Performance of the King Vision Video Laryngoscope for Tracheal Intubation of Pediatric Patients

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BACKGROUND

Difficult pediatric intubations in the operating room are fairly uncommon, ranging from 0.25% - 3% of cases.1 In contrast, emergency pediatric intubation in inpatient units have a far higher incidence of difficult intubation (10.6%) and are associated with significant morbidity.2 A variety of video laryngoscopes adopted into clinical practice have been shown to improve visualization of the glottis in both normal3,4,5 and difficult pediatric airways.6 The King Vision video laryngoscope (KVVL) consists of a hand-held, reusable, image wand inserted into a disposable blade (size 1, 2 or 3). Published reports have documented the value of the King Vision video laryngoscope primary in manikins and cadaver.7,8 We present preliminary data demonstrating use of the King Vision video laryngoscope in the pediatric population.

OBJECTIVE

The purpose of this study is to evaluate the performance characteristics of the King Vision video laryngoscope in pediatric patients.

STUDY DESIGN

This is a prospective, non-randomized study enrolling 100 patients between ages of 1 month and 10 years with a normal preoperative airway examination scheduled for a surgical procedure requiring tracheal intubation. Patients with an airway examination or previous anesthetic history suggesting difficult mask ventilation were excluded.

DATA METHOD

Following induction of anesthesia, tracheal intubation was performed with King Vision video laryngoscopy by one of the investigators using the channeled or standard blade. Patient specific data recorded included age, gender and weight. Data specific to the device and tracheal intubation included ETT size, type of blade (standard vs channeled), blade tip position, Cormack-Lehane score, number of attempts, insertion time and subjective scoring of tracheal tube delivery.

RESULTS

The study is ongoing with 46 out of 100 patients enrolled. Preliminary data shows successful intubation in 97.8% of cases. The mean patient age was 3.5 years (range, 1 month to 10 years). The mean time to intubation (removal of mask to first upstroke of CO2) was 72 +/- 63.5 seconds. Average score of ease of use was 1.6 (1=very easy, 5=impossible). Data from 46 patients was analyzed:

Data Collected:

- Age (yr)
- ASA status
- Gender
- Weight (kg)
- Height (cm)
- Channel vs no-channel blade
- Blade tip position
- Ease of intubation (very easy, easy, neutral, difficult, impossible)
- Number of attempts
- Insertion time (seconds)
- Time to intubation (sec)
- Rate successful intubations

Values are means +/- standard deviations

Ease of Intubation: 1=very easy, 2=easy, 3=neutral, 4=difficult, 5=impossible

The King Vision video laryngoscope was able to intubate 97.8% of cases with average time of 72 sec +/- 64 sec.

REFERENCES

2. Bai W, Pediatric Anesthesia 2016; 26: 384-391
4. MacNair D, Pediatric Anesthesia 2009; 19: 577-580