International Journal of Medical Anesthesiology

E-ISSN: 2664-3774
P-ISSN: 2664-3766
www.anesthesiologypaper.com
IJMA 2018; 1(2): 10-12
Received: 10-05-2018
Accepted: 13-06-2018

Dr. Sadashiv Anand
Department of Anesthesia, Dayanand Ayurvedic Medical College and Hospital, Bihar, India

Corresponding Author:
Dr. Sadashiv Anand
Department of Anesthesia, Dayanand Ayurvedic Medical College and Hospital, Bihar, India

To compare Proseal laryngeal mask airway & supreme laryngeal mask airway as ventilatory devices

Dr. Sadashiv Anand

DOI: https://doi.org/10.33545/26643766.2018.v1.i2a.9

Abstract
Background: The present study was conducted to compare Proseal laryngeal mask airway (PLMA) and Supreme laryngeal mask airway (SLMA) as ventilatory devices during general anaesthesia.
Materials and methods: The present study was conducted on 30 patients of both genders undergoing elective surgery. Patients were divided into 2 groups of 15 each. Group I patients were given Proseal laryngeal mask airway and group II were given supreme laryngeal mask airway. In both groups, insertion times, number of insertion attempts, Haemodynamic response to insertion, ease of insertion of airway device and gastric tube, oropharyngeal leak pressure (OLP) and pharyngolaryngeal morbidity were assessed.
Results: In group I (cm H_2O), OLP1 was 34.2 and in group II was 28.4, OLP2 in group I was 34.2 and in group II was 28.5, OLP3 in group I was 34.3 and in group II was 28.6. The difference was significant ($P< 0.05$). Number of attempt in group I and II was 1, insertion time was 24.5 seconds in group I and 15.6 seconds in group II, 6 in group I and 12 in group II required jaw thrust. There was ease of insertion of Ryle's tube in both groups. Insertion time NG tube in group I was 8.2 and in group II was 10.4. The difference was significant ($P< 0.05$).
Conclusion: There were better results with Proseal laryngeal mask airway as compared to supreme laryngeal mask airway.

Keywords: Oropharyngeal leak pressure, proseal laryngeal mask, supreme laryngeal mask airway

Introduction
The endotracheal tube remains the gold standard airway device. However, laryngoscopy and endotracheal intubation may be associated with considerable morbidities ranging from minor side effects such as sore throat to more serious complications such as autonomic stimulation and difficult or failed intubation [1].
Both classic™ laryngeal mask airway (cLMA) and Proseal™ laryngeal mask airway (PLMA) have been successfully used for securing a patent airway; however, due to high‑cuff pressure-related complications, they can cause mucosal damage, sore throat, hoarseness and nerve palsies [2]. Proseal LMA is used in day care short surgical procedures without the use of the neuromuscular blockade, in order to reduce the postoperative hospital stay and the postoperative complaints of sore throat. Proseal laryngeal mask airway (PLMA) is a reusable SGA with a modified cuff made of silicone and a double tube arrangement. The Supreme laryngeal mask airway (SLMA) is an advanced form of the PLMA made of polyvinylchloride (PVC) [3].
Supraglottic airways (SGAs) offer distinct advantages including an increased speed and ease of placement, maintenance of haemodynamic stability during induction and emergence, better oxygenation during emergence and lesser postoperative sore throat and voice alteration [4]. The present study was conducted to compare Proseal laryngeal mask airway (PLMA) and Supreme laryngeal mask airway (SLMA) as ventilatory devices during general anaesthesia.

Materials and Methods
The present study was conducted in the department of Anesthesiology. It comprised of 30 patients of both genders undergoing elective surgery. The study protocol was approved from institutional ethical committee. Written consent was obtained prior to the study.
Data such as name, age, gender etc. was recorded. Patients were divided into 2 groups of 15 each. Group I patients were given Proseal laryngeal mask airway and group II were given supreme laryngeal mask airway. All the devices were checked, prepared, inserted and

secured according to the corresponding manufacturer's recommendations. In both groups, insertion times, number of insertion attempts, haemodynamic response to insertion, ease of insertion of airway device and gastric tube, oropharyngeal leak pressure (OLP) and pharyngolaryngeal morbidity were assessed. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

