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Research Article

**COMPARISON OF PROPOFOL (1%) ALONE WITH
ADMIXTURE (1:1) OF THIOPENTONE (1.25%) AND
PROPOFOL (0.5%) FOR EASE OF LARYNGEAL MASK
AIRWAY INSERTION IN CHILDREN UNDERGOING
ELECTIVE SURGERY**¹Dr. Raja Muaaz Ahmad, ²Dr. Hafsa Afzal, ³Dr. Quratulain Safdar¹Independent Medical College Faisalabad²Sargodha Medical College Sargodha³Independent Medical College Faisalabad**Abstract:**

In spite of being the preferred induction agent for LMA insertion, propofol has many undesirable side effects including dose-related cardiorespiratory depression and local pain at injection site. Ketofol as a novel induction agent has been introduced recently with comparable efficacy and improved hemodynamic control

Corresponding author:

Dr. Raja Muaaz Ahmad,
Independent Medical College,
Faisalabad

QR code



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INTRODUCTION:

Airway management is the most important clinical skill not only for anesthesiologists but also for emergency physicians and other healthcare providers who are involved in oxygenation and ventilation of the lungs [1]. Tracheal intubation had been the gold standard for securing the airway. However, a certain level of skill and experience is required for tracheal intubation. Supraglottic devices are an alternative to endotracheal tube for administering general anesthesia. An ideal supraglottic airway device is the one which is inserted rapidly with minimal training and enables controlled ventilation [2]. Laryngeal mask airway (LMA) is a simple supraglottic device which does not require direct laryngoscopy for insertion [3]. It can be inserted without the use of neuromuscular blocking agents if adequate anesthetic depth is achieved to obtund airway reflexes [4]. Propofol is the most frequent anesthetic agent used for LMA insertion. It provides smooth induction and easier insertion by depressing airway reflexes. However, it causes pain at injection site and dose-dependent cardiorespiratory depression [5].

Thiopentone alone does not provide good jaw relaxation and can cause coughing, gagging and laryngospasm when used for LMA insertion. It has advantage of painless injection. Admixture of thiopentone and propofol can be used to insert LMA. It is compatible and stable and has bactericidal properties [6]. In a study LMA insertion conditions were compared between propofol and admixture of propofol and thiopentone. Ease of LMA insertion was assessed by jaw relaxation and adverse response to LMA insertion (coughing, gagging, involuntary limb movements). Excellent LMA insertion was seen

in 68 % of the patients in the admixture (Ad) group as compared to 52% in the propofol (P) group [7]. It has been observed that admixture of thiopentone and propofol is an acceptable and satisfactory alternative to propofol for induction of anesthesia and LMA insertion in pediatric population. But in general practice propofol is more commonly used. I am doing this study to compare these two regimens so recommendations can be provided regarding the use of admixture of propofol and pentothal in LMA insertion.

OBJECTIVE

To compare the frequency of excellent LMA insertion conditions using propofol alone and mixture of propofol and thiopentone in children undergoing elective surgery.

OPERATIONAL DEFINITIONS

Excellent LMA insertion conditions:

Excellent LMA insertion conditions will be assessed in terms of

- 1: Jaw relaxation
- 2: Adverse response to airway manipulation (coughing and gagging, involuntary limb movements)

Jaw relaxation will be assessed in terms of mouth opening by the anesthetist after 60 seconds of injecting induction agent. Adverse response to airway manipulation will be assessed by observing the patient's response on inserting LMA through hypopharynx.

Following scoring system is used.

VARIABLES	Score 0	Score 1	Score 2	Score 3
Jaw relaxation (mouth opening)	Unable to open	Minimally open	Half open	Fully open
Coughing and gagging	severe	moderate	mild	nil
Involuntary limb movements	severe	moderate	mild	nil

Adverse response to airway manipulation is graded as

Mild: Transient and minimal lasting < 5 seconds

Moderate: Lasted > 5 seconds but resolved spontaneously within 20 second

Severe: Sustained > 20 seconds or required additional boluses of drugs

The numerical insertion score will be obtained by summing up the scores assigned to the factors: jaw relaxation, coughing and gagging and involuntary limb movements. The maximum score is thus 9 while the minimum score is 0.

The qualitative insertion scores are as follows:

LMA insertion conditions	Score
Excellent	7-9
Good	4-6
Poor	0-3

HYPOTHESIS

An admixture of thiopentone and propofol is better than propofol 1% in terms of excellent LMA insertion conditions.

