Comparison of Effect of Sevoflurane Versus Propofol for Insertion of I-gel in adults

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Abstract
Objective: To evaluate the induction time, jaw relaxation time, I-gel insertion time, insertion success rate, haemodynamic parameters, I-gel insertion conditions as well as additional propofol requirements between sevoflurane and propofol group.
Methodology: The study was designed as a prospective comparative study and carried out in the Department of Anaesthesiology, Narayana Medical College, Nellore from January 2024 to July 2024 with approval from the institutional ethical review committee. A hundred adult patients (20 to 60 years) of American Society of Anaesthesiologists (ASA) physical status I or II who underwent elective surgery under general anaesthesia were included. Patients were randomly split into two groups (n=50 for each). Group S were given inhalational induction with 8% sevoflurane in 100% oxygen and Group P intravenous propofol (2 mg/kg). After adequate depth of anaesthesia, I-gel was inserted, and induction time, jaw relaxation time, insertion time, insertion success, insertion conditions, haemodynamic variables and additional propofol required were recorded. All the data were analysed using SPSS version 26 and p values < 0.05 were considered statistically significant.
Results: There were no differences ($p>0.05$) in baseline demographic characteristics between the two groups. Propofol produced significantly shorter induction time (37.72 ± 5.38 vs 42.98 ± 6.86 seconds; $p=0.0001$), jaw relaxation time (76.98 ± 11.25 vs 92.12 ± 12.87 seconds; $p<0.0001$), and I-gel insertion time (11.30 ± 2.93 vs 13.40 ± 4.73 seconds; $p=0.009$) compared with sevoflurane. Success on first attempt at I-gel insertion were high in both groups with no statistically significant difference ($p>0.05$). Increased heart rate and blood pressure after induction and I-Gel placement was significantly lower with sevoflurane ($p<0.05$). The use of additional propofol supplementation was more common in the sevoflurane group.
Conclusion: I-gel insertion was safe and effective with both propofol and sevoflurane. The induction time was faster and insertion characteristics were better with propofol, whereas sevoflurane had greater haemodynamic stability. The induction agent to be used should therefore depend on the clinical state of the patient and the anaesthetic goals.
Keywords: I-gel, Propofol, Sevoflurane, General anaesthesia, Supraglottic airway device, Airway management, Induction agents.
How to cite this article: Sahithya Sowdhamini T, Bharath S, Karthik Badarayan V. Comparison of Effect of Sevoflurane Versus Propofol for Insertion of I-gel in Adults. Int J Drug Deliv Technol. 2026;16(71s): 1133-1141. DOI: 10.25258/ijddt.16.71s.134

Introduction

Airway management is an integral part of work of anaesthetist and is a special key for provision of adequate oxygenation and ventilation during general anaesthetics. Despite the fact that endotracheal intubation still keeps its place as the one to go to the end of the road, supraglottic airway devices (SADs) have gained a major role due to its less invasive features, ease of insertion and reduced airway stimulation and haemodynamic disturbances. Because of its good safety profile and ease of use, their use in elective surgical procedures, emergency airway management and difficult airway situations has greatly increased (1-3).

When compared with conventional laryngo-mask airway the I-gel has proven to be a safe and effective second generation supraglottic airway device. The cuffless I-gel is a medical-grade thermoplastic elastomer (TEC) cuff-free device developed by Dr. Muhammad Aslam Nasir which anatomically fits the peri laryngeal structures without the need for cuff inflation. This unique design offers an efficient seal at the peristomal level, less compression of tissues, less postoperative airway complications, and allows for easy insertion. Additionally, adding a gastric drainage channel reduces risk of gastric insufflation, aspiration, and improves the safety of airways during management (2–5,7–9).

Proper placement of an I-gel requires a fair degree of anaesthetic depth and suppression of airway reflex. If the induction is inadequate, it can lead to cough, gag, patient movement, laryngospasm, and/or failure to insert leading to a breached airway security, and increased perioperative complications. So, the selection of induction agent becomes very important in determining the optimum induction

conditions, stable cardiovascular system during induction and reducing any untoward effect (10,11).