Results

Table 1: Distribution of patients

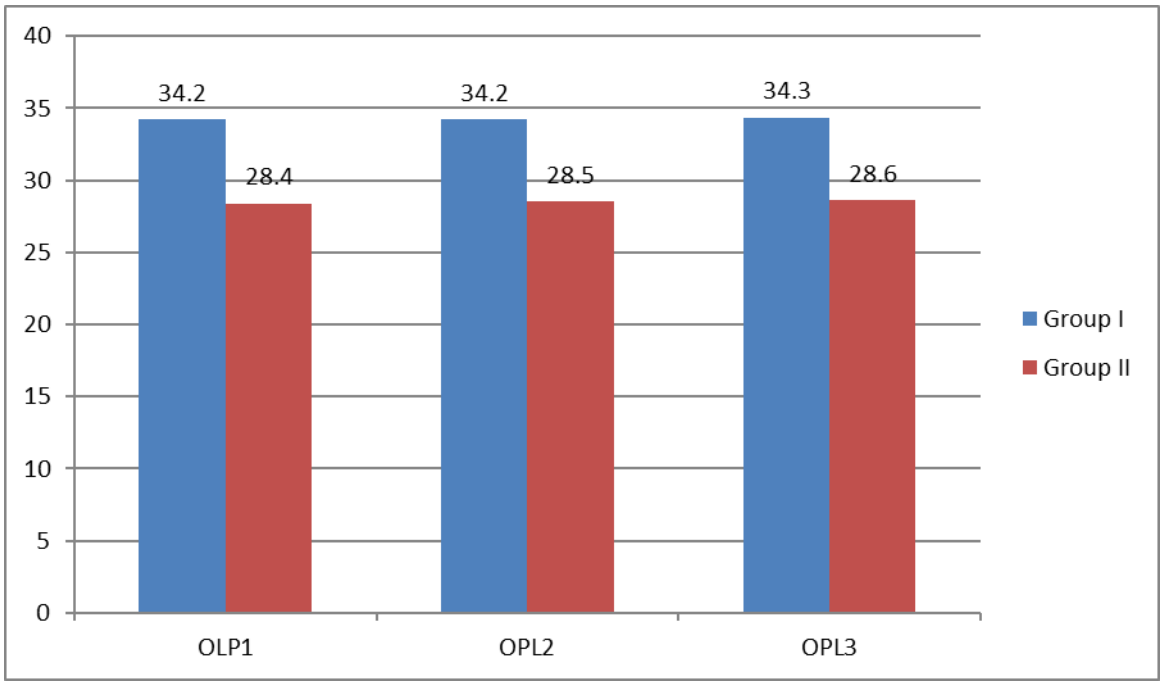
Total- 30		
Groups	**Group I (PLMA)**	**Group II (SLMA)**
Number	60	60

Table 1 shows that group I patients were given Proseal laryngeal mask airway and group II were given supreme laryngeal mask airway.

Table 2: Comparison of Oropharyngeal leak pressure in both groups

Oropharyngeal leak pressure (cm H_2O)	Group I	Group II	P value
OLP1	34.2	28.4	0.01
OPL2	34.2	28.5	0.02
OPL3	34.3	28.6	0.01

Table 2 shows that in group I (cm H_2O), OLP1 was 34.2 and in group II was 28.4, OLP2 in group I was 34.2 and in group II was 28.5, OLP3 in group I was 34.3 and in group II was 28.6. The difference was significant ($P < 0.05$).



Graph I: Oropharyngeal leak pressure in both groups

Table 3: Comparison of insertion

Parameters	Group I	Group II	P value
Number of attempt	1	1	1
Insertion time (Sec)	24.5	15.6	0.01
Use of jaw thrust	6	12	0.04
Ease of insertion of Ryle's tube	Easy (15)	Easy (15)	1
Insertion time NG tube	8.2	10.4	0.01

Table 3 shows that number of attempt in group I and II was 1, insertion time was 24.5 seconds in group I and 15.6 seconds in group II, 6 in group I and 12 in group II required jaw thrust. There was ease of insertion of Ryle's tube in both groups. Insertion time NG tube in group I was 8.2 and in group II was 10.4. The difference was significant ($P < 0.05$).

Discussion

The Laryngeal Mask Airway (LMA) is a supraglottic airway device (SAD) designed to maintain a patent airway, which sits outside of and creates a seal around the larynx. It is relatively non-invasive as compared to endotracheal intubation and in scenarios where endotracheal intubation is not mandatory, LMA has emerged as a formidable choice over endotracheal intubation [5] Ease of insertion is defined as no resistance to the insertion of device in the pharynx in single attempt. LMA-Proseal is a complex device requiring an introducer for insertion. Brimacombe *et al.* [6] presumed that the difficulty in inserting the LMA-Proseal was caused by larger cuff impeding digital intra-oral positioning and propulsion into the pharynx, the lack of backplate making cuff more likely to fold over at the back of the mouth. The present study was conducted to compare Proseal laryngeal mask airway (PLMA) and Supreme laryngeal mask airway (SLMA) as ventilatory devices during general anaesthesia.

