EDITORIALS

Preventing Dogma from Driving Practice

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Clinicians generally know that many practices persist in medicine without clear evidence to support them. One such example is the approach to endotracheal intubation of critically ill patients in the intensive care unit (ICU), where intubation is typically fraught with substantially more risk than in the controlled setting of the operating room. Patients in the ICU are often far less clinically stable, and other forms of less invasive support have failed. These patients have a lack of physiological reserve and, as a result, are prone to rapid decompensation in the peri-intubation period. Equally important, they may not be fasting at the time of intubation, which places them at risk for aspiration of gastric contents and the associated complications.

Originally described in 1970,[1] rapid-sequence intubation arose as a tool to shorten the time until intubation and minimize the risk of gastric aspiration. In current practice, a period of preoxygenation is followed by the administration of an induction agent, such as propofol or etomidate, and a neuromuscular blocking agent (e.g., succinylcholine or rocuronium). Given the rapid onset of action of these medications (around 60 seconds to onset of paralysis, depending on the dose), the use of these drugs markedly shortens the period of apnea before direct laryngoscopy.

Although some studies[2-4] have called for avoiding manual ventilation after induction to prevent gastric insufflation and aspiration, others have recommended the provision of manual ventilation in specific cohorts of patients.[5-7] However, debate around this issue has been limited by a lack of high-quality data documenting the risks of aspiration and other potential benefits of manual ventilation. To address this long-standing question, Casey and colleagues[8] now report in the *Journal* the results of the randomized, multicenter PreVent (Preventing Hypoxemia with Manual Ventilation during Endotracheal Intubation) trial, which examined the effect of positive-pressure ventilation with a bag-mask device (bag-mask ventilation), as compared with no manual ventilation, on oxygenation and risk of aspiration during the apneic phase of rapid-sequence intubation. In this trial, which enrolled 401 patients in seven ICUs, the primary outcome was the lowest oxygen saturation observed during the interval between induction and 2 minutes after tracheal intubation. Additional outcomes included the number of patients with severe hypoxemia (oxygen saturation, <80% during the same period of monitoring) and other direct and indirect markers of aspiration.

Although the investigators found that the median nadir of oxygen saturation was higher in the bag-mask group than in the control group (96% vs. 93%, $P=0.01$), this difference is probably not clinically relevant. Of greater potential importance is the fact that 45 of the patients in the control group had severe hypoxemia, as compared with 21 in the intervention group. The trial did not show any difference in life-threatening events or deaths associated with these periods of severe hypoxemia but was probably underpowered to detect such differences.

Using multiple measures to detect aspiration (including report by the proceduralist, changes in positive end-expiratory pressure or fraction of inspired oxygen, and development of new radiographic opacities after intubation), the investigators found no significant difference in the incidence of aspiration. Although the trial sample

size is too small to convincingly state that there is no increased risk of aspiration associated with bag-mask ventilation, the findings provide a measure of reassurance that the application of manual ventilation is not likely to cause clinically significant harm.

An important limitation of the trial is the failure to standardize the preoxygenation strategy and the subsequent result that more patients in the bag-mask ventilation group than in the control group received bag-mask ventilation before induction (39.7% vs. 10.9%). The fact that the median oxygen saturation before induction was the same in the two groups (99%) does not preclude marked differences in the arterial partial pressure of oxygen. That is because an oxygen saturation of 100% can be associated with an arterial partial pressure of oxygen that is anywhere from 110 mm Hg to nearly 600 mm Hg, given the shape of the hemoglobin–oxygen dissociation curve.[9] On the basis of differences in preoxygenation strategies, it is conceivable the bag-mask group had a significantly higher arterial partial pressure of oxygen than the control group and greater reserve protecting against peri-intubation hypoxemia. On the surface, the exclusion of patients with severe hypoxemia at the time of intubation may seem like another important limitation. However, the condition of such patients is often so unstable that more aggressive forms of support, including noninvasive positive-pressure ventilation or bag-mask ventilation, are required in the peri-intubation period to prevent decompensation, regardless of the risk of aspiration.

In the eyes of all clinicians managing airways in the ICU, the results of this rigorous, multicenter trial may not settle the question of the safety of bag-mask ventilation during rapid-sequence intubation. However, the findings provide a strong suggestion that the practice is not harmful. More important, they show the feasibility of conducting a well-designed trial with the goal of questioning one of the long-standing dogmas that too often restrict our clinical practice.

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Ovarian Cancer Surgery — Heed This LION's Roar

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Most women with ovarian cancer will have metastatic disease at diagnosis, and their symptoms and survival will depend on whether their abdominal tumor can be controlled. Death from ovarian cancer most often occurs from progression of abdominal disease, as a result of either bowel obstruction or the consequences of malnutrition. Removal of all visible disease is the goal of primary cytoreduction and is consistently associated with improved survival in randomized trials.[1] The nonvisible, microscopic tumor that remains is targeted with subsequent chemotherapy.

Pelvic and aortic lymph nodes that appear normal frequently harbor microscopic metastases. For several decades, considerable debate has focused on whether these lymph nodes should be systematically removed during primary sur-