

Correspondence

Comparing performance of ProSeal laryngeal mask airway and I-gel in anesthetized adult patients

To the Editor

With great interest, we read the recent article by Ekinçi et al¹ comparing the performance of ProSeal laryngeal mask airway (PLMA) and I-gel in anesthetized adult patients. They showed that insertion was easier, insertion time was shorter, success rate of nasogastric tube insertion was higher, and complications were fewer with the I-gel compared to the PLMA. However, we note other issues of this study making interpretation of their findings questionable.

First, insertion of the 2-supraglottic airway devices was carried out by an investigator. The authors did not state experience of this investigator on clinical use of the 2-supraglottic airway devices before the initiation of the study, and whether this investigator had the same proficiency with the uses of the 2 devices. Actually, experience and competence with any of the new airway devices are critical for their successful use. Thus, we cannot exclude the possibility that different experiences and proficiency levels of the investigator with the 2 devices tested in this study attributed to their findings. Here, we would like to echo the viewpoint of Behringer and Kristensen² that for the results of a comparative study to be valid, participants must be equally proficient with each tested device in order to avoid bias.

Second, the authors did not specify the insertion method of PLMA. Actually, there are several methods recommended for the PLMA insertion, such as classical digital insertion technique, introducer tool placement, laryngoscope aided insertion technique, stylet technique and gum elastic bougie-aided placement, and so forth. It has been shown that the insertion techniques can significantly change the ease and success rate of PLMA insertion, time required for effective airway, airway leakage pressure, success rate of nasogastric tube insertion, and incidence of complications.^{2,3} We believe that addressing this issue would further clarify the transparency of this study.

Third, in this study, the airway leakage pressure was measured by increasing peak inspiratory pressures until the leakage sound was heard. This may not be the standard method measuring the airway leakage pressure of supraglottic airway devices. It is generally recommended that the airway leakage pressure of

supraglottic airway device should be determined by setting the pop-off valve to limit peak airway pressure to 40 cm H₂O, and allowing airway pressure to increase at a fresh gas flow of 3 L/min until no further increase in airway pressure is observed. Moreover, when a stable airway pressure is reached, the locations of gas leak should also be determined as the drainage tube (bubbling of soap solution), mouth (audible), or stomach (epigastric auscultation).⁴

Finally, the rate of sore throat was significantly higher in the PLMA group than in the I-gel group. However, the authors did not indicate the time of evaluating postoperative sore throat. It is reported that in adult patients, incidence and severity of sore throat associated with the laryngeal mask airway change with time in the early postoperative period. Furthermore, the authors did not specify the postoperative analgesic protocol. When postoperative sore throat is used as a variable to evaluate the performance of the airway devices and is compared between different devices, standardization of postoperative analgesia should be a crucial component of study design. Also, the type and dose of analgesia, and the timing of its administration in relation to the assessment of postoperative sore throat should have been described in the methods.⁵ In the absence of comparison of a postoperative analgesic protocol, the secondary outcome findings and their subsequent conclusions should be interpreted with caution, as they may have been determined using incomplete methodology.

Jia-Qiang Zhang, Fan-Min Meng

*Department of Anesthesiology
Henan Provincial People's Hospital of Zhengzhou University,
Zhengzhou*

Fu-Shan Xue, Rui-Ping Li

*Department of Anesthesiology
Plastic Surgery Hospital
Chinese Academy of Medical Sciences and
Peking Union Medical College
Beijing, People's Republic of China*

Reply from the Author

We have read Zhang et al's comments on our publication¹ with great interest. We would like to thank them for their interest in our study, their recommendations, and the opportunity they have given us to describe and discuss certain details we refrained from including in the article, out of concern that by doing so, it would have excessively increased the article's length.

First of all, the practitioner in our study was a specialist anesthesiologist with 5 years conventional experience and sufficient knowledge on PLMA use. Although our clinic began using I-gel 6 months before the study, the practitioner applied it to approximately 30-35 patients for one month prior to its being used on the studied patients. We believe that this learning period was adequate. It has been shown that a first year anesthesiology assistant needs 18 working days to successfully insert 40 ProSeal LMAs (PLMAs).⁶ Nagata et al⁷ effectively determined the “successful PLMA insertion rate on first try” with anesthesiologists who are inexperienced on the subject. Pournafafian et al⁸ also demonstrated that the I-gel and LMA have similar successful insertion ratios.