In present study, group I patients were given Proseal laryngeal mask airway and group II were given supreme laryngeal mask airway. Jadhav *et al.* [7] compared the efficacy of the I-gel airway with the Proseal laryngeal mask airway (p-LMA) in children undergoing elective surgery under general anesthesia without use of muscle relaxants. Eighty children, one to twelve years of age posted for elective surgery under general anesthesia were selected and randomly divided into two groups: the p-LMA group (group A, n=40) and the I-gel airway group (group B, n=40). The Oropharyngeal seal pressure in group B was significantly

higher than group A (mean± SD- 26.23±2.3 vs. 21.3±1.75 cm of H20; $P<0.01$). There were no significant differences with regard to ease of insertion, time for insertion, hemodynamic changes, or adverse effects.

In present study in group I (cm H_2O), OLP1 was 34.2 and in group II was 28.4, OLP2 in group I was 34.2 and in group II was 28.5, OLP3 in group I was 34.3 and in group II was 28.6. The difference was significant ($P< 0.05$). The number of attempt in group I and II was 1, insertion time was 24.5 seconds in group I and 15.6 seconds in group II, 6 in group I and 12 in group II required jaw thrust. There was ease of insertion of Ryle's tube in both groups. Insertion time NG tube in group I was 8.2 and in group II was 10.4.

Lu *et al.* [8] found comparable insertion times with both the devices. This might be attributable to different techniques of insertion of PLMA™. They used digital technique. Singh *et al.* [9] conducted a prospective, randomized trial to compare I-Gel with LMA Proseal in anesthetized spontaneously breathing patients. Sixty patients undergoing short surgical procedures were randomly assigned to I-gel (Group I) or LMA- Proseal (Group P). Anesthesia was induced with standard doses of propofol and the supraglottic airway device was inserted. There were no significant differences in demographic and hemodynamic data. I-gel was significantly easier to insert than LMA-Proseal. The mean time for insertion was more with Group P (41 + 09.41 secs) than with Group I (29.53 + 08.23 secs). Although the airway sealing pressure was significantly higher with Group P (25.73 + 02.21 cm of H_2O), the airway sealing pressure of Group I (20.07 + 02.94 cm of H_2O) was very well within normal limit. The success rate of first attempt insertion was more with group I. There was no evidence of airway trauma, regurgitation and aspiration. Sore throat was significantly more evident in group P.

Conclusion

There were better results with Proseal laryngeal mask airway as compared to supreme laryngeal mask airway.

References

1. Janakiraman C, Chethan DB, Wilkes AR, Stacey MR, Goodwin N. A randomised crossover trial comparing the I-gel supraglottic airway and classic laryngeal mask airway. Anaesthesia 2009; 64:674-8.
2. Verghese C, Ramaswamy B. LMA-Supreme-A new single‐use LMA with gastric access: A report on its clinical efficacy. Br J Anaesth. 2008; 101:405-10.
3. Van Zundert TC, Brimacombe JR. Similar oropharyngeal leak pressures during anaesthesia with I‐gel, LMA‐Proseal and LMA‐Supreme Laryngeal Masks. Acta Anaesthesiol Belg. 2012; 63:35-41.
4. Richez B, Saltel L, Banchereau F, Torrielli R, Cros AM. A new single use supraglottic airway device with a noninflatable cuff and an esophageal vent: An observational study of the I‐gel. Anesth Analg. 2008; 106:1137-9.
5. Eschertzhuber S, Brimacombe J, Hohlrieder M, Keller C. The Laryngeal Mask Airway Supreme-A single use laryngeal mask airway with an oesophageal vent. A randomised, cross-over study with the Laryngeal Mask Airway Proseal in paralysed, anaesthetised patients. Anaesthesia. 2009; 64:79-83.
6. Bamgbade OA, Macnab WR, Khalaf WM. Evaluation of the I-gel airway in 300 patients. Eur J Anaesthesiol 2008; 25:865-6.
7. Jadhav PA, Dalvi NP, Tendolkar BA. I-gel versus laryngeal mask airway-Proseal: Comparison of two supraglottic airway devices in short surgical procedures. J Anaesthesiol Clin Pharmacol. 2015; 31:221-5.
8. Lu PP, Brimacombe J, Yang C, Shyr M. Proseal versus the Classic laryngeal mask airway for positive pressure ventilation during laparoscopic cholecystectomy. Br J Anaesth. 2002; 88:824-7.
9. Singh A, Bhalotra AR, Anand R. A comparative evaluation of Proseal laryngeal mask airway, I-gel and Supreme laryngeal mask airway in adult patients undergoing elective surgery: A randomised trial. Indian J Anaesth. 2018; 62:858-64.