

A Study of I-Gel Supraglottic Device Insertion Using Thiopental

ABUBAKER, SALMAN ATHAR QURESHI*, FAIQA QURBAN**, MUHAMMAD AYUB KHAN***, HABIBAH AYUB****

ABSTRACT

Aim: To analyze insertion time of i-gel with thiopental 7mg/Kg IV dose.

Methods: 150 patients were included in study. Before induction patients were pre oxygenated with 100% oxygen for 3 minutes. Induction was done with thiopentone (i.e., 7mg/kg). After loss of consciousness and eyelash reflex, attempt was made to insert I- gel by a single senior. Insertion time (in seconds) of I- gel was recorded.

Results: There were 77(51.3%) male and 73(48.7%) female patients. Mean age of patients was 29.2±4.2 years. Mean Body Mass Index (BMI) was 23.7±3.2 years. I-gel insertion was possible in all patients. Mean insertion time was 16.6±1.4 sec.

Conclusion: Thiopental at dose of 7 mg/Kg can be used as induction agent for insertion of I-gel supraglottic airway device.

Keywords: I-gel, supraglottic airway devices, thiopental

INTRODUCTION

Maintenance of airway is an integral part of general anaesthesia. Various airway devices are used for this purpose but tracheal intubation is the gold standard for securing the airway but the insertion of endotracheal tube requires a certain level of skill and experience.¹ Supraglottic airway devices (SAD's) are now widely used for surgery requiring general anaesthesia as an alternative to tracheal intubation.² An ideal supraglottic device should be inserted with minimal training and should provide both spontaneous and control ventilation. The insertion of supraglottic airway devices requires a lighter level of anaesthesia as compared to tracheal intubation³.

In another study, using propofol 2.5mg/Kg and Pentathal in two different doses 5mg/Kg and 7 mg/Kg showed significant short time in pentathal 7mg/kg group, comparable to propofol group³. I-gel (Intersurgical) is a new single-use noninflatable supraglottic airway device introduced in 2005 as a novel supraglottic airway device⁴. It is composed of a soft, gel-like, transparent, thermoplastic elastomer, which provides a perilaryngeal seal without cuff inflation⁵.

Propofol is commonly used for insertion of supraglottic devices because it provides smooth induction and depression of airway reflexes allowing easy insertion but it is expensive and causes pain on injection site⁶. Endotracheal intubation is associated with complications such as soft tissue trauma, dental

injury, haemodynamic instability, sore throat because it requires laryngoscopy and manipulation of the vocal cords⁷.

Supraglottic Airway Devices are to ventilate patients by delivering anesthetic gases/oxygen above the level of the vocal cords and are designed to overcome the disadvantages of endotracheal intubation as: soft tissue, tooth, vocal cords, laryngeal and tracheal damage, exaggerated hemodynamic response, barotrauma, etc. The advantages of the supraglottic airway devices include: avoidance of laryngoscopy, less invasive for the respiratory tract, better tolerated by patients, increased ease of placement, improved hemodynamic stability in emergence, less coughing, less sore throat, hands free airway and easier placement by inexperienced personal⁸.

METHODOLOGY

It is descriptive case series conducted in department of anaesthesia, Jinnah Hospital Lahore and duration of study was six months (15th March 2015 to 15th September 2015).

Inclusion Criteria: Age 20-40 year and both genders were included. ASA status was I and II. Patients should be scheduled for elective surgeries.

Exclusion Criteria: Patients with Body Mass Index (BMI) >30 kg/m² and Patient with Oral or nasal surgery were excluded. Anticipated difficult intubation diagnosed on Mallampatti Grade III & IV, Patient with limited mouth opening (Inter incisor distance < 2 cm) and patient with increase risk of aspiration e.g. Emergency surgeries and pregnant patients were also excluded from the study.

*Assistant Professor, Anaesthesia, Jinnah Burn & Reconstructive Surgery Centre JHL/ A I MC, Lahore

**Assistant Professor JHL/ AIMC, Lahore

***Professor of Pathology, Multan Medical & Dental College, Multan

****PG Resident Dermatology, AIMC/Jinnah Hospital, Lahore

Correspondence to: Dr. Abubaker

After getting informed consent about the study procedure, the patients fulfilling the inclusion criteria were included in the study. All patients were fasted for 6 to 8 hours and no premedication was given. All patients were monitored by continuous ECG, NIBP and SpO₂. Data obtained was entered and analyzed into SPSS version 11.

