Intubation Requires Less Force with GlideScope Than with the Macintosh Laryngoscope

In a manikin study of normal and difficult airways, higher forces were applied with the Macintosh laryngoscope, particularly for difficult airways.

The likelihood of upper airway injury increases with increasing force applied during laryngoscopy. Researchers compared blade forces exerted during intubation with the Macintosh and GlideScope laryngoscopes in simulated normal and difficult airways (cervical spine immobilization and tongue edema) by 20 anesthesiologists (at least 3 years of experience) and by 20 anesthesia trainees (at least 1 year of experience).

In all three airway scenarios, lower mean force was exerted during intubation with the GlideScope than with the Macintosh laryngoscope (see the table) for anesthesiologists (about 30% less) and trainees (>50% less). All differences in force between the GlideScope and Macintosh were statistically significant, except in the normal airway scenario for anesthesiologists. All GlideScope intubations were successful. Trainees using the Macintosh laryngoscope in the tongue edema model had a 5% intubation success rate. To achieve Cormack-Lehane grade I and II glottic views, operators applied about 50% less force with the GlideScope than with the Macintosh in all three scenarios. Forty-three difficult airway intubation failures (attempt lasting >120 seconds or inability to intubate) occurred with the Macintosh laryngoscope.

Comment: The message from this manikin study carries over well to clinical practice. Video laryngoscopes, such as the GlideScope, improve glottic views, involve less manipulation of the airway, and are becoming the go-to laryngoscope for anticipated difficult airway intubations.

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