

Preoxygenation for Emergency Intubation: Longer Is Not Better

Preoxygenation beyond 4 minutes adds no benefit.

In critically ill patients, 3 to 5 minutes of preoxygenation with 100% oxygen through a resuscitator bag and mask is often recommended for patients who are spontaneously breathing and will undergo emergency intubation (JW Emerg Med Dec 1 1999). Researchers compared the effect of preoxygenation times of 4 versus 8 minutes on PaO₂ in 34 patients in an intensive care unit who had preexisting arterial lines and required emergent or urgent intubation after noninvasive methods of hypoxia treatment failed. Arterial blood gas was measured during noninvasive management (baseline) and during preoxygenation at 4, 6, and 8 minutes. Investigators positioned patients to optimize airway patency and provided preoxygenation with 100% oxygen at 15 L/minute using a noncollapsing resuscitator bag and mask.

Mean PaO₂ was 62 mm Hg at baseline and increased to 84 mm Hg at 4 minutes. Further changes in mean PaO₂ after 4 minutes were not significant.

Comment: The real value of preoxygenation is not simply increasing PaO₂ but rather prolonging the safe apnea time after administration of rapid sequence intubation drugs. This study is consistent with others that fail to show a benefit of prolonging preoxygenation beyond 3 or 4 minutes. Remember that a resuscitator bag used for preoxygenation must have a one-way exhalation valve to prevent entrainment of room air, which dramatically reduces the percentage of inspired oxygen (JW Emerg Med Nov 15 2000).

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