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Laryngeal Mask Airway Insertion Using Propofol,Thiopentone With or Without Atracurium

Medical Science

KEYWORDS : LMA, PROPOFOL, THIOPENTONE; ATRACURIUM; PRIMING

Dr.PETLA RAMA KRISHNA — 1Associate Prof of Anaesthesiology, Associate Prof of Anaesthesiology Kurnool Medical College,Kurnool,A.P.

Dr.R.KONDA REDDY — Associate Prof of Anaesthesiology Kurnool Medical College,Kurnool,A.P. INDIA

ABSTRACT

Propofol obtunds airway reflexes and causes jaw relaxation also, though it was cost, pain on injection, not stored once opened.

Methods - 120 patients were randomly allocated into four groups with premedication of fentanyl 2 µg/kg followed by saline and Propofol/ thiopentone in groups P and T and 0.1 mg/kg Atracurium with Propofol and thiopentone in groups Pa and Ta. LMA was inserted 2 minutes later and insertion conditions provided by each group were assessed on a 3 point scale.

Results - No significant difference between P and Ta groups in respect to jaw relaxation and adverse responses on LMA insertion. The number of attempts required for successful placement of LMA and duration of apnea was also not significantly different. Group Pa comprises of best conditions and no adverse responses than group T which had high incidence of failure of LMA insertion and not favorable conditions.

CONCLUSSIONS: by adding 0.1 mg /kg of Atracurium to thiopentone can significantly improve the LMA insertion, so thiopentone was used as an alternative to propofol even in ASA grade 3 or 4 patients.

INTRODUCTION:

Dr Brain in 1981 invented LMA as a supraglottic airway device in places of facemask or endotracheal tube and avoids the tracheotomy or fibreoptic brochoscopy or oropharyngeal airway. The adverse responses of LMA insertion were gagging, coughing, and laryngospasm and prevented them by correct placement[2]. Propofol was a drug of choice for LMA insertion by decreased airway reflexes[1]. than thiopentone, even though associated with adverse effects i.e decreased blood pressure, apnea, pain on injection and excitatory movements. Stoneham, Bree and Sneyd reported only 62% of patients require propofol as anesthesia does not always guarantee for successful Laryngeal Mask Airway insertion, suggested the lidocaine 1.5 mg/kg before induction of propofol. Thiopentone produces less satisfactory conditions for LMA insertion than propofol[1]. Drugs which suppress laryngeal reflexes are midazolam, fentanyl, ramifentanil and midazolam-fentanyl. These drugs were not indicated as their duration was rather longer.

Superior laryngeal nerve block with lidocaine and inhalational agents like Sevoflurane or Isoflurane required to suppress the upper airway reflexes, but it tooks more than two minutes for LMA insertion with deep plane of anaesthesia, and this time lag was unacceptable in some cases. Succinylcholine by depolarizing effect at motor endplate, with significant myalgia, nondepolarinzing drugs like mivacuronium or rocuroniumwith propofol induction, carries low incidence of adverse reactions with slight increase of apnea times.

The study reveals the comparable conditions of LMA insertion by using Atracurium with Thiopentone or with Propofol

MATERIAL AND METHODS:

Patients selection were grouped into four with 30 patients in each group. Group P - Fentanyl 2 µg/kg and Propofol 2.5 mg/kg was control. Group Pa - Fentanyl 2 µg/kg and Propofol 2.5 mg/kg plus Atracurium 0.1 mg/kg, group T - Fentanyl 2 µg /kg and Thiopentone at a dose of 5 mg/kg. Group Ta - Fentanyl 2 µg/kg and Thiopentone plus Atracurium 0.1 mg/kg

INCLUSION CRITERIA:

ASA grade I and II. More than 18 years and less than 60 years. Procedures last for 180 minutes or less,

Free from neuromuscular junction disorders

EXCUSION CRITERIA:

Hiatus hernia, GERD, Prone risk for regurgitation or aspiration, Allergy to drugs, Antiepileptic drug treatment, Decrease lung compliance conditions, Suspected difficult airway, and pregnancy of first and third trimester.

