

Outcome of general anaesthesia by laryngeal mask airway (LMA) in ophthalmic surgery in the national institute of ophthalmology and hospital, Dhaka

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Abstract:

Background Patient is very safe under general anaesthesia with laryngeal mask airway intra and post operatively in ophthalmic surgery.

Methods Different ophthalmic procedures and surgery were done on different age group from five months to fifty years with ASA grade I and II under general anaesthesia by laryngeal mask airway (LMA) to see the haemodynamic status and other parameters during operation and post operative recovery period.

Results Total number of ophthalmic surgery under G/A was 1814. General anaesthesia by orotracheal intubation was given only in twenty five (25) patients and general anaesthesia was given by Laryngeal mask airway insertion in 1789 patients. Complications occur in Laryngeal mask airway group patients only in 8 patients. Percentage of safe LMA insertion was 99.55% and percentage of complication was only 0.45%. Operation time ranges from few minutes to two hours. General anaesthesia through laryngeal mask airway insertion make the procedures easy and safe for the patients except minimum percentage of complications.

Conclusion Laryngeal mask airway causes less changes of haemodynamic parameter. LMA is very effective in the spontaneously breathing patient. During operation patients become stable and no rise of intraocular pressure and on reverse the patient become smooth with less secretion, no spasm, no cough and no vomiting.

Keywords: General anaesthesia, laryngeal mask airway, ophthalmic surgery, minimum complication, smooth reverse

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Introduction

Different operations are being done on different ophthalmic patients of different age group in the National Institute of Ophthalmology and Hospital, Dhaka. Following the intubation by endotracheal tube, different hazards like difficulty of intubation, laryngeal spasm, secretion, vomiting, regurgitation, reversal hazard like laryngeal spasm, straining, coughing, excitement and delirium are the most common morbidities which need medical attention. But insertion of laryngeal mask airway of different sizes for different aged patient make the whole anaesthesia so easy, smooth and convenient and mostly complication

free and need less drugs in cataract surgery and in other ophthalmic cases.

Total number of General anaesthesia was given from the month of October, 2008 to April, 2010 = 1814 (Total number of Patient).

Laryngeal Mask Airway (LMA) is a device¹ which is designed in 1981 by Archie Brain, a British Anaesthetist. It makes an airtight seal around the glottis (Occupies the entire hypopharynx).

Methods

We had done different ophthalmic procedures and surgery of different age group from five months to fifty years with ASA grade I and II under general



Fig 1 *Laryngeal Mask Airway.*

anaesthesia from the month of October, 2008 to April, 2010. Total number of surgery was 1814. Amongst them general anaesthesia by laryngeal mask airway insertion was 1789. Before going to operation pre-anaesthetic checkup was done. Patients with any co-existing diseases (like hypertension, diabetes, bronchial asthma, RTI etc) were being treated before operation by appropriate drugs. Premedication was not used. Insertion of laryngeal mask airway was done only by lubricating the device with 2% lignocaine jelly without using laryngoscope.

Insertion and maintenance of anesthesia for smaller paediatric patients were done only with deep inhalational anaesthesia, I/V channel for longer operation must be maintained. Older children and adult patients need I/V induction agents like thiopental sodium or propofol for insertion of L.M.A and for maintenance small doses of muscle relaxants needed followed by inhalation of O_2 , N_2O and halothane. Assisted ventilation or spontaneous ventilation was allowed to run operation. For smooth respiration or for deep anaesthesia adjuvant was used like fentanyl or pethidine, NSAID or small doses of diazepam and others. Reversal may not be needed. If muscle relaxant was used for longer time reversal drugs may be needed. Maximum time no need of suction during reverse. Only by making off the N_2O ,

halothane and put out the LMA by taking out air by holding face mask with O_2 for few minutes and made sure that the patient is taking spontaneous respiration with sufficient tidal volume and other parameters of the patient were normal like pulse, blood pressure, reflex, respond to command and others. Less anaesthetic is required to tolerate the LMA than endotracheal tube. The patient for short surgery with insertion of LMA may remain spontaneously ventilating with O_2 , N_2O and halothane anaesthesia. Once the LMA is placed in situ respiration was supported initially by gentle manual ventilation and the patient allowed gradually to take over their own breathing. When using the LMA with IPPV reversal of neuromuscular block is best carried out under a continued level of anaesthesia. LMA was removed either in deep plane of anaesthesia or in awake condition either in supine or lateral position.

Result

Total number of surgery under general anaesthesia was 1814. Amongst them general anaesthesia by intubation was given only in twenty five (25) patients. General Anaesthesia by LMA insertion was 1789. Percentage of GA by endotracheal intubation was only 1.38% Percentage of G/A with LMA insertion was 98.62% Table-I. Complications occur only in 8 patients. Percentage of safe LMA insertion as 99.55% complication was only 0.45%. Three patients become cyanosed due to dislodgement of LMA, one patient become cyanosed due to respiratory tract infection, vomiting occurred in three patients due to wrong information from patient party regarding empty stomach. Cardiac arrest occurred in one patient. But patient was managed properly and recovery was good. Although the operation time was few minutes to two hours, G/A through laryngeal mask airway (LMA) insertion make the procedures easy and safe for the patient except minimum percentage of complications. There was no complication in adult patients. Pulse, Blood pressure, respiratory rate and Oxygen saturation were normal in the adult group of patients. 40.46% patients were in paediatric group. Few percentage of complication occurred only in the paediatric group of patients.

