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Research Article

Extra glottic airway devices: essential uses as a new generation

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Abstract

The second most frequent postoperative complication following wound infection is postoperative nausea and vomiting. Retching and vomiting can cause a wound to dehisce, extending hospital stays and increasing costs. Numerous clinical studies have revealed that propofol is equally efficient at lowering the incidence of nausea and vomiting after intrathecal morphine administration as it is at reducing pruritus.

Aim:

The aim of the study was to analyse the antiemetic effects of sub hypnotic dose of propofol in various surgical conditions.

Methods:

An extensive research of all materials related to the topic was carried out in the PubMed and Google scholar search engine .relevant research articles focusing on sub hypnotic doses of Propofol for nausea and vomiting published since 2019 were included in the review .several review articles were excluded, and studies related to anaesthesia were included from 241articles, narrowing it down to a total of 7 studies which implies the subhypnotic doses of the drug in various anaesthesia related clinical scenarios. A total of 7 studies similar to the current study objectives were included in the study and analyzed. keywords used in the searches included Propofol, sub hypnotic, nausea, vomiting.

Conclusion:

Sub hypnotic dose of Propofol (0.5mg-1.0mg/kg/hr) given pre operatively effectively reduce post-operative nausea and vomiting in various surgical operation. But the duration of its anti-emetic effect seems to be lower than other anti-emetic drugs in the market. Still it can be effectively used in reducing post op and intra op nausea and vomiting.

Keywords: propofol; sub hypnotic; nausea; vomiting

Introduction:

The usage of extra glottic airway devices has been used widely for anesthesia in various emergencies and elective procedures. There are first-generation devices known as simple airway tubes, and then comes the second generation which was designed better known as airways that prevent aspiration from gastric contents with cuff present. Then comes the third generation Extra glottic airways without cuff (baska Lma) which is designed as a device with a self-sealing cuff. It is also designed to facilitate endotracheal tubes for intubation through, with additional features of the bite block and oesophageal drains. All the generations are designed as safety devices to ventilate through, also used safely as difficult airway options in which improved devices are available in markets with new features. This review article aims to describe several extra glottic airway devices that are safe and effective for use in the next generation of anesthesia. So we took Slipa LMA in the first generation and Baska LMA in the third generation as the main focus which is representative devices for other airway devices.

Methods:

Using keywords from 2005, a thorough search of all the relevant documents was conducted using the PubMed, Embase, and Google Scholar databases. This narrative evaluation contained pertinent papers, records, and original research articles that focused on the use of different extra-glottic airways. Twenty publications in total, including original research articles, were found on the subject. Eight of these publications were included in our review and examined after the 18 that were evaluated were deemed appropriate for the current review aims.

Results :

A novel disposable supraglottic airway that seals without the need for an inflated cuff is called SLIPATM (Streamlined Liner of the Pharynx Airway). It is composed of a pharyngeal closure and a hollow blow-molded soft plastic airway. The hollowness allows for the possibility of liquid entrapment, which could provide effective aspiration protection. Positive-pressure breathing was used to evaluate the airways of the SLIPATM, regular, and ProSeal laryngeal masks using a silicone rubber pharynx that was simulated and had an "oesophageal" tube for injecting

amounts of regurgitant liquid. Using the laryngeal mask airway and the ProSeal laryngeal mask airway with the drainage tube closed, a straight line was found between the volume "regurgitated" and the volume "aspirated".