Propofol, with its rapid onset of action and good suppression of airways reflexes, is most widely used IV induction agent for supraglottic airways. Nevertheless, propofol is often accompanied by dose dependent hypotension, respiratory depression, pain at insertion and by transient apnoea. Thus, sevoflurane is one of the non-irritant volatile inhalational anaesthetic agents with good profile of fast induction and recovery, relatively stable haemodynamic and pleasant odour. These characteristics render sevoflurane an intriguing choice for inhalational induction, especially when it is desirable to maintain cardiovascular stability (6,10,11).

In the last 20 years, many investigators have investigated sevoflurane versus propofol in the placement of supraglottic airways. Both agents have been given an acceptable profile for the placement of airway devices; however, there are reported differences in the time of induction, the relaxation of the jaw, the success of insertion, the haemodynamic responses, the profile of recovery and the need for supplementation of anaesthetic (1,6,12-25). More recent studies have continued to assess the comparative effectiveness of the various agents to induce I-gel insertion, and there is still work to be done to be able to identify the best induction method to optimize the conditions of the procedure without excessive haemodynamic changes and perioperative complications (13–20).

There are a number of reports of supraglottic airway insertion with propofol and sevoflurane but there are inconsistencies due to the differences in population, technique used and outcomes measured. Thus, further comparative trials are justified to determine which is the most effective inducing technique to use for I-gel insertion in the adult population for elective surgery under general anaesthetic.

Hence, the current study was designed to evaluate inhalational induction with sevoflurane and intravenous induction with propofol for insertion of gastrostomy tube I-gel in adult patients under general anaesthesia for elective surgeries. This study was designed to assess and compare induction time, jaw relaxation, facility and success of I-gel insertion, haemodynamic response and extra dose of propofol needed to evaluate the optimal induction method.

Aim of the study

To compare the success of I-gel insertion with inhalational sevoflurane and intravenous propofol in adult patients under general anaesthetic for elective surgery.

Objective

To evaluate the induction time, jaw relaxation time, I-gel insertion time, insertion success rate, haemodynamic parameters, I-gel insertion conditions as well as additional propofol requirements between sevoflurane and propofol group.

Methodology

The study lasted from 2022 December to 2024 March and was conducted in the Department of Anaesthesiology of Narayana Medical college (NMCH) and Hospital in CHERNNARTI (Nellore) in India. The ethics approval was taken from Institutional Ethics Committee of Narayana Medical College (Ref. The IEC/NMC/24.09.2022_10 was carried out before starting the study. All participants gave written informed consent before inclusion in the study.

One hundred adult (20–60 years) male and female patients with American Society of Anesthesiologists (ASA) physical status I or II scheduled for elective surgical procedures under general anaesthesia, who required insertion of I-gel were included in the study. Patients were consecutively recruited, and randomly assigned into two equal groups (n = 50).

- Group S: Inhalational induction was performed by using 6% sevoflurane.
- Group P: Patients were induced with intravenous (IV) propofol (2.5 mg/kg).

Inclusion Criteria

Adult patients (ASA physical status I or II) aged 20-60 years and scheduled for elective surgical procedures under general anaesthesia in whom I-gel insertion was required were included in the study. Patients who had Mallampati class I or II and a predicted normal airway were only included in the study.

Exclusion Criteria

Patients were excluded if they had any of the following:

- Refusal to participate.
- Elderly (less than 20 years old or more than 60 years old).
- ASA grade 3-4.
- Mallampati grade III/IV.
- Severe systemic comorbidities.
- Changes in the face or mouth.
- Limited mouth movements, burns to mouth, or burns to neck.
- Body mass index (BMI) >35 kg/m².
- Thyromental distance <6 cm.
- Upper or lower airway obstruction.
- History of known hypersensitivity/allergy to either of the study medications.

Preoperative Assessment

A thorough pre-op assessment was performed in the day prior to surgery for all eligible patients (a medical history, physical exam, airway exam, and routine lab investigations). Patients were instructed to fast for at least a period of 6hr with no effect on post procedure parameters. The night before surgery, the patients received oral alprazolam 0.25 mg. All patients were given intravenous pantoprazole 40 mg at 6:00 AM on the morning of surgery, during which the patients were allowed to drink 200 mL of water.