INDUCTION TECHNIQUE:

After three minutes Preoxygenation, fentanyl 2 µg/kg given, later 2 minutes, give Propofol and Thiopentone groups and Pa and Ta groups drug solutions. The induction agent was give over 30 seconds and LMA was inserted after 90 seconds of induction agent. LMA was inserted as per Brain's technique (Sniffing position)

TABLE – 1 - Assessment of Inserting Conditions and Their Grades - based on the given below table

Jaw relaxation	Biting	Gagging	Coughing	Airway patency	Laryngospasm	Attempts	Ease of insertion
Good – 1	None - 1	None - 1	None - 1	Fully patent – 1	None – 1	Once – 1	Easy - 1
Incomplete – 2	Mild - 2	Mild - 2	Mild - 2	Partially patent – 2	Mild - 2	Twice -2	Difficult - 2
Impossible – 3	Severe -3	Severe - 3	Severe - 3	Completely obstructed - 3	Severe - 3	Impossible - 3	Impossible - 3

Jaw relaxation graded as per Young, Clark, and Dundee criteria[2]. The holding of LMA was no longer required with inhalants rather than with biting of LMA which was also graded.

Lund and Stouner[3] assessed the LMA inserting conditions according to modified schemes, if grading as excellent (no patient reactions), good (coughing and moving) and poor (marked patient responses)

Haemodynamic and pulse oximeter reading variable recorded before and every minutet after for three minutes and at 5th minute and the apnea time interval. After LMA insertion, anaesthesia was maintained with oxygen, nitrous oxide and Isoflurane 1-2% and ventilated.

Table - 2 Age, Weight, Height Distribution of patients

	Group P	Group Pa	Group T	Group Ta
Age in years	37.13 ± 12.18	33.93 ± 13.26	39.60 ± 13.57	35.23 ± 14.06
Weight (Kg)	62.40 ± 7.83	56.80 ± 9.38	56.93 ± 6.34	59.83 ± 6.65
Height (cm)	155.60 ± 4.27	154.47 ± 5.79	153.60 ± 5.89	156.27 ± 5.45

Sample is matched with respect to age , weight, and height

Table - 3 ASA Grade Distribution

ASA	Group P	Group Pa	Group T	Group Ta
Grade I	27 (90%)	23 (76.7%)	20 (66.7)	16 (53.3)
Greade II	3 (10%)	7 (23.3%)	10 (33.3)	14 (46.7)
Total	30 (100%)	30 (100)	30 (100)	30 (100)

Table - 4 Comparison of Heart Rate in four groups of patients

Heart rate (B/M)	Group P	Group Pa	Group T	Group Ta	P value
0 minute	85.43 ± 11.50	87.37 ± 10.39	84.27 ± 09.67	85.57 ± 09.04	0.07
1 minute	79.33 ± 16.05	85.53 ± 11.03	94.23 ± 10.32	86.40 ± 09.29	<0.001
2 minute	82.47 ± 08.87	84.63 ± 11.12	92.70 ± 09.63	82.23 ± 09.99.	<0.001
3 minute	82.73 ± 08.49	85.03 ± 10.00	90.73 ± 08.57	79.43 ± 11.02	<0.001
4 minute	83.13 ± 08.78	85.37 ± 09.26	89.73 ± 08.67	78.97 ± 11.68	<0.001
5 minute	80.34 ± 09.46	83.42 ± 10.35	91.56 ± 08.98	84.74 ± 10.53	<0.001

The baseline heart rates of patients were comparable among all four groups. The variation in heart rate over 5 minutes post induction did not show a significant difference.

