

Comparing intubation performance of video and direct laryngoscopes

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To the Editor:

In a randomized crossover manikin study by Saito and colleague [1] comparing intubation performance of the Coopdech videolaryngoscope Portable VLP-100 (VLP-100), AirwayScope (AWS), and Macintosh laryngoscope, all study participants were residents trained in the anesthesia department for more than 1 month, and prestudy training comprised only a demonstration of the intubation technique and verbal instructions regarding the correct use of the studied devices. An important issue ignored by the authors is that a different learning curve is required for each of the three devices. Hirabayashi [2] showed that a short demonstration of the AWS and brief practice with a manikin were the only requirements needed to perfect a tracheal intubation with this device. No study has evaluated the learning curve of the VLP-100, but videolaryngoscopes similar to the Macintosh laryngoscope, such as the V-MAC videolaryngoscope, have shown a rapid learning curve [3]. In contrast, direct laryngoscopic intubation is a complex skill that is difficult to acquire: its success rate is only 50 % in novices and a success rate of 90 % cannot be expected until 50 attempts have been made [4]. These findings

suggest that less training is required to achieve proficiency with the AWS and VLP-100 than with the Macintosh laryngoscope. Thus, in the authors' study, identical pre-study training for the three devices may have biased both intubation time and success rate into the two videolaryngoscopes, especially for difficult airway scenarios. We emphasize that for results of a comparative study to be valid, participants must be equally proficient with each studied device in order to avoid bias.

The difference in laryngoscopic views among the three laryngoscopes was stated as a final end-point of performance comparison. We argue that comparing the views obtained with direct and video laryngoscopes is not an entirely appropriate comparison. The Cormack–Lehane classification was originally designed to estimate the glottic views obtained by the Macintosh laryngoscope in which obtaining a full glottic view requires aligning the oral, pharyngeal, and laryngeal axes [5]. However, videolaryngoscopes can provide a full glottic view without the need for such alignment [3]. Moreover, Saito et al.'s study did not allow the use of measures to improve the laryngoscopic view. Although such manipulations are rarely needed for videolaryngoscopy, it can frequently improve direct laryngoscopic view and should be an inherent part of direct laryngoscopy in case of a poor glottic view [5]. Neglecting this factor would surely underestimate performance of the Macintosh laryngoscope.

Because the AWS incorporates a tube channel, successful intubation does not require a stylet. It would be interesting to know whether the tracheal tube with a stylet was used for intubation with the VLP-100 or Macintosh laryngoscope. Because the VLP-100 does not create a direct channel for tube passage, the tube must be maneuvered around the device and the tongue to the glottis. In this case, use of a stylet to preform a tube is very helpful for bringing

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the tube tip up to the glottis. When direct laryngoscopy is difficult, moreover, use of a stylet may be valuable in facilitating successful insertion of a tracheal tube.

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References

1. Saito T, Asai T, Arai T, Tachikawa M, Shimazaki M, Okuda Y. Efficacy of Coopdech videolaryngoscope: comparisons with a Macintosh laryngoscope and the Airway Scope in a manikin with difficult airways. *J Anesth*. 2012;26:617–20.
2. Hirabayashi Y. Airway Scope[®]: initial clinical experience with novice personnel. *Can J Anesth*. 2007;54:160–1.
3. Niforopoulou P, Pantazopoulos I, Demestiha T, Koudouna E, Xanthos T. Video-laryngoscopes in the adult airway management: a topical review of the literature. *Acta Anaesthesiol Scand*. 2010; 54:1050–61.
4. Mulcaster JT, Mills J, Hung OR, MacQuarrie K, Law JA, Pytka S, et al. Laryngoscopic intubation: learning and performance. *Anesthesiology*. 2003;98:23–7.
5. Hagberg CA, Benumof JL. The American society of anesthesiologists' management of difficult airway algorithm and explanation-analysis of the algorithm. In: Hagberg CA, editor. *Benumof airway management*, 2nd edition. St. Louis: Mosby-Year Book Inc; 2007. p. 245–9.