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Evaluating supraglottic airway laryngopharyngeal tube as a practical device for blind endotracheal intubation by non-experienced personnel in dummies☆

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ABSTRACT

Introduction: One of the key objectives in the pre-hospital environment is to control and secure the airway. Supraglottic airway laryngopharyngeal tube (SALT) is a basic device designed to ventilate and guide the blind introduction of the endotracheal tube. It has not yet been approved in our environment.
Objective: To determine the blind intubation success rate of non-trained personnel.
Results: A descriptive trial with 90 participants in a simulated environment with dummies. In 96.7% of the cases, the intubation procedure with the device was perceived as easy. In all, 90% had a successful intubation in the first attempt in 16 s, which is a shorter time period as compared to intubation with other devices.
Conclusion: SALT could be an effective airway management device for non-trained individuals.

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Evaluación del tubo laringofaríngeo supraglótico como un dispositivo útil para intubación endotraqueal a ciegas, en personal no experimentado, utilizando maniquíes

Palabras clave:
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RESUMEN

Introducción: En el ambiente prehospitalario, un objetivo fundamental es el control y aseguramiento de la vía aérea. El tubo laringofaríngeo supraglótico (SALT, por sus siglas en inglés) fue diseñado como dispositivo básico para ventilación y como introductor de TET para intubación a ciegas, aún no aprobado en nuestro medio.
Objetivo: Determinar la tasa de éxito de intubación a ciegas en personal no entrenado.
Resultados: Estudio descriptivo, con 90 participantes en medio ambiente simulado con maniquíes. Se observó que el grado de dificultad percibida al intubar con el dispositivo fue fácil en el 96,7%. El 90% intubaron de manera exitosa en el primer intento, con un tiempo de intubación en el primer intento de 16 s, corto respecto a otros dispositivos.
Conclusión: El SALT es un dispositivo que podría ser una opción efectiva para asumir la vía aérea en personal no entrenado.

Introduction

In Colombia, pre-hospital and disaster medicine is an emerging and growing area that has evolved toward adequate patient care outside the hospital environment. This is where emergency care is initially administered that may impact the risk of death or of undesirable sequelae if the patient survives. One of the cornerstones of pre-hospital care is airway control. Direct laryngoscopy (DL) Orotracheal intubation (OTI) is the gold standard for airway management (AW).[1]

Supraglottic devices are the second best treatment choice when emergency OTI is not available; consequently, the best options for a pre-hospital situation shall be carefully studied.

The SALT (Supraglottic Airway Laryngopharyngeal Tube[2] (see Fig. 1) is a new supraglottic device that enables the insertion of a 6.5- to 9.0-mm endotracheal tube (ETT). The device may be left in place for 6 h or may be removed upon verification of a correct intubation. On May 2005 the FDA approved the device for human use as a Class I device, but in our country it has not yet been approved.

Considering that the anatomic characteristics of the airway dimensions differ depending on the geographical population, the intended research is aimed initially at determining blind intubation success rate by unskilled personnel in a simulated environment.

Fig. 1 – SALT Device (Supraglottic Laryngopharyngeal Tube). *Source:* Taken at the simulation room by the research team. University of Antioquia.

Methodology

This was a descriptive simulation trial using dummies, at the Universidad de Antioquia simulation center. The participants were medical students, 18 years old and above, first aid personnel from the army who attended training courses and pre-hospital care (PHC) at the simulation center. The participants with previous advanced airway management training and instructors of cardiopulmonary resuscitation were excluded. The sample size was 90 participants and the dummies used were: Laerdal: Resusci-Anne. A standard lubricated 7.5 mm was used.

The participants received a 20-min training on the proper use of the device at the simulation room. Then each participant intubated the dummy. The time elapsed from the moment the device was delivered and the ETT insertion at every attempt was recorded in seconds. The stop watch began at zero seconds and the final time was the ETT insertion time.

Following each attempt to position the SALT and potential intubation, the researcher checked for proper intubation using direct laryngoscopy. In case of failed intubation defined as the malpositioning of ETT in the airway (trachea), the device was given back to the participant for a second attempt. Each participant was allowed a maximum of three attempts.

The ethics committee approved the research and each participant had to sign an informed consent prior to admission to the trial.

The variables measured included ETT insertion, successful intubation in three attempts, level of difficulty perceived for the intubation using a Linkert-type scale and the number of attempts required for a successful intubation. The SPSS