Anaesthetic Protocol

Standard monitoring was set up on arrival in the operating theatre, and comprised of electrocardiography, non-invasive blood pressure, pulse oximetry and capnography. All haemodynamic parameters were noted prior to induction. An 18 gauge IV was placed and ringers was started based on patient's weight.

Standard premedication was given to all patients which included:

- Glycopyrrolate 0.2 mg intravenously
- Midazolam 0.05 mg/kg intravenously
- Fentanyl 2 μg/kg intravenously

Premedications were given 5 minutes prior to induction. Afterwards, patients were preoxygenated with 100% oxygen at 8L/min through face mask for 5 minutes. Based on a manufacturer's suggestions, the size of I-gel was chosen depending on the body weight of the selected patient.

Induction Technique

Anaesthetist responsible for group P (Propofol Group).

In Group P, patients were given intravenous propofol 2.5 mg/kg with 50 mg every 10 s until being unresponsive to verbal stimuli. Jaw relaxation was then studied with the help of Jaw Thrust Maneuvre (JTM). If the jaw relaxation was sub-optimal more boluses of propofol (0.5 mg/kg) were given and once adequate jaw relaxation was achieved, I-Gel insertion was attempted.

A group of patients that will be given the anaesthetic sevoflurane.

The patients in Group S were induced by administering the 6th vital capacity sevoflurane using the inhalational induction method. They were told to take in a large breath following a complete exhalation to residual volume and the face mask fastened to a set circuit of anaesthetic apparatus was tightly tied in position. The patients were instructed to take a full VC breath and hold it for as long as possible and then to resume normal breathing. The jaw relaxation was periodically evaluated. In case of inadequate relaxation, spontaneous venting with 6% sevoflurane in oxygen was continued until satisfactory jaw relaxation was attained before trying the insertion of I-gel.

When patients who belonged to the sevoflurane group had cough, gag and/or laryngospasm, intravenous administration of propofol was given for suppression of airway reflex to ensure I-gel insertion.

I-gel Insertion

All the I-gel insertions were accomplished by an experienced anaesthesiologist who had performed more than 3 years of I-gels with expertise, and was blinded to the induction technique. The anaesthesiologist was not present at the induction side and only went into the OT once the patient had lost the eyelash reflex.

The correct positioning of the I-gel was verified by bilateral auscultation and continuous capnography. Three insertion attempts maximum (this includes the initial insert along with the two further insert attempts). Successful insertion was attempted up to three times and the patients whose insertion could not be succeeded were excluded.

Bag mask ventilation was used to provide 100% oxygen during periods of apnoea. P(p)V was started only when the SaO_2 left 95%.

Outcome Measures

The main outcome measures were:

- Induction time: Time from start of the induction agent to loss of verbal response; loss of the eyelash reflex will be used as endpoint of induction.
- Jaw relaxation time: time it took to achieve adequate jaw relaxation after starting induction.
- Time taken to insert the i-gel: time elapsed between reaching an adequate jaw relaxation and successful insertion of the i-gel (from adequate jaw relaxation to i-gel insertion).
- First attempt success rate (FASR): first successful attempt of inserting the I-gel.
- Supplemental Propofol Induction – Additional Propofol need for induction.

Evaluation of I-gel Insertion Conditions

A validated three-point scoring system of six variables was used to assess insertion conditions:

- Jaw relaxation

- Ease of insertion
- Patient movement
- Coughing
- Gagging
- Laryngospasm

Each variable was assigned a scores of 3 (optimal), 2 (acceptable) or 1 (poor). The overall score lay between 6 and 18 points, and were interpreted as follows

- Excellent: 18
- Satisfactory: 16–17
- Poor: <16

Haemodynamic Assessment

The following blood pressure measurements were taken: Heart rate, systolic blood pressure, diastolic blood pressure and mean arterial pressure; at the following time points:

- Baseline
- Immediately after induction
- To be performed right after I-gel insertion
- 3 minutes after insertion.
- Five minutes after insertion, the current test piece penetration was measured.
- In 10 minutes after insertion

Study measurements were made up to 10 minutes after successful I-gel insertion and the anaesthetic management was continued as per planned surgical procedure.

