Comparing the Airway Scope, Airtraq, and Macintosh in Simulated Difficult Airways

The Airway Scope and Airtraq outperformed the Macintosh laryngoscope when used by novice providers.

The Pentax Airway Scope — a video laryngoscope — and the Airtraq laryngoscope — an optical device that incorporates lenses, mirrors, and prisms — are designed to facilitate tracheal intubation, even when a direct view of the glottis is not possible. Researchers compared performance of the Airway Scope, Airtraq laryngoscope, and Macintosh direct laryngoscope during intubation of manikins by 24 medical students under four simulated airway scenarios: normal airway, cervical spine rigidity, limited mouth opening, and pharyngeal obstruction.

Overall, the tracheal intubation success rate was significantly higher with the Airway Scope and Airtraq than with the Macintosh laryngoscope (100% and 98% vs. 89%). Mean time to intubation and mean time to first inflation of the lungs were significantly shorter with the Airway Scope than with either the Airtraq or Macintosh laryngoscopes (intubation, 10.6 vs. 16.2 vs. 15.8 seconds, respectively; inflation, 16.1 vs. 21.6 vs. 23.5 seconds, respectively). In the limited mouth-opening scenario, rates of successful intubation were significantly higher with the Airway Scope and Airtraq than with the Macintosh laryngoscope (100% and 100% vs. 83%). Successful intubation rates for the other scenarios were not statistically significant. Nineteen students preferred the Airway Scope.

Comment: Although results from this manikin study can’t be applied directly to patient care, and performance might have differed with experienced operators, the higher success rates by novice intubators with the Airway Scope and Airtraq laryngoscope speaks to the greater ease of learning and use of these devices compared with direct laryngoscopy. This study is yet another in a string of studies that consistently demonstrate superiority of video and optical laryngoscopes over direct laryngoscopy (JW Emerg Med Dec 19 2008 and JW Emerg Med Jun 13 2008).

— Emily L. Brown, MD, and Ron M. Walls, MD, FRCPC, FAAEM

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