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CORRESPONDENCE

Comparing videolaryngoscope and direct laryngoscope use for nasotracheal intubation in patients with manual in-line stabilization

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To the Editor,

In the recent article by Roh *et al.*[1] comparing the McGrath MAC videolaryngoscope (Covidien, Mansfield, MA, USA), Pentax Airway Scope (Pentax Co., Tokyo, Japan), and Macintosh direct laryngoscope use for nasotracheal intubation in patients with manual in-line stabilization, we think there are several issues that may have influenced the interpretation of their study outcomes, and invite them to comment on these.

First, it was unclear why only the right nasal cavity was prepared with 0.1% epinephrine and used for nasotracheal intubation. Anatomic aberrations of the nasal cavity are relatively common. Indeed, using nasal fibreoptic endoscopy, Tong and Tung[2] showed that 51% of patients had nasal pathologies, including inferior turbinate hypertrophy (28.6%) and septal deviation (22.8%). Both of these issues imply that one nasal cavity may be more suitable for passage of an endotracheal tube (ETT) than the other. To enhance the trans-nasal passage of an ETT and decrease the occurrence of epistaxis, it is generally recommended that the selected naris should at least be the one that the patient thinks is more patent. By assessing the rate and volume of airflow through each nostril before anesthesia, Lim *et al.*[3] showed that the patients with epistaxis or resistance to ETT passage had significantly lower FEV_1 and FEV_1/FVC values through the intubated nostril than did patients without epistaxis or those who passed the ETT more easily. Thus, we are concerned that only using the right nasal cavity for intubation in this study may have confused the interpretation of some study endpoints, such as intubation time, ease of intubation, and incidence of epistaxis.

Another question raised by this study is the reliability of the Intubation Difficulty Scale (IDS) score for use when assessing the ease of nasotracheal intubation with videolaryngoscopy. Adnet *et al.*[4] originally designed the IDS score for use when describing orotracheal intubation with direct laryngoscopy, rather than nasotracheal intubation using videolaryngoscopy. In particular, the IDS score is calculated as the sum of seven variables, with the greatest weight attributed to the Cormack and Lehane grade of laryngeal view, a major factor affecting the ease of intubation with direct laryngoscopy. Nevertheless, an important factor that often determines the ease of intubation with videolaryngoscopes, such as the McGrath MAC videolaryngoscope and Pentax Airway Scope used in this study, is not the laryngeal view grade per se (which is often Cormack and Lehane grade 1 or 2, as shown in this study), but rather the alignment of the device and subsequent trajectory of the ETT into the glottic opening as it is delivered. Most important, both N5 and N6 items of the IDS are the components assessing the measures required for improvement of the laryngeal view grade obtained by direct laryngoscopy,[4] rather than videolaryngoscopy, because obtaining adequate laryngeal view by videolaryngoscopy does not require these measures to align the three airway axes. Thus, we agree with McElwain *et al.*[5] that the IDS score may not be an appropriate study endpoint when comparing intubation

This letter is accompanied by a reply. Please see Can J Anesth 2020; 67: this issue.

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performance of videolaryngoscopy and direct laryngoscopy.

Finally, an intubation failure in the Roh *et al*. study[1] was defined as the occurrence of a peripheral capillary oxygen saturation (SpO_2) $< 95\%$ during intubation or an intubation duration > 90 sec (even if no desaturation occurred during intubation). It is unclear how many intubation failures occurred by each of these definitions. For example, as the patients were preoxygenated for three minutes before anesthesia induction, we are very interested in knowing how many intubation failures are specifically attributable to a $SpO_2 < 95\%$ during intubation. We think that addressing these issues is important for readers to understand exactly the incidence of first attempt failure reported in this study.

Competing interests None declared.

Editorial responsibility This submission was handled by Dr. Hilary P. Grocott, Editor-in-Chief, *Canadian Journal of Anesthesia.*

References

1. *Roh GU, Kwak HJ, Lee KC, Lee SY, Kim JY*. Randomized comparison of McGrath MAC videolaryngoscope, Pentax Airway Scope, and Macintosh direct laryngoscope for nasotracheal intubation in patients with manual in-line stabilization. Can J Anesth 2019; DOI: https://doi.org/10.1007/s12630-019-01409-5.
2. *Tong JL*, *Tung A*. A randomized trial comparing the effect of fiberoptic selection and guidance versus random selection, blind insertion, and direct laryngoscopy, on the incidence and severity of epistaxis after nasotracheal intubation. Anesth Analg 2018; 127: 485-9.
3. *Lim HS*, *Kim D*, *Lee J*, *Son JS*, *Lee JR*, *Ko S*. Reliability of assessment of nasal flow rate for nostril selection during nasotracheal intubation. J Clin Anesth 2012; 24: 270-4.
4. *Adnet F*, *Borron SW*, *Racine SX*, *et al*. The intubation difficulty scale (IDS): proposal and evaluation of a new score characterizing the complexity of endotracheal intubation. Anesthesiology 1997; 87: 1290-7.
5. *McElwain J*, *Simpkin A*, *Newell J*, *Laffey JG*. Determination of the utility of the Intubation Difficulty Scale for use with indirect laryngoscopes. Anaesthesia 2011; 66: 1127-33.