

A Prospective Study Comparing Standard Laryngoscopy to the TrachView™ Fiberoptic System for Tracheal Visualization

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Background

The TrachView™ Videoscope (TV) consists of a narrow high-resolution fiberoptic cable whose tip is positioned at the distal end of the endotracheal tube (ET). The image is displayed on a small portable bedside monitor. In this way, the TV does not alter the standard method of tracheal intubation but adds a second view of the vocal cords. The TV has never been evaluated in a vigorous clinical study. We hypothesize that the TV will improve visualization of the vocal cords.

Objective

To determine the ease of use and improvement in tracheal visualization as measured by the percent of glottic opening (POGO) score using the TV in the operating room setting.



Trachview™ Videoscope System

Methods

Patients who required intubation for elective surgery were consented. All providers participating in the study received a 20-minute training session using the TV. Direct laryngoscopy (DL) was performed and the POGO score was assessed. The ET was then inserted into the posterior pharynx with the TV in place. The POGO score was reassessed using the TV monitor. In addition to the POGO score, the provider assessed the “ease of use” and the degree to which the TV improved tracheal visualization prior to intubation.

Statistical Methods

Descriptive statistical methods were used to summarize the data. One-way analysis of variance was used to compare the mean difference scores for the three groups in terms of airway difficulty.

Results

Over an 8-week period, 122 patients were enrolled for the study. The providers included 29 anesthesia residents, 34 nurse anesthetists, and 59 anesthesia faculty. Overall, the mean POGO score for DL was 74% and the mean POGO score for TV was 95%. The mean difference in POGO scores (TV – DL) were as follows: 24% for residents, 19.9% for nurse anesthetists, and 20% for faculty. In the 10 cases where the provider evaluated the airway to be “difficult” prior to intubation, the mean difference in POGO scores was 36% vs 17% in the 73 cases where the provider evaluated the airway to be “easy” ($p=0.12$). Regarding ease of use of the TV, 75% of providers noted that the TV was “easy” to use, 22% moderately easy, and 3% “difficult”. In regards to improvement in intubation attempt, 18.9% reported improvement, 76.2% reported no difference, and 3.3% reported that the TV made it more difficult.

Limitations

The primary limitation is the small sample size reducing number of patients with a difficult airway,

Conclusions

The TV is relatively easy to use and can improve the POGO score and subjective evaluation of tracheal visualization prior to intubation, particularly in patients with a perceived “difficult” airway.

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