Table - 5 comparison of systolic blood pressure in four groups of patients

SBP mm Hg	Group P	Group Pa	GroupT	Group Ta	P value
O minute	131.30 ±18.16	121.27 ± 15.42	129.33 ± 13.83	132.20 ± 15.05	0.032
1 minute	110.70 ± 15.93	104.00 ±11.63	132.30 ± 14.47	132.23 ± 19.41	<0.001
2 minute	105.33 ± 15.45	103.87 ± 10.87	121.53 ± 13.90	146.50 ±22.46	0.094
3 minute	109.46 ± 12.96	107.68 ± 09.17	127.47 ± 12.89	114.69 ±24.21	<0.001
4 minute	108.17 ± 16.06	109.06 ± 09.21	109.57 ± 09.97	117.37 ± 14.31	< 0.001
5 minute	112.77 ± 14.94	107.07 ± 09.85	106.67 ± 08.86	115.93 ± 12.90	0.004

Table - 6 Comparison of diastolic blood pressure (mm Hg) in four groups of patients

DBP mm Hg	Group P	Group Pa	Group T	Group Ta	P value
0 minute	80.90 ± 13.49	72.67 ± 12.58	75.79 ± 09.79	82.23 ± 11.04	0.007
1 minute	67.30 ± 12.18	62.60 ±08.65	75.77 ± 10.93	81.40 ± 14.20	< 0.001
2 minute	62.27 ± 12.17	57.43 ± 05.43	72.50 ± 10.80	74.67 ± 14.25	<0.001
3 minute	63.37 ± 10.28	60.13 ± 06.68	65.60 ± 08.67	71.20 ± 09.27	<0.001
4 minute	67.17 ± 11.84	63.47 ± 09.26	62.97 ± 07.43	70.77 ± 09.37	0.006
5 minute	69.18 ± 13.18	65.11 ±07.69	67.36 ± 09.58	73.49 ± 10.65	0.008

TABLE - 7A COMPARISON OF JAW RELAXATION

Variable	Grade	Group P	Group Pa	Group T	Group Ta	P value
Jaw relaxation	Good	23 (76.7%)	30 (100%)	14 (46.7%)	27(90%)	< 0.001
	Incomplete	07 (23.3%)	0 (0%)	14 (46.7%)	3 (10%)	
	Impossible	00 (0%)	0 (0%)	2 (6.6%)	0 (0%)	

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The jaw good relaxation in 76.7% of patients in group P, 100% in group Pa, 90% of patients in group Ta. But only 46.7% of patients were described to have good relaxation and 46.7% had incomplete in group T

TABLE - 7B PAIR-WISE COMPARISON OF JAW RELAXATION

Variable	Group P vs Pa	Group P vs T	Group P vs Ta
Jaw Relaxation	0.011	0.041	0.299

Hence group Pa had the best jaw relaxation and it was significantly better than group P [control] (P 0.05). Group T had a significant worse relaxation as compared to group P [P 0.05]. There was no significant difference in jaw relaxation between groups P and Ta.

TABLE – 8A COMPARISON OF BITING BETWEEN GROUPS

Variable	Grade	Group P	Group Pa	Group T	Group Ta	P value
Biting	None	29(96.7%)	30(100%)	18(60%)	30 (100%)	<0.001
	Mild	1(3.3%)	0(0%)	12(40%)	0 (0%)	
	Severe	---	---	---	---	

There were no biting in 96.7% of patient in group P, 100% of patients in groups Pa and Ta. But it was present in 40% of patients of group T.

TABLE - 8B PAIR-WISE COMPARISON OF BITING

Variable	Group P vs Pa	Group P vs Group T	Group P vs Ta
Biting	1.000	0.01	1.000

Hence significant biting was present only in group T (P 0.01)

TABLE - 9A COMPARISON OF GAGGING BETWEEN GROUPS

Variable	Grade	Group P	Group Pa	Group T	Group a	P value
Gagging	None	29 (96.7%)	30 (100)	23(76.7)	26(86.7)	0.008
	Mild	1 (3.3%)	0 (0%)	7(23.3%)	4(13.3%)	
	Severe	----	----	----	----	

Gagging was present only in 3.3% of patients of group P, none in group Pa, and 13.3% of patients of group Ta. However 23.3% of patients of group T had gagging to insertion of LMA.

