The Role of General Anaesthesia in Supraglottic Airway Device by Using Hemodynamic Response.

Dr. Sudad Mohammed Salih AL Haddad
M.B.Ch.B.- D.A. (**Anesthetist**)
Ministry of Health, Baghdad Medical Office Al-Russafa, Al-Kindey, Teaching Hospital, Baghdad, Iraq.

Rehab Sabah Abd-Alhussein Otaifa
M.B.Ch.B., F.I.B.M.S (**Anesthetist**)
Certificate of The Iraqi Board of Anesthesiology
Iraqi Ministry of Health, Baghdad Al-Rusafa Health Directorate, Dr. Saad AL Witry Hospital for Neuroscinces, Baghdad, Iraq.
dr_rihaboteifa@yahoo.com

Dr. Reem Hashim Abdalmahdi Shuber
M.B.Ch.B.- D.A. (**Anesthetist**)
Ministry of Health, Baghdad Medical Office Al-Russafa, Al-Kindey, Teaching Hospital, Baghdad, Iraq.

ABSTRACT

Background
Laryngeal mask - is a medical device that keeps the patient's airway open during anaesthesia or loss of consciousness. It is a type of supraglotic airway device.
Purpose
know role of General Anaesthesia in supraglottic airway device by using Hemodynamic Response
Method
30 patients were collected for this study from different Hospitals in Iraq. and patients were divided into two groups: the laryngeal mask airway, which included 15 patients, and the ET group, which included 15 patients.
Results and conclusion
By using the statistical analysis program SPSS SOFT 22, the real value and the arithmetic mean of the ages of patients in the LMA group was 33.4 ± 6.06 and as for the ages of the second group ET 32.2 ± 5.6
Not elevated rates were obtained in LMA in contrast to the levels in the ET group, and statistically significant differences of less than, or equal to 0.001 were found, which indicates that the laryngeal mask is an effective means of securing a clean airway during elective surgeries

Keywords: Laryngeal mask,Anaesthesia, Hemodynamic

Introduction

General anaesthesia has no absolute contraindications, with the rapid development of modern anaesthesia, general anaesthesia is becoming safer and more comfortable, and more and more patients are voluntarily choosing general anaesthesia[1,2]. Therefore, preoperative complete airway evaluation, airway management under general anesthesia, and treatment of potential complications have become the most important daily business of the anaesthesiologist[2,3,4]. Today we will talk about these aspects.

Oxygen supply, stability maintenance, and return path" are essential for a complete assessment of the airway prior to induction of anaesthesia. The purpose of airway assessment is to determine whether there is difficulty with direct exposure to the laryngoscope (and thus difficulty in intubation), difficulty in mask ventilation, or difficulty Establishment of a surgical (percutaneous) airway [5,6,7].

For patients with abnormal anatomical structure or other special conditions, intubation may be difficult if not handled properly in time, it may lead to hypoxia or even life threatening. Therefore, anesthesiologists need certain bases to judge whether The patient had difficulty in the airway with other intubation techniques [8,9,10,11].

Critically ill adults in intensive care units often need mechanical ventilation to help them breathe. Initially, she was ventilated with an endotracheal tube (ET) that was placed in the trachea. Patients receiving long-term ventilation may require a tracheostomy, where a breathing tube is placed directly into the windpipe to avoid damage to the trachea and larynx [12,13,14]. This involves creating an opening in the neck and trachea (tracheostomy) and inserting a tracheostomy tube into the opening to ventilate the patient. This procedure is called a percutaneous dilatational tracheotomy (PDT) and is one of the most common bedside interventions in the intensive care unit. A PDT uses a cannula to penetrate the windpipe through the skin and then widen (widen) the channel to place a tracheostomy tube into the windpipe [15,16,17,18].

Material and method

Patient sample

This study was conducted in different Hospitals in Iraq. and 30 patients were collected for this study. The patients were divided into two groups: the laryngeal mask airway, which included 15 patients, and the ET group, which included 15 patients.