Statistical Analysis

Assessment of demographic data, pre-anaesthetic assessment, airway assessment results, intra-operative and post-operative variables were obtained through a semi-structured, pre-tested data collection form. The results were then inputted and processed in the computer program Microsoft Excel 2010 and the analysis was carried out using the Statistical Package for the Social Sciences (SPSS) version 21.0.

Categorical variables were represented as frequencies and percentages and the continuous variables were represented as mean ± SD [standard deviation]. Independent Student's t test was used for continuous variables; Chi square test was applied for categorical variables for differences between two groups. Repeated measures analysis of variance (ANOVA) was performed on all the repeated haemodynamic measurements. Statistically significant results were given a p value of <0.05.

Results

Table 1: Baseline Demographic Characteristics of the Study Participants

Variable	Group S (n=50)	Group P (n=50)	P-value
Gender, n (%)			1.000
Male	27 (54.0)	27 (54.0)	
Female	23 (46.0)	23 (46.0)	
Age (years)	36.06 ± 8.74	37.28 ± 8.25	0.475
Weight (kg)	61.62 ± 5.94	62.62 ± 6.53	0.425

The total number of patients in the study was 100, including 50 patients in each group. There were no significant baseline demographic differences between the 2 groups. There was no significant difference between the two groups in terms of the proportion of males and females (54.0% male and 46.0% female; p = 1.000). The mean age was 36.06 ± 8.74 years in Group S and 37.28 ± 8.25 years in Group P (p = 0.475). Similarly, the mean body weight was 61.62 ± 5.94 kg and 62.62 ± 6.53 kg in Groups S and P, respectively (p = 0.425). The two groups were similar at the beginning of the procedure (before anaesthetic induction).

Table 2: Comparison of Induction Characteristics Between the Two Groups

Variable	Group S (Mean ± SD)	Group P (Mean ± SD)	P-value
Induction time (sec)	42.98 ± 6.86	37.72 ± 5.38	0.0001
Jaw relaxation time (sec)	92.12 ± 12.87	76.98 ± 11.25	<0.0001
I-gel insertion time (sec)	13.40 ± 4.73	11.30 ± 2.93	0.009

The induction characteristics were quite different for the two groups. The mean induction time was significantly shorter in Group P (37.72 ± 5.38 seconds) than in Group S (42.98 ± 6.86 seconds) (p = 0.0001). Likewise, the mean jaw relaxation time was significantly lower in Group P (76.98 ± 11.25 seconds) compared with Group S (92.12 ± 12.87 seconds) (p < 0.0001). The mean I-gel insertion time was also significantly shorter in Group P (11.30 ± 2.93 seconds) than in Group S (13.40 ± 4.73 seconds) (p = 0.009).

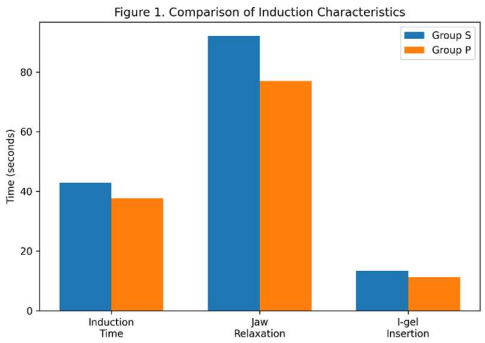

Figure 1: Comparison of Induction Characteristics

Table 3: Comparison of First-Attempt I-gel Insertion Success

Number of Attempts	Group S n (%)	Group P n (%)	P-value
First attempt	47 (94.0)	49 (98.0)	
Second attempt	3 (6.0)	1 (2.0)	0.307

For Group S, there were three patients who needed a second insertion attempt, and one patient of Group P needed a second attempt. There was however no significant difference in first attempt success between the two groups (p = 0.307).