RESULTS

Detail of results is given in tables 1 and 2

Table 1: Attempts Stratification against Gender

Failure status	Male	Female	Total
Failed Attempt	2(1.3%)	0	2(1.3%)
1 st attempt	64(42.6%)	65(43.3%)	129(85.9%)
2 nd attempt	10(6.6%)	7(4.6%)	17(11.2%)
3 rd attempt	1(0.6%)	1(0.6%)	2
Total	77(51.3%)	73(48.7%)	150

P value 0.488 (>0.05)

Table 2: Mean Insertion time of patients

	Mean Insertion Time (Sec)
Male	16.6±1.36
Female	16.7±1.39

DISCUSSION

In our study, we have included 150 patients to determine the mean insertion time for I-gel, a new cuffless supraglottic airway after giving thiopental 7mg/kg. We conclude that with thiopental 7 mg/Kg mean insertion time for i-gel insertion is 16.6±1.37 sec. Weber et al⁹ in a comparison of the i-gel and the LMA-Unique laryngeal mask airway in patients elective short-term surgery has shown similar insertion time of 18.3±6.5 sec. Uppal et al¹⁰ in a randomized crossover comparison between the i-gel and the LMA-Unique in anaesthetized, paralysed adults using Propofol and fentanyl along with rocuronium as induction agents showed less insertion time 12.2 sec (Range 9.7–14.3 sec).

Bamgbade and colleagues¹¹ in an evaluation of 300 i-gel insertions reported that in 290 patients, the i-gel could be inserted within 5 s, but they did not specify how insertion time was defined. In contrast, other studies have reported a median insertion time for the i-gel as 15sec. Gatward et al¹² in a recent study described the use of propofol as a sole induction agent for successful I-gel supraglottic airway device insertion in 98% of the study patients. The authors speculated that a sole induction agent was enough for I-gel supraglottic airway device

insertion. In another study, insertion time was with 7mg/Kg thiopental and found comparable insertion time with that of Propofol 2.5mg/kg³.

Comparison of propofol versus thiopentone for facilitation of other SGDs such as laryngeal mask insertion has been studied in another study by Talwar in which they did not find any significant difference in the incidence of jaw opening, coughing, gagging, laryngospasm, and patient movement between thiopental and propofol groups¹³.

CONCLUSION

Thiopental at dose of 7mg/Kg can be used as induction agent for insertion of I-gel supraglottic airway device.

REFERENCES

- Gatward JJ, Thomas MJ, Nolan JP, Cook TM. Effect of chest compressions on the time taken to insert airway devices in a manikin. *Br J Anaesth.* 2008;100:351-6.
- Siddiqui AS, Raees US, Siddiqui SZ, Haider S, Raza SA. Comparison of performance and safety of i-gel with laryngeal mask airway (classic) for general anaesthesia with controlled ventilation. *Anaesth Pain & Intensive Care.* 2010;14:17-20
- Amr YM and Amin SM. Comparison of two regimes of thiopental and propofol for I-gel supraglottic airway device insertion. *Anesth Essays Res.* 2010;4: 25-28
- Gabbott DA, Beringer R. The I-gel supraglottic airway: A potential role for resuscitation? *Resuscitation.* 2007;73:161-2
- Richez B, Salte 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
- Lee SK. Pain on injection with propofol. *Korean J Anesthesiol.* 2010 ; 59:297-8
- Shetty AN, Shinde VS, Chaudhary LS. A comparative study of various airway devices as regard ease of insertion and haemodynamic responses. *Indian j. Anaesth.* 2004;48:134-137
- Vaida S. airway management - supraglottic airway devices. *Timioara,* 2004:58-61
- Weber U, Oguz R, Potura LA, Kimberger O, Kober A, Tschernko E. Comparison of the i-gel and the LMA-Unique laryngeal mask airway in patients with mild to moderate obesity during elective short-term surgery. *Anaesthesia.* 2011 Jun;66(6):481-7.
- Uppal V, Gangaiah S, Fletcher G, Kinsella. Randomized crossover comparison between the i-gel and the LMA-Unique in anaesthetized, paralysed adults. *J. Br J Anaesth.* 2009 Dec;103(6):882-5.
- Bamgbade OA, Macnab WR, Khalaf WM. Evaluation of the i-gel airway in 300 patients. *Eur J Anaesthesiol* 2008;25:865-6
- Gatward JJ, Cook TM, Sellar C, et al. Evaluation of the size 4 I-gel airway in one hundred non-paralysed patients. *Anaesthesia.*2008;63:1124-30
- Talwar V, Pattanayak R, Bansal S. Comparison of propofol versus thiopentone for facilitation of laryngeal mask insertion. *J Anaesth Clin Pharmacol* 2004;20:33-8.