Predicting Difficult Intubations — Easier to Say Who Isn't at Risk

A new scoring system predicts low-risk intubations fairly well.

Intubating patients in the intensive care unit (ICU) can be a high-risk undertaking due to severe hypoxemia and hemodynamic instability. Proactively identifying patients who will be difficult to intubate could allow a healthcare team to prepare for advanced airway procedures and to avoid life-threatening complications.

French investigators developed a predictive model based on a derivation cohort of 1000 intubations from 42 ICUs and a validation cohort of 400 intubations from 18 different ICUs. Difficult intubations (defined as ≥3 attempts or efforts to intubate lasting >10 minutes) occurred in 11.3% (derivation) and 8% (validation) of intubations. Patients with difficult intubations had higher rates of life-threatening complications.

The main predictors of difficult intubation in the final multivariate model, referred to as the MACOCHA score, included Mallampati score of III or IV, Apnea syndrome (obstructive), Cervical spine limitation, Opening mouth <3 cm, Coma, Hypoxemia, and operator being a non-Anesthesiologist (5 points for Mallampati score, 2 points for apnea, and 1 point each for all others). Using the validation cohort, a cut-off of 3 resulted in a positive predictive value of 36% and a negative predictive value of 98%. In other words, difficult intubation occurred in 36% of those with scores ≥3 but in only 2% of those with scores <3.

Comment: A MACOCHA score <3 indicates a lower-risk intubation. However, this scoring system, even at higher cut-off values, is not particularly good at identifying patients in whom intubation will be difficult. Although calculating a score can raise awareness of a potentially difficult airway, whether this prevents serious complications during intubation remains to be determined.

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