Comparison Of Two Videolaryngoscopes In A Standardized Airway Manikin With Immobilized Cervical Spine By Experienced Anesthetists

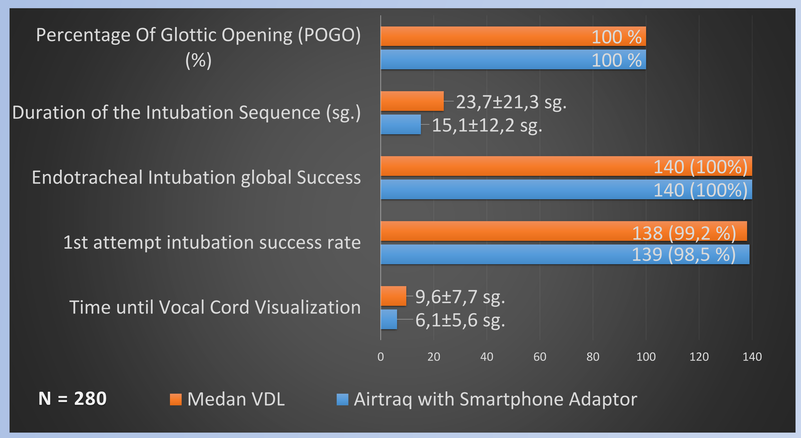
Martinez Hurtado, Eugenio1; Navarro Echevarria, Patricia2; Sanchez Merchante, Miriam2; Brunete Jimenez, Tamara2; Fernandez Sanchez, Clara Isabel2; Martinez Lopez , Adrian ; Morandeira Rivas , Clara2; Fernandez Tellez, Laura2; Rodriguez Esteve, Andrea Alejandra2

1.Hospital Universitario Infanta Leonor;2.Hospital Universitario Fundacion Alcorcon

Background: The aim of the present study was to evaluate whether two different videolaryngoscopes, Medan and Airtraq SP with Smartphone adaptor (Airtraq-SA), facilitate endotracheal intubation (*EI*) faster or more secure than conventional laryngoscopy in a SimMan Essential manikin (1) with immobilized cervical spine.

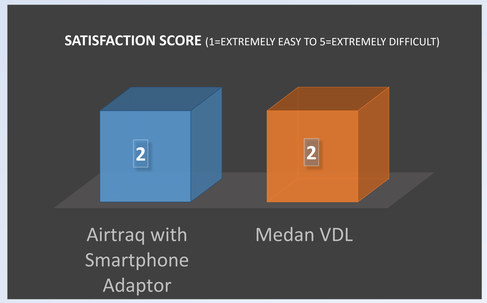
Methods: 14 experienced anaesthesiologists consultants and residents, with >20 EI in both VL (2) and routinely involved in OR and ER airway management, participated. A standard airway manikin with cervical spine immobilization by means an AMBU Mini Perfit Ace Cervical Collar. Each participant took turns performing a total of 20 randomized EI (N=280) using Medan or Airtraq-SA in a emergency airway with immobilized cervical spine in the supine position scenario.

Primary measured outcome was time until vocal cord visualization when using Medan and Airtraq SP with Smartphone adaptor. We also compared percentage of glottic opening (*POGO*) score, time taken to intubate, number of attempts for successful intubation and optimizing maneuvers required, and operators satisfaction ranking the ease of intubation for each scenario and device on a visual analog scale (1-very easy to 5-major difficulty).



Results: primary study end point, time to glottic view, was achieved fastest when using Airtraq-SA (6.1±5.6 vs. Medan 9.6±7.7).

Secondary outcomes POGO (97% vs. 92%), time taken to intubate (15,1±12.2 vs. 23.7±21.3), and 1st attempt intubation success rate (99,2% vs. 98.5%). Operator's satisfaction ranking was similar (2 vs. 2). Overall success rates were 100% with both devices, Medan and Airtraq-SA.



Conclusions: when used by experienced anaesthesiologists, Medan and Airtraq-SA videolaryngoscopes facilitate EI in similar times and secure way than other studies (3).

References

1. Hesselfeldt R et al. Evaluation of the airway of the SimMan full-scale patient simulator. Acta Anaesthesiologica Scandinavica 2005;49:1339–45.
2. S. Falcetta et al. The Bonfils fiberscope: a clinical evaluation of its learning curve and efficacy in difficult airway management. Minerva Anestesiologica,vol.78,no.2,pp.176–184,2012.
3. Suppan L et al. Alternative intubation techniques vs Macintosh laryngoscopy in patients with cervical spine immobilization.Br J Anaesth. 2015Jun30,pii:aev205

Conclussions

1. When used by experienced anaesthesiologists, Medan and Airtraq-SA videolaryngoscopes facilitate EI in similar times and secure way than other studies.
2. Cervical spine has always to be initially protected immobilizing it until any injury is discarded to prevent spinal cord damaged.
3. Clinical research in polytrauma patients is fraught with ethical problems. Nevertheless, manikin's has several limitations.
4. Our data was gathered in a manikin model, and further studies in real trauma patients are desirable to verify our findings.