TABLE -9B PAIR -WISE INCIDENCE OF GAGGING

Variable	Group P vs Pa	Group P vs T	Group P vs Ta
Gagging	1.000	0.052+	0.056+

Hence there was no significant difference between incidence of gagging between groups P, T, and Ta. However group Pa had significant less gagging compared group P (Control).

TABLE – 10A COMPARISON OF COUGHING BETWEEN GROUPS

Variable	Grade	Gropu P	Group Pa	Group T	Group Ta	P value
Coughing	None	28 (93.3%)	30 (100%)	20 (66.7%)	26 (86.7%)	0.001
	Mild	2 (6.7%)	0 (0%)	10 (33.3%)	4 (13.3%)	
	Severe	----	----	----	----	

Mild coughing on insertion of LMA was present in 6.7% of patients in group P, 13.3% of patients in group Ta. No cough in group Pa. But group T had 33.3% incidence of cough on LMA insertion. None of the groups had any incidence of severe cough.

TABLE – 10B PAIR -WISE COMPARISON OF COUGHING

Variable	Group P	Group P vs Group T	Group P vs Ta
Coughing	0.492	0.021	0.671

Hence there was no significant difference in the incidence of cough between groups P, Pa, and Ta. But group T had a significantly high incidence of this adverse response.

TABLE - 11A COMPARISON OF INCIDENCE OF LARYNGOSPASM

Variable	Grade	Group P	Group Pa	Group T	Group Ta	P value
Laryngo spasm	Absent	30 (100%)	30 (100)	28 (93.3%)	30 (100%)	0.244
	Mild	0 (0%)	0 (0%)	2 (6.7%)	0(0)	
	Severe	----	----	----	----	

Only Group T had a 6.7% incidence of laryngospasm. None of the other groups had any incidence of laryngospasm in any form.

TABLE – 11B PAIR - WISE COMPARISON OF LARYNGOSPASM

Variable	Group P vs Group Pa	Group P vs Group T	Group P vs Group Ta
Laryngospasm	1.000	0.492	1.000

Hence there was no significant difference in the incidence of laryngospasm in any of the groups.

Table - 12A COMPARISONOF AIRWAY PATENCY BETWEEN GROUPS

Variable	Grade	Group P	Group Pa	Group T	Group Ta	P value
Airway patency	Fully patent	29 (96.7%)	30 (100%)	20 (66.7%)	29 (96.7%)	< 0.001
	Partially obstructed	1 (3.3%)	0 (0%)	8 (26.7%)	1 (3.3%)	
	Completely obstructed	----	----	2 (6.7%)	----	

Airway patency was partially obstructed in 26.7% of patients in group T, 3.3% of patients in both groups P and Ta. Airway patency was fully patent in all patients in group Pa, 66.7% of patients of group T. Airway was fully obstructed in 6.7% 0f patients in group T , LMA could not be appropriately positioned at all.

TABLE - 12B PAIR-WISE COMPARISON OF AIRWAY PATENCY

Variable	Group P vs Pa	Group P vs T	Group P vs Ta
Airway patency	1.000	0.006	1.000

Airway patency was significantly poor in group T.

TABLE - 13A COMAPRISON OF NUMBER OF ATTEMPTS BETWEEN GROUPS

Variable	Grade	Group P	Group Pa	Group T	Group Ta	P value
Attempts	Once	29 (96.7%)	30 (100%)	19 (63.3%)	25 (83.3%)	<0.001
	Twice	1 (3.3%)	0 (0%)	11 (36.7)	5 (16.7%)	
	Impossible	----	----	----	----	

In 16.7% of patients LMA was successfully placed in second attempt in group Ta, however 36.7% of patients required two attempts to place the LMA in group T

TABLE - 13B PAIR-WISE COMPARISON OF NUMBER OF ATTEMPTS REQUIRED

Variable	Group P va Group Pa	Group P vs Group T	Group Pvs Group Ta
Attempts	1.000	0.002	0.195

Significantly more patients required more than one attempt for successful placement of LMA in group T, whereas none of other groups required more than one attempt.