Both the SLIPATM and the Good defense against "aspiration" during positive-pressure breathing using the ProSeal laryngeal mask airway with an open drainage line, but not the conventional laryngeal mask airway. In clinical research, 120 patients were randomly randomized to receive controlled ventilation of the lungs using either the SLIPATM or the conventional laryngeal mask airway. Both devices provide sufficient airway control and are easy to use. (1)

3% of patients in the Lma® group and 19% of patients in the SLIPA® group (P 0.05) suffered from stomach air insufflation. The stomach contents did not regiment comfort of the SWe evaluated the handling, safety, pharyngeal sealing, and patLIPA® and the conventional laryngeal mask airway (LMA®) in 124 adult patients (ASA I–III) undergoing ocular surgery under general anesthesia. Within the Lma® cohort, 90% of insertions were straightforward, 8% were somewhat challenging, 2% were unquestionably tough, and 0% of insertions failed. The maximum seal pressure for the SLIPA® was 24 6 mm H2O, whereas the maximum seal pressure for the Lma® was 24 4 mm H2O. Gastric air insufflation occurred in 19% of patients in the SLIPA® group and 3We evaluated the handling, safety, pharyngeal sealing, and patient comfort of the SLIPA® and the conventional laryngeal mask airway (LMA®) in 124 adult patients (ASA I–III) undergoing ocular surgery under general anesthesia. Within the Lma® cohort, 90% of insertions were straightforward, 8% were somewhat challenging, 2% were unquestionably tough, and 0% of insertions failed. The maximum seal pressure for the SLIPA® was 24 6 mm H2O, whereas the maximum seal pressure for the Lma® was 24 4 mm H2O. Gastric air insufflation occurred in 19% of patients in the SLIPA® group and 3% in the Lma® group (P 0.05). The stomach contents did not regurgitate. The airway was closed down without any problems in any of the patients. Twenty percent of the SLIPA® group and eleven percent (n.s.) of the Lma® group had blood traces on the device's surface. 2% of the SLIPA® group and 14% of the Lma® group, respectively, reported having a sore throat. A helpful substitute for the traditional LMA in individuals having minor surgery is the SLIPA.

(2)

Patients receiving lower abdomen laparoscopic operations were enrolled in a prospective, crossover randomized controlled experiment. A total of 120 patients receiving lower abdominal laparoscopic surgery were randomly assigned to one of two groups: the PLMA(proseal) or the SLIPA. The number of tries at intubation, insertion time, ease of insertion, and fiberoptic bronchoscopic view were all kept track of. After securing the airway for 5 minutes, data on lung mechanics was recorded, followed by abdominal insufflation. The presence of blood traces and regurgitation was investigated, as well as postoperative sore throat and other problems. In both groups, insertion time, first insertion success rate, and ease of insertion were comparable. In the SLIPA group, the fiberoptic bronchoscopic vision was much better, and epiglottic downfolding was significantly reduced. The lung mechanics and sealing pressure were identical. Both groups showed no signs of gastric distension. In the proseal group, postoperative sore throat was considerably higher in the post-anesthesia care unit. The SLIPA group had much more blood traces on the instrument. In patients undergoing lower abdominal laparoscopic surgery with muscle relaxants and controlled breathing, SLIPA can be a good alternative to Proseal. (3)

A total of sixty patients were taken randomly assigned to one of two different groups: Proseal (n = 30) or SLIPA (n = 30). The ease of insertion time success rate, any hemodynamic responses in insertion, or anyventilatory efficiency, and fiberoptic bronchoscopy-confirmed placement were all evaluated. At 10 minutes following injection, data on lung mechanics were gathered using side stream spirometry. We also looked at the rate of blood clots, as well as the frequency and severity of postoperative sore throat and other problems. In Proseal and SLIPA, first-time success rates were 93.3 percent and 73.3 percent, respectively, with mean insertion times of 7.3 seconds and

10.5 seconds. At one minute after SLIPA was inserted, there was a significant increase in all hemodynamic responses compared to the pre-insertion value. However, there was no substantial increase in hemodynamic responsiveness after Proseal was implanted. The mean maximum sealing pressure, gas leakage, lung mechanical data, stomach distension, postoperative sore throat, and other complications were not significantly different between the two groups. In the SLIPA, 40% (n = 12) of the devices had blood staining on the surface, compared to 6.7 percent (n = 2) in the Proseal. The SLIPA is a good alternative to the Proseal because its efficacy and complication rates are comparable.(4)

