Double Trouble ... Less Often

To the Editor:

Thanks to Kheterpal et al.1 for their study on the incidence of concurrent difficult laryngoscopy and difficult mask ventilation. In their database series of 177,000 cases, both airway maneuvers were difficult in 0.4% of patients.

This rate is alarmingly high. Even worse, it may be an underestimate because the study excluded patients who were predicted to be difficult and offered alternative techniques.

Inevitably, the definitions used are important when interpreting these results.

First, mask ventilation was assessed using the Han scale: grades 3 or 4 were defined as “difficult.” Han et al.2 defined grade 3 as mask ventilation, which was “inadequate, unstable, or requiring two operators,” and grade 4 as “impossible.” These two grades cover a broad range of clinical significance. The need for a second operator is mild inconvenience compared with the potential crisis of a flat-line capnograph.

Second, two methods were used to assess laryngoscopy: the Cormack and Lehane grade and the number of attempts. Grades 3 and 4, or four attempts, constituted “difficulty.” Again, this definition spans a wide range of significance. An epiglottis-only view with easy bougie-guided intubation is far less serious than a grade 4 view or three failed attempts.

Furthermore, the Cormack and Lehane scale describes an objective endpoint—the best view at laryngoscopy. However, there is a marked variation between operators in both knowledge of that scale and reproducibility of grading.3,4 Observer variation is likely to be even greater with the Han scale, which is subjective and operator dependent.5

Next, the authors note that data on dose and timing of muscle relaxation were unavailable, but assert that this does not influence the Han grading of mask ventilation. That claim is questionable.

Finally, it is striking that the list of risk factors identified does not include a history of difficult intubation or mask ventilation. When it is available, clinicians routinely draw on that history to predict difficulty and plan anesthetic technique. It seems likely that such good clinical practice was used in the authors’ institutions and thus excluded cases from their cohort.

Perhaps a further implication of this study is the persistent need for a uniform and objective method to assess mask ventilation and describe it to future clinicians. A better anesthetic history could help to plan a safer future anesthetic.

Competing Interests

The author declares no competing interests.

James R. Nielsen, B.A., M.B.B.S., F.A.N.Z.C.A., Concord Hospital, Concord, New South Wales, Sydney, Australia. jamesnielsen@gmail.com

References


(Accepted for publication April 1, 2014.)

Difficult Face-mask Ventilation and Difficult Laryngoscopy

To the Editor:

Our thanks are due to Kheterpal et al.1 for another valuable addition to our understanding of airway management during anesthesia. Their work suggests that provided we exclude the patients with obvious abnormalities, we will find that the incidence of the combination of difficult mask ventilation (DMV) and difficult laryngoscopy (DL) is infrequent but not rare (0.4%), and the outcome is good when standard methods are applied.

As well as incidence and outcome, Dr. Kheterpal et al addressed the prediction of DMV plus DL and presented odds ratios* to describe their findings. They used a group (class I, 0 to 3 risk factors) with few risk factors as a reference, but we should note that cases of DMV plus DL occurred (107 patients) in this group. The odds ratio for the group of patients with the most risk factors (class V, 7 to 11) was 18.4, which sounds high, but I suspect that the positive predictive value gives most of us a clearer idea of the clinical significance. The positive predictive value for DMV plus DL of class V abnormalities was only 3.31%, which means that 96.69% of predictions were wrong and the patients did not present difficulty. The conclusion must

* It is hard to know how best to combine the significance of associated conditions, which are usually described with odds ratios, and test results, which are often described with likelihood ratios (the ratio of true positives to false positives). For interest’s sake I considered the combination of items in class V as a test, calculated the likelihood ratio, and got a result of 8.9 (a value above 10 indicates clinical usefulness), which just restates the authors’ findings and confirms that practitioners cannot be expected to predict the problem cases with accuracy.