Two Approaches to Lessen Need for Reintubation

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High-flow oxygen and noninvasive positive pressure ventilation lowered reintubation rates in selected patient populations.

During the past few years, interest has grown in using high-flow oxygen (HFO) and noninvasive positive pressure ventilation (NPPV) in lieu of intubation and mechanical ventilation (NEJM JW Gen Med Aug 1 2015 and JAMA 2015; 313:2331 and N Engl J Med 2015; 372:2185). Two new studies shed light on use of these interventions to prevent reintubation.

In one study, investigators in Spain randomized 527 intensive care unit (ICU) patients with low risk for reintubation to receive either conventional oxygen therapy or HFO after extubation. Oxygen saturation targets were >92% in both groups, and support was maintained for at least 24 hours. Fewer patients in the HFO group than in the conventional group were reintubated within 72 hours (4.9% vs. 12.2%); median time to reintubation was similar in both groups. Reintubation rates in this study were higher than those seen in other low-risk populations, probably because 30% of reintubations were for nonrespiratory reasons (e.g., return to surgery, altered mental status).

In a study from France, 300 ICU patients with acute hypoxemic respiratory failure within 7 days of abdominal surgery were randomized to receive either standard oxygen therapy or NPPV. Common procedures were liver resection (27%) and colorectal resection (24%); smaller numbers underwent gastrectomy (12%) and esophagectomy (8%). Fewer patients in the NPPV group than in the standard group required invasive mechanical ventilation (33.1% vs. 45.5%), with no difference in time to intubation.

Comment: Extubation to HFO in low-risk patients makes sense and is relatively low-cost to implement. NPPV use makes sense in patients with hypoxemic respiratory failure after abdominal surgery, given that it can help resolve atelectasis associated with postoperative diaphragmatic dysfunction, although it also limits clearance of secretions and is more difficult to tolerate. An interesting question is how HFO would compare with NPPV in this population. For now, a short trial of NPPV for acute respiratory failure after abdominal surgery is reasonable.

Citation(s):
