Comparing tracheal intubation conditions in the intensive care unit and operating room

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Video Script

Tracheal intubation can be life-saving, but the procedure’s outcome largely depends on where it’s performed. Intubations carried out under elective conditions in the operating room tend to produce better results than those executed under emergency conditions in the intensive care unit. But it’s not clear what factors lead to these differences. To shed light on the issue, researchers from the Clinical University Hospital of Santiago, Spain, conducted a prospective, observational study comparing intubation conditions between the OR and ICU. The results help uncover the circumstances important to success.

The study, which took place over 33 months, evaluated 208 patients who underwent two separate instances of tracheal intubation using direct laryngoscopy. The first procedure occurred in the OR and the second in the ICU. For inclusion, both intubations had to be performed within a 1-month period. To obtain a broad picture of how intubation conditions varied between these settings, the researchers compared differences in glottic visualization using the modified Cormach-Lehane grade and also looked at first-time success rate, technical difficulty, and complication rates.

The results revealed several key distinguishing factors. Notably, tracheal intubation in the OR was associated with better glottic visualization compared to the ICU. The first-time success rate was also higher in the OR, and concordant with this finding, ICU patients required a greater number of intubation attempts. ICU intubations were also rated as more difficult to perform, and more often required the use of adjuncts such as a gum-elastic bougie. In line with these disparities, these intubations also had higher complication rates than those performed in the OR.
The broad implication of these findings is that when patients with previously good glottic exposure and easy tracheal intubation in the OR were intubated in the ICU, glottic visualization diminished and intubation became difficult.

Because the same patient was intubated by anesthesiologists with similar levels of experience, physiologic factors associated with critical illness and environmental differences were likely responsible for the variations in glottic exposure between the two settings. Future research aimed at deciphering these variables may reveal new methods to improve the outcomes of intubations performed in the ICU.

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