Table I

	Number of Patient	Percentage
General Anaesthesia by endotracheal tube intubation	25	1.38%
General Anaesthesia with laryngeal mask airway (LMA) insertion	1789	98.62%

Table II
Parameter of paediatric patient

Age	Number of Patients	Pulse	IOP (mmHg)	Vomiting	Respiratory Spasm	Reverse
1 month to 1 ½ Years	342	140 + 20 (Cardiac arrest occur in 1 patient)	10 – 15 3 patients	Occur only in in 4 patients	Cyanosis occur Good	
2 years to 5 ½ Years	235	120 + 20	10 – 15	No	No	Good
6 years to 12 Years	147	100 + 20	10 – 15	No	No	Good

Different parameters of cataract surgery of pediatric group of patients under LMA insertion from the month of October' 2008 to April, 2010 in NIO&H, Dhaka

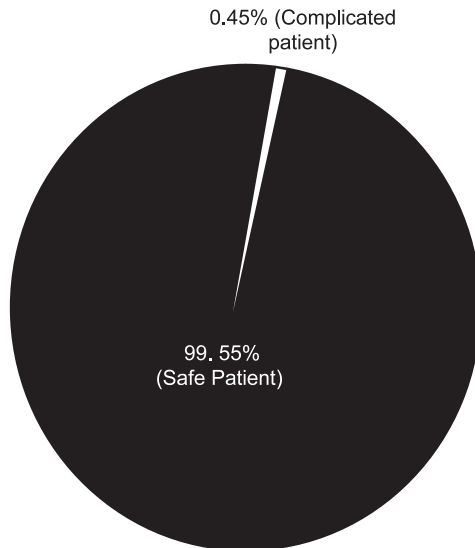


Fig 2 Percentage of safe and complicated Patients under general anaesthesia by L.M.A Insertion

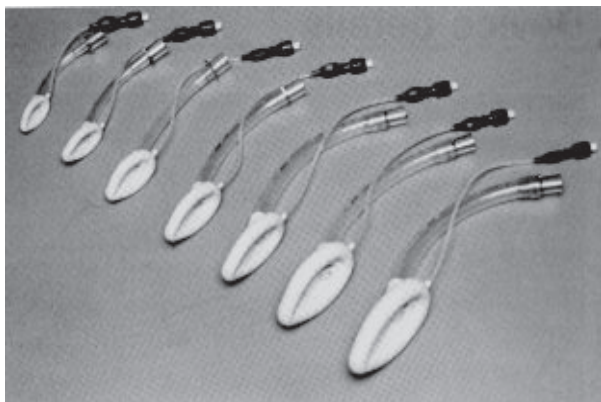


Fig 3 Different sizes² of Laryngeal Mask Airway.

Discussion:

The LMA provides³ an alternative to ventilation through a face mask or endotracheal tube. Because it is not placed in the trachea, use of an LMA is associated with less bronchospasm than an endotracheal tube. Insertion of LMA is very easy and success rate is 95-99% in case of patients with difficult airways. The LMA partially protects the larynx from pharyngeal secretions (but not gastric regurgitation) and it should remain in place until the patient has regained airway reflexes. haemodynamic stability⁴ is an integral and essential goal of any anaesthetic management plan but haemodynamic changes during intubation especially in case of heart disease and hypertension, increase of IOP and ICP are a great problem for anaesthesiologist and patient. So, the anaesthesiologist always try to reduce these haemodynamic changes by applying methods or drugs. Many drugs have been suggested in modifying haemodynamic responses to laryngoscopic intubation. This may prolong recovery time and may lead to cardiovascular complications. We observe that LMA insertion has no significant haemodynamic effect. There is no use of laryngoscope. Small amount of drugs are needed. Only by using fingers we can insert it. LMA removal too does not change haemodynamic parameter significantly. After LMA insertion there is no significant change on heart rate, systolic blood pressure, diastolic blood pressure, no rise of intraocular pressure during operation. Patient can be put in spontaneous respiration for short term procedure or IPPV with muscle relaxant (small

amount) can be done for a longer procedure. The larynx has the greatest afferent nerve⁵ supply of all the airways being largely supplied by fibers from the internal branch of the superior laryngeal nerve. Reflex responses to a number of mechanical and chemical stimuli are also mediated by the superior laryngeal nerve and leads to sympathetic stimulation and rises blood pressure and heart rate. Laryngoscopy and subsequent tracheal intubation are associated with a 25-50% rise in blood pressure and a similar increase in heart rate. Insertion of the LMA is associated with only a 0-20% rise in blood pressure and heart rate in both adults and children. Sympathetic responses due to laryngoscopy and intubation cause a 25% in intraocular pressure (IOP) compared with only 5-10% for the LMA when anesthesia is induced with thiopental and halothane. But when propofol is used in patient with normal eyes or in patient with glaucoma no rise of IOP occur.

We can conclude that LMA insertion causes less changes of haemodynamic parameter. The LMA is very effective⁶ in maintaining airway in the spontaneously breathing patient. The mask is not suitable for patients who are at risk from regurgitation of gastric contents. During operation

patients become stable and no rise of intraocular pressure. On reverse the patient become smooth with less secretion, no spasm, no cough and no vomiting. So, under general anaesthesia by LMA insertion in ophthalmic surgery especially in glaucoma, cataract surgery, corneal injury and other ophthalmic procedures, patients are safe and complication free.

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