Martin DP et al. *Int J Pediatr Otorhinolaryngol.* 2013;77(1):76-8.

Clinical evaluation of a novel LMA with a color-coded pressure gauge†

Use of a laryngeal mask with a built-in, color-coded pressure gauge allowed an accurate measurement of intracuff pressure in pediatric patients

Insertion of the laryngeal mask with a built-in, color-coded pressure gauge, using clinically acceptable methods, resulted in an intracuff pressure >60 cm H_2O in approximately one-third of patients

Objective

- To evaluate the accuracy of a cuff pressure indicator built into the inflation valve of a laryngeal mask in pediatric patients undergoing general anesthesia

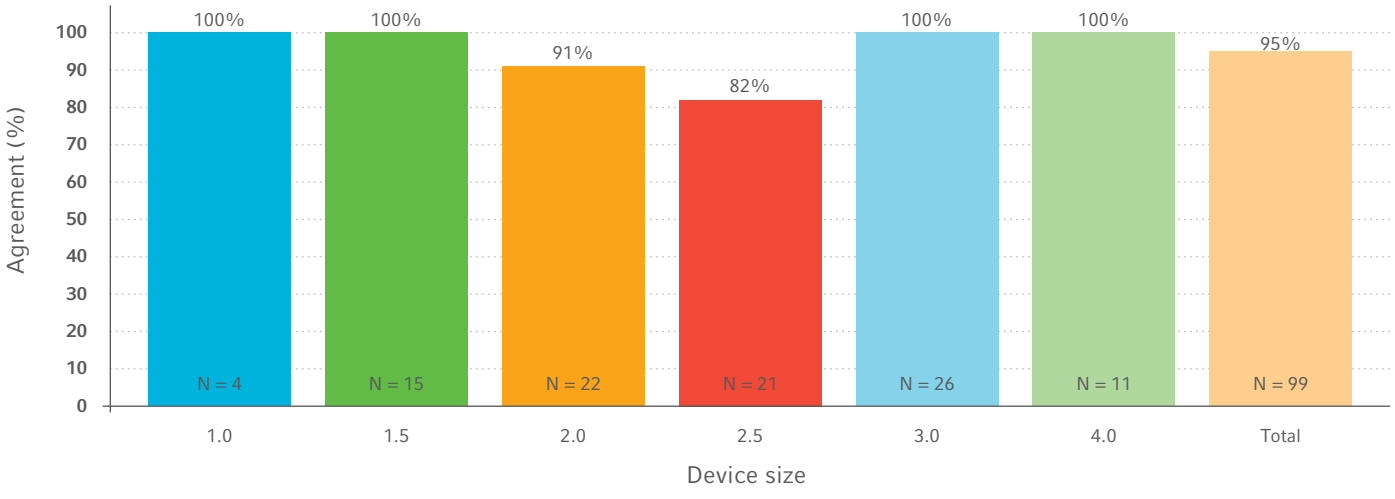
Methods

- This was a prospective, single-center study
- Airway management was achieved with a laryngeal mask, which has a built-in, color-coded pressure gauge designed to indicate cuff pressure
  - Yellow <40 cm H_2O
  - Green 40–60 cm H_2O
  - Red >60 cm H_2O
- The device was inserted as per standard practice at the study site, with the cuff partially inflated
- A syringe was used to add air to the cuff in order to achieve an adequate seal during positive pressure ventilation
  - The peak inflating pressure (peak ventilating pressure) was 20–25 cm H_2O
  - The built-in pressure gauge was not used to guide cuff inflation
- Endpoints of interest included
  - Cuff pressure according to a hand held manometer
  - Agreement in cuff pressure measured with the built-in pressure gauge and with a manometer

Results

- Overall, 71 boys and 29 girls aged from 3 months to 18 years were included in the study
  - One patient was subsequently excluded because of a malfunction in the pressure gauge and pilot balloon
- A size 1.0, 1.5, 2.0, 2.5, 3.0 and 4.0 device was used in 4, 15, 22, 21, 26 and 11 patients, respectively
- Following insertion of the device according to clinically acceptable techniques, intracuff pressure (as measured by a manometer) was >60 cm H_2O in 31 of 99 patients
  - This was despite air being added to the cuff in only 7 of these cases
- In 94 of 99 cases, the reading on the manometer was in agreement with that on the color-coded pressure gauge (Figure 1)

Figure 1. Percentage agreement in cuff pressure as measured using a built-in, color-coded pressure gauge and a manometer



- The reading on the color-coded pressure gauge was incorrect according to the reading on the manometer in five cases
  - In four of five instances, the reading on the manometer deviated from the reading on the color-coded pressure gauge by ≤4 cm H_2O

Conclusions

- Use of a laryngeal mask with a built-in, color-coded pressure gauge allowed for the accurate measurement of intracuff pressures in pediatric patients
- Insertion of the device using clinically acceptable techniques to ensure an adequate seal resulted in an intracuff pressure >60 cm H_2O in approximately one-third of patients

† The cuff pressure indicator used in the study cited here was Cuff Pilot™ Technology, although it was referred to using a different brand name.