In individuals undergoing general anesthesia, a systematic evaluation was conducted to Evaluate the safety and effectiveness of the laryngeal mask airway and the streamlined liner of the pharynx airway. There was no discernible difference between the two devices in terms of insertion success rate on the first attempt (13 studies, 1143 patients), insertion time (seven studies, 576 patients), ease of insertion (five studies, 466 patients), oropharyngeal leak pressure (eight studies, 771 patients), or the quality of the fiberoptic view of the larynx through the device. (three studies, 281 patients). The streamlined liner of the pharynx airway had a relative risk of bloodstaining of the device of 2.09 (1.46–3.00) when compared to the laryngeal mask airway (nine trials, 859 patients). Other negative effects were similar. The streamlined liner of the pharynx airway may be faster and more successful for beginner users than the laryngeal mask airway, according to subgroup analysis; nevertheless, this was based on only two investigations and 186 patients. The manner of size selection for the streamlined liner of the pharyngeal airway device may also affect insertion speed: choosing based on the width of the patient's thyroid cartilage rather than height may give better results.(5)

SLIPATM (Hudson RCI) (Streamlined Liner of the Pharyngeal Airway) is a revolutionary disposable supraglottic airway device with characteristics to lower the risk of aspiration and no inflatable cuff. This study set out to assess the efficacy and success of SLIPATM insertion in sixty patients slated for elective surgery. The ethics committee approved the request. Patients were excluded from the trial if they were under eighteen, did not give written consent, or posed a risk of pulmonary aspiration. The first 20 SLIPATMs were implanted by the principal investigator (Group A), and then 40 more were placed by medical officers and anesthetists with varying degrees of competence (Group B). The study included 39 female participants and 21 male participants. Group A had a median time to ventilation of 20.4 seconds (range 12.9-109) while Group B had a median time to ventilation of 24.8 seconds (range 12.9-109). (range 8.2- 82.5). Group A had a 100% success rate, whereas Group B had a 92.5 percent success rate.(6)

Brimacombe et al. demonstrated that the introducer resulted in greater first-time success rates and shorter effective airway times. The introducer makes the insertion process simpler since it takes up less room than a finger, prevents the finger from being inserted within the mouth cavity, guides the cuff around the oropharyngeal entrance, and enables insertion to the full depth. The results of previous studies support our findings that the Proseal LMA took longer to achieve an effective airway than the Classic LMA, and that the first-time success rates for ma were marginally greater in our trial. The explanation that was frequently given was that the Proseal's leading edge, which was more rigid than the standard LMA's leading edge, was generated when the semi-rigid distal end of the drain tube deflated. These elements may make the proseal LMA insertion challenging. While this time discrepancy might not matter in typical cases, it matters in emergency scenarios where maintaining airway stability is crucial. (7)

Positive pressure ventilation using Lma is common, but it is regarded by some as controversial. Ventilation of a healthy patient's lungs is possible if the seal pressure is higher than 20 cm H2O. To measure the effectiveness of the seal with the airway, an airway sealing pressure, sometimes known as a "leak" test, is frequently conducted with the Lma. This number is crucial because it shows how well airways are protected against supracuff soiling and whether positive pressure breathing is feasible. In the commonly used airway sealing pressure test, the airway pressure at which the gas escapes is noted while listening over the mouth.

According to Keller et al., the manometry stability test might be the most suitable test to compare the airway seal pressures for clinical applications. Gastric insufflation was more likely if the peak inflation pressure was higher than the leak pressure. The findings of our investigation indicated that there was a greater likelihood of leaking if a Classic Lma was chosen for positive pressure ventilation. But in every case of LMA, we could ventilate efficiently.(8)

Declaration of the author:

I declare the above article is my exclusive work. And this statement is true.

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Conflicts of interest: we do not show any conflicts of interest.

Conclusion:

In conclusion, the above review articles demonstrated that all supraglottic airway devices provided adequate, safe, intraoperative airway openings. Although no difference was observed between one or other devices in terms of use and clinical performance, it was concluded that the third-generation extra glottic airways like Baska Mask Lma and supreme Lma were more advantageous.

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