**BACKGROUND**

Infantile hypertrophic pyloric stenosis (IHPS) is caused by marked hypertrophy and hyperplasia of the muscular layers of the pylorus. IHPS presents at age 3-12 weeks with non-bilious, projectile vomiting shortly after feeding. Surgical pyloromyotomy continues to be the treatment of choice for IHPS.

Induction of anesthesia for pyloromyotomy poses several challenging considerations, as these neonates have an increased aspiration risk as well as a faster rate of oxygen desaturation secondary to their physiology. In teaching institutions, desaturation may be even more frequent as inexperienced resident anesthesiologists have the first attempt at direct laryngoscopy to secure the airway. In contrast, video laryngoscopy allows for direct vision for the attending anesthesiologist to provide early advice and possibly intervene. We hypothesize that, compared to conventional direct laryngoscopy, C-MAC video laryngoscopy is associated with decreased incidence of oxygen desaturation.

**METHODS**

- This study was a prospective randomized controlled trial.
- Patients were assigned to either direct laryngoscopy or C-MAC video laryngoscopy.
- The study included all patients who required general anesthesia for pyloromyotomy procedure whose legal guardian provided consent.
- Patients with an abnormal or difficult airway, allergy to succinylcholine, or allergy to propofol were excluded.

**RESULTS**

- The first 33 patients of our study include 18 patients who were randomized to C-MAC video laryngoscopy and 15 patients to direct laryngoscopy.
- The rate of desaturation in the C-MAC video laryngoscopy group was 3/18 (17%) compared to 1/15 (7%) in the direct laryngoscopy group (p=0.61).
- In the C-MAC video laryngoscopy group, two intubation attempts were required in 3/18 (17%) and three attempts were needed in 2/18 (11%).
- With direct laryngoscopy, 1/15 (7%) required a second attempt.
- In the C-MAC video laryngoscopy group, 4/18 (22%) required staff intervention for intubation compared to 1/15 (7%) with direct laryngoscopy.

**DISCUSSION**

- Although there is no statistically significant difference, the preliminary data show an increased incidence of desaturation in the C-MAC laryngoscopy group which is contrary to our hypothesis.
- When C-MAC video laryngoscopy is used, attending anesthesiologists may be allowing trainee to continue intubation attempt for longer time because they have direct visualization of the attempt. This may be leading to increased incidence of desaturation in this group.
- Trainees may not be equally comfortable with both direct laryngoscopy and C-MAC video laryngoscopy, which will influence speed of intubation and whether staff intervention was required.

Our investigation was limited in several ways:
- Technical issues with C-MAC video laryngoscopy equipment (image quality, loss of power) affected intubation success in some cases.
- Distribution of trainee levels between the groups was not controlled.

**CONCLUSIONS**

- In the preliminary analysis of the first 33 patients in our study, we did not find a significant difference in the incidence of desaturations when using video laryngoscopy with the C-MAC compared to direct laryngoscopy.
- Further studies are necessary to distinguish how different levels of trainees perform with the different airway devices and the influence of trainee preference of intubation modality.

**REFERENCES**