Study design

The anaesthesia department in the hospitals was relied upon to collect information and demographic data for patients. All patients underwent general anesthesia. The samples were divided into 20 patients, men, and 10 women, and included patients whose ages ranged between 23 and 44 years. As for the exclusion criteria, patients with obesity and diabetes were excluded in addition to for patients with cardiovascular

The anaesthesia department in the hospitals was relied upon to collect information and demographic data for patients. All patients underwent general anaesthesia.

The samples were divided into 20 patients, men, and 10 women, and included patients whose ages ranged between 23 and 44 years. As for the exclusion criteria, patients with obesity and diabetes were excluded in addition to for patients with cardiovascular disease

During general anaesthesia, the anesthetic is given intravenously or inhaled in the form of a gas through a mask.

General anesthesia is one of the strongest types of anesthesia and is more commonly used than other types of anesthesia in surgical operations. A group of medications is used whose main objective is to relieve and prevent pain, and to prevent and paralyze muscles during the surgery, including the muscles responsible for breathing; Therefore, a respirator is installed for patients who receive full anesthesia, in order to do the work of the muscles that help in the inhalation and exhalation processes.

As vecuronium was stimulated by the use of 5 mg/kg thiopentone sodium In order to facilitate the method of endotracheal intubation, the facilitator was used.

Study period

The study was conducted over a period of one year, extending from 2020-9-18 to 10-10-2021

Aim of research

This paper aims to know role of General Anaesthesia in supraglottic airway device by using Hemodynamic Response

Statistical analysis

The data and demographic information consisting of age, gender, type of surgery, in addition to the other damaged data, heart rate, were analyzed using the program spss soft 22 and MS EXCEL and among the statistical techniques used in this study.

1. Mean SD
2. P-VALUE

3. Compression
4. Correlation
5. Frequency

Results

Table 1- mean age of group laryngeal mask airway

Mean	33.4000
Median	33.0000
Std. Deviation	6.02139
Range	21.00
Minimum	23.00
Maximum	44.00

Table 2- distribution of patient according to laryngeal mask airway

Count				
		gender		Total
		f	m	
laryngeal mask airway	23.00	0	1	1
	27.00	0	1	1
	28.00	0	1	1
	29.00	0	2	2
	30.00	0	1	1
	31.00	1	0	1
	33.00	2	0	2
	36.00	1	0	1
	38.00	1	0	1
	39.00	0	1	1
	40.00	0	1	1
	41.00	0	1	1
	44.00	0	1	1
Total		5	10	15

Figure 1- distribution of patient according to type of surgery

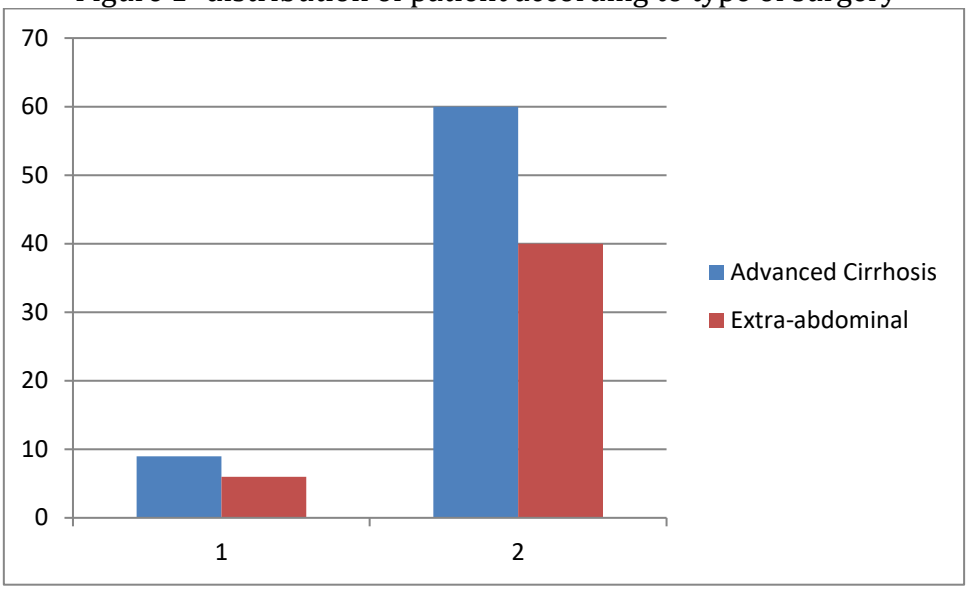

Table 3- mean value of ET patient

Statistics		
ET		
N	Valid	15
	Missing	0
Mean		32.2000
Median		32.0000
Std. Deviation		5.67199
Range		19.00
Minimum		24.00
Maximum		43.00