Table 4: Additional Propofol Requirement

Additional Propofol	Group S n (%)	Group P n (%)	P-value
No	43 (86.0)	45 (90.0)	
Yes	7 (14.0)	5 (10.0)	0.401

In Group S, 7 patients (14.0%) needed additional propofol supplementation and in Group P, 5 patients (10.0%) required additional supplementation with propofol. Patients in both the groups did not need any additional propofol for I-gel insertion. There was no statistical difference between the groups in regard to the additional propofol consumption (p = 0.401).

Table 5: Comparison of I-gel Insertion Conditions

Variable	Group S n (%)	Group P n (%)	P-value
Jaw relaxation (Full)	47 (94.0)	49 (98.0)	0.307
Easy insertion	46 (92.0)	49 (98.0)	0.169
No patient movement	44 (88.0)	46 (92.0)	0.036
No gagging	43 (86.0)	46 (92.0)	0.182
No coughing	50 (100)	50 (100)	NA
No laryngospasm	50 (100)	50 (100)	NA
Excellent overall insertion score	43 (86.0)	44 (88.0)	0.315

The overall conditions of i-gel insertion were satisfactory in both groups. Full jaw relaxation was obtained in 94.0% of the patients in group S and 98.0% of the patients in group P (p = 0.307). In Groups S and P, 92.0% and 98.0% of patients, respectively, had easy insertion (p = 0.169). Patients in both Group S and Group P showed no movement of their patients, and there was no statistically significant difference (p = 0.036). There was no coughing or laryngospasm in either group. Overall insertion conditions were excellent in 86.0% of the Group S and 88.0% of the Group P patients with no statistically significant difference (p = 0.315).

Table 6: Comparison of Heart Rate Between the Study Groups

Time	Group S (Mean ± SD)	Group P (Mean ± SD)	P-value
Baseline	90.08 ± 15.78	88.80 ± 9.58	0.625
Post induction	91.98 ± 9.65	87.64 ± 10.17	0.031
Immediately after I-gel insertion	92.50 ± 12.07	88.88 ± 13.76	0.165
3 min	92.40 ± 12.31	85.08 ± 11.17	0.002
5 min	93.28 ± 14.25	85.50 ± 13.09	0.005
10 min	93.98 ± 12.81	85.64 ± 12.84	0.002

There was no significant difference in the baseline HR (p = 0.625). Following induction, Group P demonstrated a significantly lower heart rate than Group S (87.64 ± 10.17 vs. 91.98 ± 9.65 beats/min; p = 0.031). However, this post-I-gel insertion heart rate difference was not statistically significant (p = 0.165), but at 3 minutes (p = 0.002), 5 minutes (p = 0.005) and 10 minutes (p = 0.002) after insertion, heart rate was significantly lower in Group P.

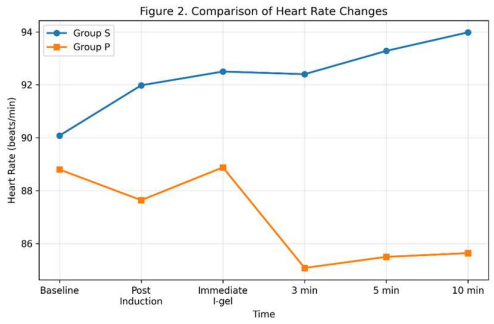

Figure 2. Comparison of heart rate changes between Group S and Group P at different time intervals during the study period.

Table 7: Comparison of Systolic Blood Pressure (SBP)

Time	Group S (Mean ± SD)	Group P (Mean ± SD)	P-value
Baseline	131.78 ± 12.26	125.30 ± 15.01	0.020
Post induction	125.12 ± 10.96	118.66 ± 12.99	0.008
Immediately after I-gel insertion	129.40 ± 13.90	121.96 ± 16.09	0.015
3 min	118.82 ± 15.55	110.66 ± 13.89	0.007
5 min	116.86 ± 16.47	107.96 ± 15.26	0.006
10 min	116.24 ± 16.55	107.32 ± 14.39	0.005

Throughout the study period mean systolic blood pressure was significantly lower in Group P than in Group S. Significant differences were observed at baseline (p = 0.020), post-induction (p = 0.008), immediately after I-gel insertion (p = 0.015), and at 3 minutes (p = 0.007), 5 minutes (p = 0.006), and 10 minutes (p = 0.005) after insertion.

