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The Airtraq Optical Laryngoscope: experiences with a new disposable device for orotracheal intubation

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The Airtraq Optical Laryngoscope (AOL; manufactured by Prodol Meditec, Vizcaya, Spain) is a new disposable device developed to facilitate orotracheal intubation in patients with normal and difficult airways, but there are only limited data on its use in clinical practice [1]. We therefore evaluated the performance of the AOL in anaesthetised patients requiring orotracheal intubation for elective thyroid surgery. The study was approved by the Institutional Review Board. Informed patient consent was obtained for the planned strategy of airway management and the anonymous use of patient data for scientific purposes.

Methods

Conventional laryngoscopic view grading (CLV) was performed with a standard Macintosh laryngoscope (optimum depth of blade insertion determined by the vallecula and using gentle lifting force without external laryngeal manipulation): grade 1, visualisation of the entire laryngeal aperture; grade 2, visualisation of just the posterior portion of the laryngeal aperture; grade 3, visualisation of only the arytenoids; grade 4, visualisation of only the epiglottis; and grade 5, visualisation of just the soft palate. The laryngeal views obtained with the AOL were evaluated using the same technique. The tracheal tube (TT) was placed in the tube-guide channel on the right side of the AOL blade and advanced through the laryngeal aperture into a midtracheal position when laryngeal structures were in the centre of the view.

Results

The operators (seven staff anaesthetists and two anaesthesia residents) were novice users of the AOL. They first received formal hands-on training on an airway management model, were instructed during the early series of performance on patients by an experienced AOL user, and performed AOL-assisted laryngoscopy and tracheal intubation attempts on 100 patients. Grades 1 to 5 at CLV were obtained in 36, 26, 16, 10, and 2 patients, respectively. The success rate of AOL-assisted tracheal intubation at the first attempt was 98% (98/100 patients) with laryngeal views of grade 1 in all of these patients. Minor problems and difficulties with impeded blade insertion (due to limited mouth opening and/or restricted pharyngeal space), poor visibility due to the presence of secretions, and impeded TT advancement (during laryngeal and/or tracheal passage) were encountered in 9%, 1%, and 11% respectively; there were no problems with poor visibility due to fogging of the optical system. Two patients required a second attempt for tracheal intubation; the causes were failed identification of anatomical structures and failed TT advancement during laryngeal passage. The laryngeal views obtained with the AOL during the second attempt were grade 1 in both patients. In all patients, AOL-assisted tracheal intubation was successful (after a maximum of two attempts).

Conclusions

Following formal instruction, success of tracheal intubation with the AOL performed by novice users was not affected by CLV. The AOL proved to be uniquely useful for routine and difficult laryngoscopy and tracheal intubation.

Reference

- 1 Maharaj C, O'Croinin D, Curley G, et al. A comparison of tracheal intubation using the Airtraq® or the Macintosh laryngoscope in routine airway management: a randomised, controlled clinical trial. *Anaesthesia* 2006; **61**: 1093–9.