Figure 2- distribution of patient according to gender

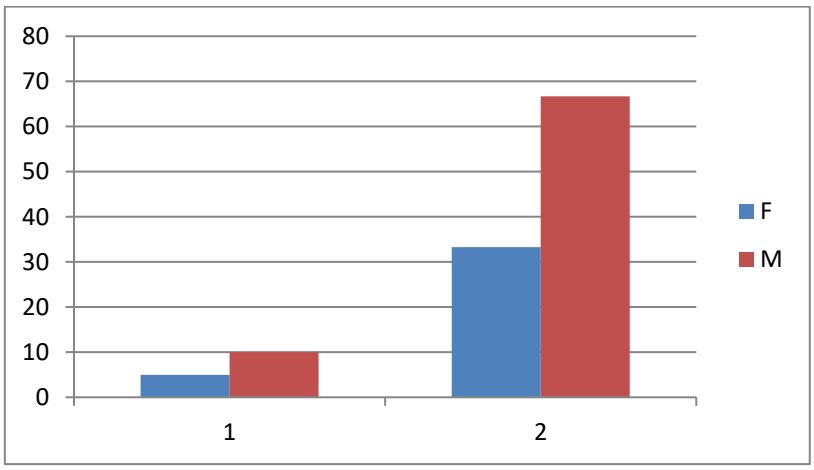

Figure 3- distribution of patient according to type of surgery

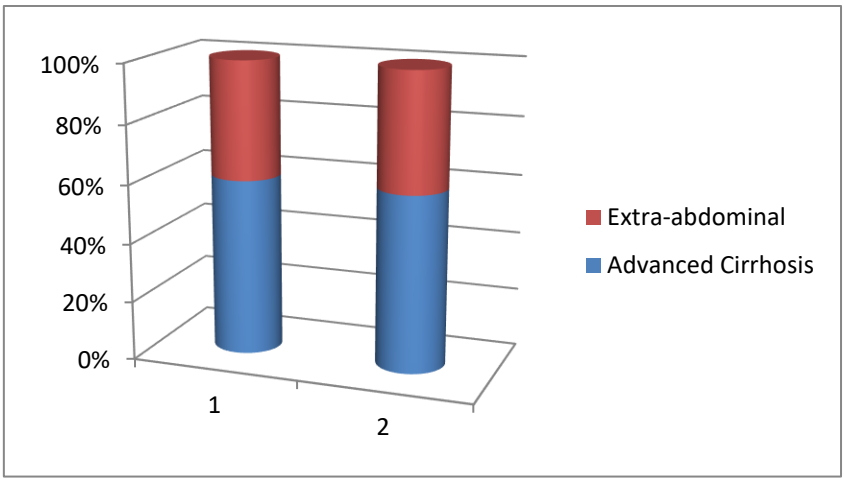

Figure 4- results of systolic blood pressure

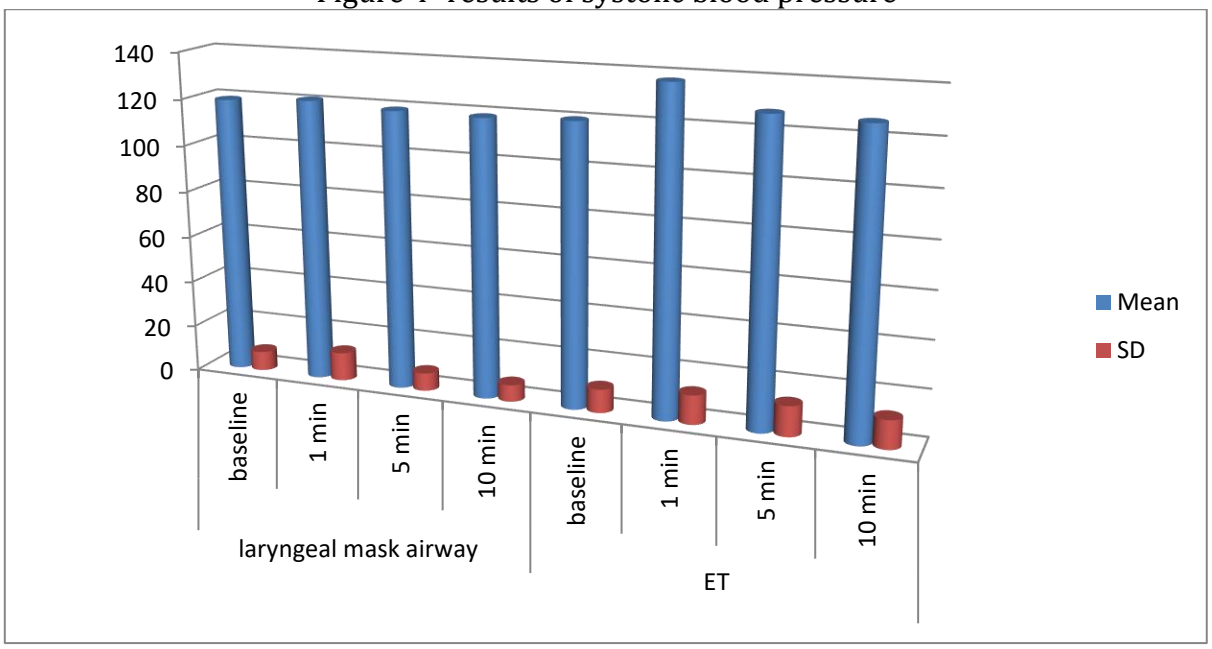

Figure 5- results of f diastolic blood pressure

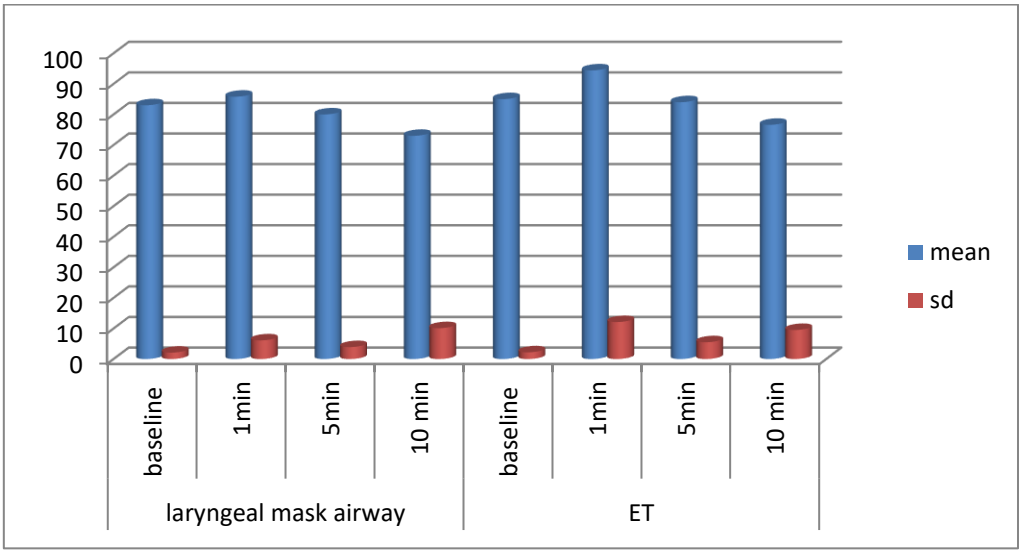

Table 4- Result of heart rate

Statistics

		baseline 1	Baseline ET	MIN1	MIN1 ET	5 MIN	5 MIN ET	MIN10 A	MIN10E T
N	Valid	7	7	7	7	7	7	7	7
	Missing	0	0	0	0	0	0	0	0
Mean		80.7143	85.2857	82.8571	111.2857	80.0000	91.2857	77.4286	93.2857
Std. Deviation		5.21901	7.06433	6.25643	15.07442	4.04145	15.18458	4.07665	5.76525
Range		13.00	20.00	19.00	38.00	12.00	37.00	12.00	14.00
Minimum		73.00	72.00	77.00	95.00	73.00	78.00	70.00	88.00
Maximum		86.00	92.00	96.00	133.00	85.00	115.00	82.00	102.00