Table 8: Comparison of Diastolic Blood Pressure (DBP)

Time	Group S (Mean ± SD)	Group P (Mean ± SD)	P-value
Baseline	86.36 ± 10.97	84.28 ± 11.10	0.348
Post induction	80.54 ± 9.49	79.62 ± 9.43	0.628
Immediately after I-gel insertion	84.08 ± 10.18	78.84 ± 12.37	0.023
3 min	76.00 ± 8.79	71.32 ± 9.22	0.011
5 min	74.14 ± 8.38	67.74 ± 9.67	0.001
10 min	74.76 ± 9.76	68.36 ± 10.07	0.002

There were no significant differences in DBP at baseline (p = 0.348) or after induction (p = 0.628). The group P had, however, significantly lower diastolic blood pressure immediately after I-gel insertion (p = 0.023) and at 3 minutes (p = 0.011) after insertion, 5 minutes (p = 0.001) after insertion and 10 minutes (p = 0.002) after insertion.

Table 9. Comparison of Mean Arterial Pressure (MAP)

Time	Group S (Mean ± SD)	Group P (Mean ± SD)	P-value
Baseline	100.66 ± 9.46	97.66 ± 11.44	0.156
Post induction	95.32 ± 9.42	92.56 ± 10.02	0.159
Immediately after I-gel insertion	98.56 ± 10.11	93.18 ± 13.31	0.025
3 min	90.24 ± 10.82	84.40 ± 10.50	0.007
5 min	88.34 ± 10.81	81.22 ± 11.10	0.002
10 min	88.58 ± 11.61	81.32 ± 11.14	0.002

Baseline mean arterial pressure was similar among the groups (p = 0.156), as was the pressure after induction of anaesthetic (p = 0.159). Group P had significantly lower mean arterial pressure than Group S immediately after insertion (p = 0.025) and at 3 minutes (p = 0.007), 5 minutes (p = 0.002) and 10 minutes (p = 0.002).

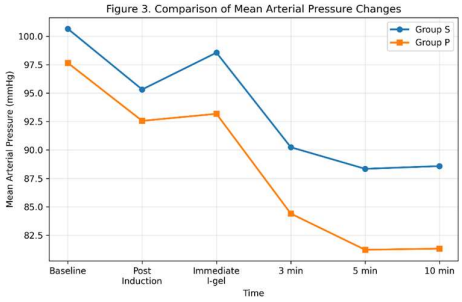

Figure 3. Mean Arterial Pressure Changes

Discussion

This study aimed to compare inhalational sevoflurane and intravenous propofol for making I-gel insertion easier for adult patients who were

undergoing elective surgery under general anaesthetic. Induction conditions and haemodynamic responses were satisfactory in both induction methods and significant differences were noted between the two techniques with respect to induction and haemodynamic responses. The results of the current study show that, despite its faster onset of anaesthetic effect, propofol allowed for more time to be spent under ideal insertion conditions, but sevoflurane provided better haemodynamic stability around induction.

No statistically significant difference was found between the baseline demographic characteristics of the two study groups including age, gender and body weight ($p>0.05$). Baseline variables are similar, thus helping the validity of comparison between the two induction techniques and reducing the confounding factors. Similar patient variables have been seen in previous studies that compared sevoflurane and propofol for insertion of the I-gel, suggesting that the two drugs have similar effects on patients and that the outcomes of their use reflect mainly their pharmacologic properties. (12–15)

A significant difference was found between the induction time for intravenous propofol versus inhalational sevoflurane, one of the most important findings of the present study. The patients receiving propofol reached the adequate depth of anaesthetic in mean 37.72 ± 5.38 s while those under sevoflurane anaesthetic needed 42.98 ± 6.86 s ($p=0.0001$). This is because propofol is very rapidly acting after IV injection which leads to early levels of unconsciousness and enables prompt airway management. In contrast, inhalational induction requires progressive alveolar uptake and equilibration with the central nervous system before the desired depth of anaesthesia is obtained, and induction with sevoflurane has a relatively longer period.