TABLE - 14A COMPARISON OF EASE OF INSERTION

Ease of insertion	Group P	Group Pa	Group T	Group Ta
Easy	30 (100%)	30 (100%)	9 (30%)	24 (80%)
Impossible	----	----	21 (70%)	6 (20%)

Inference – ease of insertion is difficult (70%) in group T, Which is significant when compared to other groups with P - Value < 0.001. P value obtained o 2 x 4 Fisher exact test.

LMA placement was described as easy in all patients of group P, Pa, and 80% of patients in group Ta.

TABLE - 14B PAIR-WISE COMPARISON OF EASE OF INSERTION

Variable	Group P vs Pa	Group P vs T	Group P vs Ta
Ease of insertion	1.000	0.001	0.024

Group T had significant poor conditions for LMA insertion, being difficult in 70% of patients. Taken together there was no significant difference in inserting conditions between groups P, Pa, Ta.

TABLE -15A COMPARISON OF APNEA TIME BETWEEN GROUPS

APNEA TIME	GROUP - P	GROUP - Pa	GROUP - T	GROUP - Ta
1 -2	2 (6.7%)	6 (20%)	5 (16.7%)	6 (20%)
3 - 5	20 (66.7%)	20 (66.7%)	20 (66.7%)	23 (76.7%)
6 - 7	8 (26.7%)	4 (13.3%)	5 (16.7%)	1 (3.3%)
Mean ± SD	4.50±1.48	3.67±1.35	3.97±1.47	3.37±1.03

INFERENCE - Apnea time is significantly less in group Ta with P value is 0.011.

TABLE B 15B PAIR-WISE COMPARISON OF APNEA TIMES

VARIABLE	GROUP - P vs GROUP Pa	GROUP - P vs GROUP T	GROUP - P vs Ta
Apnea time	0.083+	0.420	0.008

The mean apnea times between groups Pa, T, Ta were not significantly different being around 3.7 minutes. Group P had a mean apnea time of 4.5 minutes, significantly higher than other groups.

DISCUSSION

LMA was a simple, revolutionized supraglottic airway device, in modern days of anaesthesia practice, used by paramedical staff and in cardiopulmonary resuscitation (CPR). The only pre-requisites are 3 cm of mouth opening, stable cervical spine, without sniffing position, obtunds the airway reflexes (gagging, cough and swallowing reflexes) which occur in stage II and plane I onwards of anaesthesia, whereas for tube insertion requires stage III and plane 4 onwards i.e requires greater depth of anaesthesia

For LMA insertion, jaw relaxed which occurs in stage III and plane 3 of anaesthesia without requirement of muscle relaxants. Various haemodynamic are attenuated by drugs like Fentanyl 1-2 µg/kg 4-5 minutes , Ramifentanil 1 µg/kg 1 minute, Alfentanil 10-20 µg/kg (2-3 minutes), lidocaine 1.5 mg/kg (1-2 minutes) along with hypotensive agents like SNP, NTG, Hydralazine, β-adrenergic antagonists, and calcium channel blockers. Cardiac dysarrhythmias, ventricular bigeminy are not uncommon during laryngoscopy and intubation.

Above all less chances of haemodynamic changes and others like jaw relaxation, laryngospasm, bronchospasm. Neuromuscular junction blockers need not required for LMA insertion with an induction agent choice of propofol, but it causes difficult for storage, severe fall in blood pressure, decrease in heart rate, cardiac arrest, apnea compared to thiopentone group. Brownet et al[1] found Thiopentone has high incidences of gagging than propofol.