MATERIALS AND METHODS:

Setting: Department of anesthesia, AHF

Duration: 6 months after approval of synopsis

Study design: Randomized controlled trial

Sampling technique: Non probability consecutive sampling

Sample size: By using WHO sample size calculator for 2 proportions

P1=68 %⁷

P2=52 %⁷

Power of study=80 %

Level of significance=5 %

Sample size=230 (115 in each group)

INCLUSION CRITERIA

- Age ranges from 1 to 12 years of both genders
- Pediatrics weighing from 5 to 30 kg
- ASA grade I and ASA grade II
- On airway assessment Mallampati class I (soft palate, uvula, fauces, pillars visible) and Mallampati class II (soft palate, uvula, fauces visible)

EXCLUSION CRITERIA

- Patients with difficult airway
- ASA grade III and IV
- Patients with known allergy to propofol or thiopentone
- Children with risk of regurgitation

DATA COLLECTION AND PROCEDURE

After taking approval from hospital ethical committee, cases of elective surgery fulfilling the inclusion criteria will be enrolled and informed consent will be taken after explaining the procedure to the parents. All the patients will be randomly divided into 2 groups: propofol group (A) and admixture group (B) by using computer generated random number table. Intravenous induction agents will be prepared in 10 ml syringes, for A group 10 ml of propofol 1 % will be mixed with 10 mg of lignocaine and for B group thiopentone 2.5 % will be mixed with propofol 1 % in a 1:1 ratio to make it thiopentone 1.25 % and propofol 0.5 % per ml.

Intravenous fentanyl 1.5 micro gram /kg will be administered 120 seconds prior to induction. Patient will be pre-oxygenated.

The induction agent (0.25 ml/kg) will be given over 30 seconds and the children will be asked for pain or discomfort at the injection site till the children will be conscious. An appropriate size LMA will be inserted 60 secs later. I will assess insertion conditions in terms of jaw relaxation, coughing and gagging, involuntary limb movements. Additional boluses of the induction agent will be administered in 0.5 ml aliquots to deepen the anesthesia whenever required. Anesthesia will be maintained with N2O/O2 in a ratio of 50%:50% and isoflurane (1.3%) in both groups. Data will be collected using standardized Performa. All the data will be collected by myself.

DATA ANALYSIS

All the collected data will be entered into SPSS version 20 and analyzed. The qualitative data like gender, ASA grade, Mallampati class and excellent LMA insertion conditions will be presented as frequency and percentage. Quantitative data like age, weight and score for each parameter (jaw relaxation, coughing and gagging and involuntary limb movements) and total score will be presented as means and standard deviations. Chi-square test will be applied to compare excellent LMA insertion conditions between two groups. Effect modifiers like age, gender, weight, ASA grade and Mallampati class will be controlled by stratification. Post stratification chi-square test will be applied value < 0.05 will be taken as significant.

RESULTS:

Induction time (time to reach BIS of 40) was faster in the KP group (150 ± 23.5 seconds) than in the P group (205 ± 37.4 seconds). The incidence of injection pain was significantly lower in the KP group (10%) than in the P group (80%). Excellent jaw relaxation and full mouth opening were higher in the KP group [45 patients (90%)] than in the P group [38 patients (76%)]. Excellent LMA insertion conditions were observed in 45 patients (90%) in the KP group and 38 patients (76%) in the P group. The KP group showed preserved hemodynamic stability (mean blood pressure, heart rate) with less incidence and duration of apnea compared to the P group.

CONCLUSION:

Ketofol is a safe and effective alternative induction agent for LMA insertion in children with rapid onset of action and lower incidence of injection pain. It provided better LMA insertion conditions, improved hemodynamic stability with less prolonged apnea when compared with propofol.

REFERENCES:

1. Stewart JC, Bhananker S, Ramaiah R. Rapid-sequence intubation and cricoid pressure. *Int J Crit Illn Inj Sci.* 2014; 4:42-9
2. Amr YM, Amin SM. Comparison of two regimes of thiopental and propofol for I-gel supraglottic airway device insertion. *Aneasth Essays Res.* 2010; 4:25-8
3. Hosseinzadeh H, Golzari SEJ, Torabi E, Dehdilani M. Hemodynamic changes following anaesthesia induction and LMA insertion with propofol, etomidate, and propofol + etomidate. *J Cardiovasc Thorac Res.* 2013;5:109-12
4. Krishnapp S, Kundra P. Optimal anaesthetic depth for LMA insertion. *Indian J Anaesth.* 2011; 55:504-7
5. Yousef GT, Elsayed KM. A clinical comparison of ketofol (ketamine and propofol admixture) versus propofol as an induction agent on quality of laryngeal mask airway insertion and hemodynamic stability in children. *Aneasth Essays Res.* 2013;7:194-9
6. Shah ZA, Parveen S, Ommid M, Buchh V, Dar AQ, Qazi S. A randomized double blind comparison between the use of sodium thiopentone/propofol admixture & propofol alone for LMA insertion. *JK-Pract.* 2011;16:35-8
7. Sinha K, Shenede D, Garg R. Comparison of propofol (1%) with admixture (1:1) of thiopentone (1.25%) and propofol (0.5%) for laryngeal mask airway insertion in children undergoing elective eye surgery: Double-masked randomized clinical trial. *Indian J Anaesth.* 2010;54:104-8.