcome were baseline oxygen saturation above 93%, intubation with video laryngoscopy, fewer difficult airway characteristics, and intubation by senior (rather than junior) residents.

Comment: We should all be using apneic oxygenation — an easy, no-cost airway adjunct — both during preoxygenation and during intubation itself. To maximize oxygenation, crank the oxygen up to 15 L/minute via the nasal cannula and allow the patient to breathe through a bag-valve-mask (rather than a non-rebreather mask, as used in this study) — it's safe, and you're not taking full advantage of the technique otherwise. It bears repeating that video laryngoscopy should be the first technique attempted, and more-experienced doctors do better, so pick your “teaching” cases wisely.

Citation(s):

Sakles JC, et al. First pass success without hypoxemia is increased with the use of apneic oxygenation during RSI in the emergency department. *Acad Emerg Med* 2016 Feb 2; [e-pub].

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