Secondly, in our study, PLMA were inserted digitally. Das et al³ previously compared 3 PLMA insertion methods in child patients with rigid cervical collars. They performed comparisons between the method combining the stylet and inserter apparatus, a method using the inserter apparatus and the conventional digital insertion method. They determined that, while the stylet plus inserter apparatus combination method had the higher success ratio on the first try, there were no differences between the 3 methods by the third attempt. Since our study group consisted of patients whose difficulty of intubation could not be predicted beforehand, and since our I-gel insertions were performed digitally, we also preferred the digital method for insertion of PLMA.

Thirdly, just as there are studies where the method mentioned by the authors are used in the calculation of the airway leakage pressure, there are also studies using alternative measurement methods, and the method we described in our study.^{9,10} In our study, the pop-off valve pressure was kept standard, a 4 lt/min fresh gas flow was used, and leakage pressure was measured by listening to the leakage sound. There are studies monitoring postoperative sore throats for 6-24 hours.^{9,11} In our study, we applied 1 mcg/kg fentanyl at induction, and 15 mg/kg intravenous paracetamol, starting from the last 30th minute of the operation, as standard postoperative analgesia. We monitored the patients for sore throat on

the postoperative sixth hour; based on our observations, we determined that the PLMA group exhibited a higher ratio of sore throat.

Osman Ekinci

*Department of Anesthesiology and Intensive Care
Haydarpaşa Numune Research and Training Hospital
Istanbul, Turkey*

References

1. Ekinci O, Abitagaoglu S, Turan G, Sivrikaya Z, Bosna G, Özgultekin A. The comparison of ProSeal and I-gel laryngeal mask airways in anesthetized adult patients under controlled ventilation. *Saudi Med J* 2015; 36: 432-436.
2. Behringer EC, Kristensen MS. Evidence for benefit vs novelty in new intubation equipment. *Anaesthesia* 2011; 66 Suppl 2: 57-64.
3. Das B, Mitra S, Samanta A, Samal RK. A comparative study of three methods of ProSeal laryngeal mask airway insertion in children with simulated difficult laryngoscopy using a rigid neck collar. *Acta Anaesthesiol Taiwan* 2014; 52: 110-113.
4. Li CW, Xue FS, Xu YC, Liu Y, Mao P, Liu KP, et al. Cricoid pressure impedes insertion of, and ventilation through, the ProSeal laryngeal mask airway in anesthetized, paralyzed patients. *Anesth Analg* 2007; 104: 1195-1198.
5. Jaensson M, Olowsson LL, Nilsson U. Endotracheal tube size and sore throat following surgery: a randomized-controlled study. *Acta Anaesthesiol Scand* 2010; 54: 147-153.
6. Mohr S, Weigand MA, Hofer S, Martin E, Gries A, Walther A, et al. Developing the skill of laryngeal mask insertion: prospective single center study. *Anaesthesist* 2013; 62: 447-452.
7. Nagata T, Kishi Y, Tanigami H, Hiuge Y, Sonoda S, Ohashi Y, et al. Oral gastric tube-guided insertion of the ProSeal™ laryngeal mask is an easy and noninvasive method for less experienced users. *J Anesth* 2012; 26: 531-535.
8. Pournafafian A, Alimian M, Rokhtabnak F, Ghodrati M, Mojri M. Success rate of airway devices insertion: laryngeal mask airway versus supraglottic gel device. *Anesth Pain Med* 2015; 5: e22068.
9. Chauhan G, Nayar P, Seth A, Gupta K, Panwar M, Agrawal N. Comparison of clinical performance of the I-gel with LMA proSeal. *J Anaesthesiol Clin Pharmacol* 2013; 29: 56-60.
10. Zhang X, Chen M, Li Q. The ProSeal Laryngeal Mask Airway is more effective than the LMA-Classic in pediatric anesthesia: a meta-analysis. *J Clin Anesth* 2012; 24: 639-646.
11. Mokhtar AM, Choy CY. Postoperative sore throat in children: comparison between proSeal LMA and classic LMA. *Middle East J Anaesthesiol* 2013; 22: 65-70.