Scanlon et al[4] compared the propofol or thiopentone along with 2 minutes ventilation of 2% Isoflurane in 50% of oxygen and nitrous oxide via face mask showed that thiopentone has higher incidence of adverse responses (76%)than Propofol 26% along with increased airway irritability.

Mc Keating et al[5] found propofol (100%) was superior to thiopentone (60%)in decreasing in jaw tone, depressing the pharyngeal and laryngeal reflexes, and airway integrity .

Barker et al using fibreoptic laryngoscopy, assessed the vocal cords movements, observed the greater extent of adduction of vocal cords with thiopentone than with propofol

James et al found respiratory resistance after tracheal intubation was lower after induction with propofol than after induction with thiopentone or etomidate

Stoneham, Bree, and Sneyd[6] reported the LMA insertion was easy with propofol (62%) and 76% in Scanlon et al study.Tagaito y, Isono S and Nashino J[7] study reveals the depression of airway reflexes in dose related manner with incremental doses of fentanyl.

In our Study greater adverse responses like coughing, bitting, gagging, less jaw relaxation with thiopentone 5 mg/kg compared with fentanyl 2 µg/kg as per Scanlon et al with incidences of 23% versus 59%, 67% versus 30%, and 6.7% versus 1.0% respectively.

Bapat[8] et al cost effective alternative to Propofol after using lidocaine 1.5 mg/kg, Midazolam 0.1 mg/kg with Thiopentone 5 mg/kg. Also shows lower incidences of side effects than fentanyl, Scanlon et al the conditions for LMA insertion was excellent in 50%, satisfactory in 18%, and poor in 32% of patients.

Midazolam plus Thiopentone groups with their synergistic effects shows excellent conditions in 72%, satisfactory in 24% of patients compared with Propofol 66% and 26% respectively. Brain et al first described using atracurium 0.2 mg/kg with thiopentone before LMA insertion. Chui and Cheam[9] et al reorted mivacurium and proprofol combination facilitates 88% of easy LMA insertion along with lesser incidence of complications and 50% with propofol only, but they did not determine mivacurium alone was effective even though thiopentone used instead of propofol.

D Honneur[10] found Atracurium of 0.075 mg/kg dose to decrease swallowing and priming dose was 10mg; NaQuib[11,12,13] found proportional dose was 0.05 mg/kg for inhibiting and optimal primary Interval was 3 minutes. Kob et al suggested the combination of Propofol and low dose of Atracurium would decrease both pharyngeal and laryngeal reflexes, so as to allow easy insertion of LMA. In our study, Propofol and atracurum combination compared with Thiopentone and Atracurium combination reveals good jaw relaxation 78% versus 20%, coughing 88% versus 93%, biting 100% versus 97%, gagging 87% versus 97%, apnea time interval 4.5 minutes versus 3.4 minutes. Midazolam and thiopentone combination compared with fentanyl and thiopentone group reveals good LMA inserting conditions, Bapat[14] et al discloses the except jaw relaxation 6% versus 10%, but with similar incidences of other complications. Some reports were recorded even with lidocaine and thiopentone group than with thiopentone alone group.

Scanlon[15] et al shows LMA inserting conditions were better with thiopentone , Isoflurane and nitrous oxide for 2 minutes than with thiopentone alone group, along with higher incidences of adverse effects than in our study group. Saher M, Siddik[16] et al

and co reveals good mouth opening in 55.2% in Isoflurane and 78% in Propofol group. But with addition of Sevoflurane 6% - 8% and Propofol, increases the LMA insertion in first attempt by 93.5%. in our study Propofol and Atracurium group shows successful mouth opening ,successful insertion at first attempt and providing best overall insertion conditions . Our results were better than Kohl et al study.