Table 5 – correlation between parameters

Correlations

		baseline1	baseline2	1 minG1	1 min ET	5 MIN G1	5 MIN ET	10 MIN G1	10 MIN G2
baseline1	Pearson Correlation	1	.925**	.652	-.312	.427	-.247	.508	-.141
	Sig. (2-tailed)		.003	.113	.495	.340	.593	.244	.763
baseline2	Pearson Correlation	.925**	1	.702	-.223	.701	-.357	.724	-.305
	Sig. (2-tailed)	.003		.078	.631	.080	.432	.066	.506
1 min	Pearson Correlation	.652	.702	1	.368	.639	.341	.669	.357
	Sig. (2-tailed)	.113	.078		.417	.122	.454	.100	.432
1 min ET	Pearson Correlation	-.312	-.223	.368	1	.353	.515	.185	.641
	Sig. (2-tailed)	.495	.631	.417		.437	.237	.692	.121
5 MIN	Pearson Correlation	.427	.701	.639	.353	1	-.301	.890**	-.250
	Sig. (2-tailed)	.340	.080	.122	.437		.511	.007	.588
5 MIN ET	Pearson Correlation	-.247	-.357	.341	.515	-.301	1	-.261	.905**
	Sig. (2-tailed)	.593	.432	.454	.237	.511		.572	.005

10 MIN G1	Pearson Correlation	.508	.724	.669	.185	.890**	-.261	1	-.325
	Sig. (2-tailed)	.244	.066	.100	.692	.007	.572		.477
10 MIN ET	Pearson Correlation	-.141	-.305	.357	.641	-.250	.905**	-.325	1
	Sig. (2-tailed)	.763	.506	.432	.121	.588	.005	.477	

**. Correlation is significant at the 0.01 level (2-tailed).

Discussion

patient was collected and statistically analyzed using SPSS soft and MS excel, where 30 patients were collected and divided into two groups: LMA and ET, each group included 15 patients, and the mean Value age of first group was 33.4 ± 6.06, and it was divided into 10 patients, men and 5 women, as for the ages of the second group ET 32.2 ± 5.6 And through the results of the systolic blood system, we find that the rates were high over the period of 1 minute, and the mean value ± SD reached 137 + 3.8, where there were statistical differences between the two groups 0.001 as shown in table 6 below

Table 6- p-value systolic blood pressure

Parameter	P value
Baseline	0.01
1min	0.001
5 min	0.09
10min	0.002

The differences in blood pressure may be due to the anxiety with which they got to the operating room, they suffer from a decrease in blood pressure, and to an extent with the deepening of the level of anesthesia, this parameter decreases, remaining approx.

Fixed after placement of the laryngeal mask until climbing back into emergency anaesthesia. According to the literature, 2.7 after the introduction of the laryngeal mask, even in 20%, there may be an elevation of heart rate and blood pressure. Unlike endotracheal intubation, this increase may be transient and Even diluted with narcotic medication as was done in this study.

Peripheral oxygen saturation is maintained within physiological ranges, tending to rise, indicating that the laryngeal mask is a safe method for oxygenating and maintaining airway patency.

Conclusion

Not elevated rates were obtained in LMA in contrast to the levels in the ET group, and statistically significant differences of less than or equal to 0.01 were found, which indicates that the laryngeal mask is an effective means of securing a clean airway during elective surgeries.

Recommendation

1. There is a significant risk of leakage in patients with elevated airway pressure due to high airway resistance or poor lung compliance (pulmonary edema, bronchospasm, chronic obstructive airway disease).
2. If upper airway reflexes are not sufficiently inhibited; The patient may cough, feel tense, or have a laryngospasm while putting on the laryngeal mask for the airway.