Prolonged induction time reported in previous studies using inhalational induction has been compared to intravenous induction, in which propofol was reported to have a shorter induction time in the present study. Previous research has shown that the induction of anaesthesia with propofol is quick compared with the induction of anaesthesia with sevoflurane, without compromising for I-gel or laryngeal mask airway insertion. (1,6,12–16,19–27)

Clinically, rapid induction has become an important technique because this permits a shorter time between induction agent administration and establishment of a secure airway. Early airway control can help to decrease patient discomfort, lower the potential for airway reflex activation, and help to optimize operating room efficiency. In the present study, sevoflurane took longer to be induced, but the difference was a few seconds only, which does not seem likely to be clinically relevant in elective surgery. Thus, other factors like haemodynamic stability, recovery profile and patient specific factors should also be taken into account for selecting the two agents.

The other significant result of the present study was that adequate jaw relaxation was secured in the patients induced with propofol significantly earlier than in those induced with sevoflurane. No clinically significant difference was found between the propofol and sevoflurane groups with regard to the mean jaw relaxation time (76.98 ± 11.25 seconds; 92.12 ± 12.87 seconds; $p<0.0001$). Complete relaxation of the jaw is a prerequisite to the proper insertion of supraglottic airway devices because incomplete jaw relaxation can make insertion more difficult, trigger reflexes which may result in airway trauma, or both.

The potent depressant activity on upper airway reflexes and pharyngeal muscle tone is responsible for the superior jaw relaxation effect of propofol, which is caused by the relaxation of upper airway muscles that occurs more readily with I-gel insertion than with other intubation methods, and earlier than the lower jaw relaxation. On the other hand, as alveolar concentration of sevoflurane rises progressively as the gas is inhaled, the airway reflexes are also depressed; this may account for the relative length of time to achieve adequate jaw relaxation.

In the current study, jaw relaxation occurred earlier and insertion conditions were more favourable compared to inhalational sevoflurane, as seen in previous comparisons. Finally, these investigations also showed that in both procedures, clinically acceptable conditions for successful insertion of an I-gel or laryngeal mask airway were eventually established. (1,6,12–16,19–27)

Likewise, the number of seconds needed for I-gel insertion was significantly less in the propofol group than the sevoflurane group. The mean insertion time after propofol induction was 11.30 ± 2.93 s, and after sevoflurane induction was 13.40 ± 4.73 s ($p=0.009$). The reduced insertion time when using propofol may be due to its rapid induction and earlier depth of jaw relaxation that allows the anaesthesiologist to quickly insert the airway device.

Similar results have been seen with induction using a number of clinical trials investigating the use of supraglottic airway insertion after propofol and sevoflurane induction, with propofol consistently showing better insertion characteristics and decreased insertion time. Nevertheless, the vast majority of investigators thought that both agents produced sufficient conditions for adequate placement of the airways when the appropriate level

of anaesthetic depth was attained. (1,6,12–16,19–27)

Conclusion

In both the intravenous propofol and inhalational sevoflurane groups, I-gel was inserted in satisfactory conditions in the present study. But, propofol had significantly lower induction time, earlier jaw relaxation and I-gel insertion time than did sevoflurane. Both groups had high first attempt insertion success and acceptable insertion conditions but insertion was quicker with propofol. Sevoflurane, on the other hand, resulted in significantly greater haemodynamic stability with smaller fluctuations in heart rate and blood pressure after induction and I-gel insertion. Additional propofol supplementation was higher in the sevoflurane group, possibly due to its relatively delayed time to achieve sufficient depth of anaesthetic. Given these results, the use of propofol could be justified for rapid induction and prompt control of the airway, while sevoflurane could be a reasonable alternative in patients where haemodynamic stability is of greater clinical importance. Thus, both induction methods work well and are safe for I-gel insertion and it should be individualized depending on the patient's clinical status and anaesthetic needs.

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