CONCLUSION

LMA insertion with 2 µg /kg of fentanyl plus 2.5 mg/kg of propofol was correctly positioned in 97% of patients in first time with low incidence of adverse effects except apnea when compared with 2 µg/kg of fentanyl plus 5 mg/kg of thiopentone combination. Addition of 0.1 mg/kg Atracurium to fentanyl plus propofol group produced best conditions for LMA insertion with low adverse effects than fentanyl plus thiopentone group.

SUMMARY

LMA was a ultramodern supraglottic airway device, easily placed even by paramedical staff, with lower incidences of adverse effects when it was inserted 80% after using of fentanyl plus propofol plus Atracurium combination were assessed and compared on a 3 point scale. With fentanyl plus thiopentone plus Atracurium group which shows 70% of worst conditions with high incidences of adverse effects except with apnea times intervals

REFERENCE

1.Brown GW, Patil N, Ellis FR. Comparison of Propofol and Thiopentone on laryngeal mask airway insertion. Anaesthesia 1991; 46: 771-772 | 2 .Young HAS, Clarke RS, Dundee JW. Intubating conditions with AH 8165 and Suxamethonium. Anaesthesia 1995; 30: 30-33. | 3. Lund I, Stouner J. Dose response curves for tubocurarine, atracurium and pancuronium.Acta Anaesthesiology Scand 1970; 374: 238-242 | 4. Scanlon P, Carey M, Power M. Patient response to laryngeal mask insertion after induction with propofol or thiopentone. Can J Anaesth 1993; 40: 816-818 | 5.Mc Keating, Bali IM, Dundee JW. The effects of thiopentone and propofol on upper airway integrity. Anaesthesia 1988; 43: 638-640 | 6.Stoneham MD, Bree SE, Sneyd JR. Facilitation of laryngeal mask insertion. Effects of lidocaine given intravenously before induction with propofol. Anaesthesia 1995; 50: 464-466 | 7.Tagaito Y, Isono S, Nishino T. Upper airway reflexes during a combination of propofol and fentanyl anaesthesia. Anaesthsesiology 1998 jan; 88 (6): 1433-1434 | 8.Pramod Bapat,, Ravindra N, Joshi, Edward Young, Roger H, Tago. Comparision of propofol versus thioentone with midazolam or lidocaine to facilitate laryngeal mask insertion. Can J Anaesth 1996; 43 (6): 564-568 | 9.Chui PT, Cheam EWS, The use of low dose of mivacurium to facilitate insertion of laryngeal mask airway. Anaesthesia 1998 May; 53 (5): 491-495 | 10.D'Honneur G, Gullo, Guraod A, Rimaniol, JM, Lumbert Y, Daraldustin P. Priming doses of atracurium and vecuronium depress swallowing in humans. Anesthesiology 1992; 77: 1070-1073 | 11.Naquib M, Samar Kundi AH. The use of low dose rocuronium to facilitate laryngeal mask airway insertion. Middle east J Anaesthesiology 2001 Feb; 16 (1): 41-54. | 12.Naqib M, Abbdullatiz M, Absood GH.The optimal priming dose for Atracurium . Can Anaesth Soc J 1986; 33: 103-107 | 13.Naquib N, Gyagi HH, Gyuski HK, Abdullatiz, M, Absood GH. Rapid tracheal intubation with Atracurium. Acomparison of priming intervals. Can Anaesth Soc J 1986; 33: 150-156 | 14. D'Honneur G, Gullo, Guraod A, Rimaniol, JM, Lumbert Y, Daraldustin P. Priming doses of Atracurium and vecuronium depress swallowing in humans. Anesthesiology 1992; 77: 1070-1073 | 15. Scanlon P, Carey M, Power M. Patient response to laryngeal mask insertion after induction with propofol or thiopentone. Can J Anaesth 1993; 40: 816-818 | 16.Sahar M, Sddik-Sayyid, Maric T, Aouad, Samar K, Taha. A comparision of sevoflurane-propofol versus sevoflurane or propofol for laryngeal mask airway insertion in adults