References

1. Fox EJ, Sklar GS, Hill CH, Villanueva R, King BD. Complications related to the pressor response to endotracheal intubation. Anesthesiology. 1977;47 (6):524–5. [PubMed]
2. Nishikawa K, Omote K, Kawana S, Namiki A. A Comparison of Hemodynamic Changes After Endotracheal Intubation by Using the Lightwand Device and the

Laryngoscope in Normotensive and Hypertensive Patients. Anesth. Analg. 2000;90 (5):1203–7. doi: 10.1097/00000539-200005000-00038. [PubMed] [CrossRef]
3. Sheppard S, Eagle CJ, Strunin L. A bolus dose of esmolol attenuates tachycardia and hypertension after tracheal intubation. Can J Anaesth. 1990;37 (2):202–5. doi: 10.1007/BF03005470. [PubMed] [CrossRef]
4. Shribman AJ, Smith G, Achola KJ. Cardiovascular and catecholamine responses to laryngoscopy with and without tracheal intubation. Br J Anaesth. 1987;59 (3):295–9. [PubMed]
5. Wood ML, Forrest ET. The haemodynamic response to the insertion of the laryngeal mask airway: a comparison with laryngoscopy and tracheal intubation. Acta Anaesthesiol Scand. 1994;38 (5):510–3. [PubMed]
6. Bhattacharya D, Ghosh S, Chaudhuri T, Saha S. Pressor responses following insertion of laryngeal mask airway in patients with controlled hypertension: comparison with tracheal intubation. J Indian Med Associat. 2008;106 (12):787–8. [PubMed]
7. Atef HM, Fattah SA, Gaffer ME, Al Rahman AA. Perfusion index versus non-invasive hemodynamic parameters during insertion of i-gel, classic laryngeal mask airway, and endotracheal tube. Indian J Anaesth. 2013;57 (2):156–62. doi: 10.4103/0019-5049.111843. [PMC free article] [PubMed] [CrossRef]
8. Siddiqui NT, Khan FH. Haemodynamic response to tracheal intubation via intubating laryngeal mask airway versus direct laryngoscopic tracheal intubation. J Pak Med Assoc. 2007;57(1):11–4. [PubMed]
9. The LMA- Supreme TM. Instruction Manual. Ltd. MIO; 2007. Available from: http://www.intaventdirect.co.uk.
10. van Zundert A, Brimacombe J. The LMA Supreme--a pilot study. Anaesthesia. 2008;63 (2):209–10. doi: 10.1111/j.1365-2044.2007.05421. x. [PubMed] [CrossRef]
11. Brain A, Denman WT, Goudsouzian NG. Laryngeal mask airway instruction manual. San Diego Calif LMA North America Inc. 1999;3
12. LMA Supreme™. Technology TMIBa; 2014. Available from: http://www.lmaco.com/sites/default/files/31817-LMA-Supreme-A4Data-0214-LORES-fnl.pdf.
13. Miller RD, Eriksson LI, Fleisher L, Wiener-kornish JP, Youg WL. Miller's Anesthesia. 7 ed. Churchill Livingstone: Elsevier; 2010.
14. Kazama T, Ikeda K, Morita K. Reduction by fentanyl of the Cp50 values of propofol and hemodynamic responses to various noxious stimuli. Anesthesiology. 1997;87 (2):213–27. [PubMed]
15. Kahl M, Eberhart LH, Behnke H, Sanger S, Schwarz U, Vogt S, et al. Stress response to tracheal intubation in patients undergoing coronary artery surgery: direct laryngoscopy versus an intubating laryngeal mask airway. J Cardiothorac Vasc Anesth. 2004;18 (3):275–80. [PubMed]
16. Eghbal MH, Sahmeddini MA. Comparison larygeal mask airway with the endotracheal tube for the external dacryocystorhionostomy surgery. A randomized clinical trial. Middle East J Anaesthesiol. 2013;22 (3):283–8. [PubMed]
17. Bennett SR, Grace D, Griffin SC. Cardiovascular changes with the laryngeal mask airway in cardiac anaesthesia. Br J Anaesth. 2004;92 (6):885–7. doi: 10.1093/bja/aeh149. [PubMed] [CrossRef]
18. Jarineshin H, Razmpour M. Comparison of hemodynamic changes of propofol and thiopental during Induction of anesthesia and tracheal intubation. Hormozgan Med J. 2006;10 (3):215–21.