Effect of Nasopharyngeal Oxygen Insufflation on Time-to-Hypoxia

The diffusion of oxygen can help prevent desaturation, even after induction of apnea.

Airway management, particularly rapid sequence intubation, relies on effective preoperative oxygenation. Preoxygenation denitrogenates the functional residual capacity of the lungs to provide an oxygen reservoir. These authors assessed the effect of supplemental nasopharyngeal oxygen insufflation on time-to-hypoxia in patients undergoing airway management in the operating suite.

Thirty patients were instructed to take four deep breaths of 100% oxygen in 30 seconds before induction of anesthesia. After induction, all patients underwent insertion of nasopharyngeal catheters, and half were randomized to receive supplemental oxygen through the catheter at 5 L/minute. The study protocol allowed an apneic period of up to 6 minutes.

The mean time to 95% desaturation was 3.65 minutes in the control group. Desaturation did not occur in the supplemental-oxygen group. The authors suggest that an oxygen gradient is established in denitrogenated lungs and that even low-flow oxygen can have a clinically important effect.

**Comment:** As this technique does not involve use of positive pressure (i.e., bag-mask ventilation) during the apneic period, insufflation of the stomach is not a risk. Whether the results of this small study of relatively healthy patients undergoing routine intubation in the operating suite can be extrapolated to the emergency department setting is not clear. However, the technique is simple, carries no real risk, and might help to delay onset of hypoxia, particularly in patients with difficult airways or in those at risk for rapid desaturation.

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