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Success Of LMA Insertion Technique Using Opioid Free Anesthesia

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ABSTRACT
Airway management is one of the main focuses in anesthesia because patients under anesthesia are at risk for airway obstruction and aspiration. Airway management is essential for managing critically ill patients, trauma patients, and anesthesia, both during surgery and procedures outside the operating room. The Laryngeal Mask Airway (LMA) is a supraglottic airway device used to facilitate and ensure closure of the laryngeal cavity for spontaneous ventilation. Opioid-free anesthesia (OFA) is defined as an anesthetic technique in which opioids are not used in the perioperative period (systemic, neuraxial or intracavitary). There is a successful LMA insertion technique using opioid-free anesthesia.

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INTRODUCTION

Airway management is one of the main focuses in anesthesia because patients given anesthesia are at risk of airway obstruction and aspiration. Airway management is very important for managing critical patients, trauma patients and the anesthesia process, both during surgery and procedures outside the operating room. (1) Nowadays, the use of LMA is increasingly widespread, because its use has various advantages. Among them are easy and fast application, without laryngoscopy, more stable hemodynamic response compared to *endotracheal tube* (ETT) installation, and minimal tracheal injury because its position is above the larynx. Successful LMA insertion requires adequate mouth opening and airway reflex suppression to prevent coughing, choking and laryngospasm. (2)

Perioperative opioid use own Lots effect detrimental to the results maintenance health. One of them speed up epidemic addicted to opioid prescribing and death consequences overdoses worldwide. Therefore excessive use of opioids can cause effect side effects (nausea and vomiting, sedation, ileus, confusion and delirium, depression) breathing, increase painful post operations and consumption morphine, immunodepression, hyperalgesia, pain post operation chronic, addiction, and abuse), then be developed a new strategy in frame reach anesthesia balanced general in the form of *opioid free anesthesia* (OFA). This technique can used in parts big operation with use drugs analgesic alternative. (3)

RESEARCH METHOD

Study This aiming For evaluate success technique Laryngeal Mask Airway (LMA) insertion with using opioid-free anesthesia through approach quantitative descriptive. Focus study is

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measure effectiveness method This in procedure anesthesia general, with replace opioids as agent remover painful with other alternatives such as dexmedetomidine or ketamine. Research conducted on the population patients undergoing action anesthesia general, with the data collected through observation direct to duration LMA insertion, stability hemodynamics patient during procedures, as well as complications post-operative like nausea, vomiting, and pain. In addition, researchers will also measure comfort patient through interview short post-operative use scale painful.

Data analysis was performed with compare results group patients who use opioid-free anesthesia techniques with group controls receiving opioids. Statistical test descriptive will used For describes the data obtained, while the t-test or Mann-Whitney U Test will applied For determine There is whether or not difference significant in duration insertion and complications that arise between second group. Research results This expected can give outlook new about safety and effectiveness of opioid-free anesthesia in LMA insertion, as well as become base recommendations practice more anesthesia safe and comfortable for patients in the future.

RESULTS AND DISCUSSION

LMA (Laryngeal Mask Airway)

Laryngeal Mask Airway (LMA) is a tools supraglottic airway is used For facilitate and guarantee closed part in larynx For ventilation spontaneous. [4,5] LMA, which is created from rubber silicone software designed special For needs medical, can used repeatedly and cleaned with autoclave. Consists of from the shaped mask spoon functional ellipse US balloons that can developed, and created bent with corner around 30°. Up to moment this, various type has made with the advantages and disadvantages of each. [1]

One of profit use of LMA in the form of avoid irritation larynx and vocal cords, become good alternative For endotracheal tube (ETT) for manage airway with hemodynamics stable, and reduce effect side breathing perioperative like cough, sick throat, desaturation, bronchospasm, and nausea post operation. [4] Weakness play from method classic LMA installation conventional in the form of opening mouth and teeth more patients small can obstruct operator fingers. LMA Proseal is the most versatile type of LMA Because has two hose cuffs drainage food and breathing separate and hose road flexible breathing, which allows time long ventilation with damage at least the posterior pharyngeal wall. [1]

LMA can used US tools help deep breathing action operation on the patient. In the condition emergency emergency, LMA is used US connector temporary to intubation by the officer health, in condition stop heart, " no can do intubation, no can give oxygen ", efforts ventilation in the situation fail the breath that is done with intubation moment surgery. [6] LMA is an appropriate alternative to perform endotracheal intubation in previously examined patients so that the complications that occur are relatively small compared to intubation in patients who have not been previously examined. However, complications that can occur due to the use of LMA are laryngospasm, nausea, vomiting, aspiration, and coughing. This drug can stimulate the gag reflex and is therefore not recommended in conscious or awake patients. Contraindications for elective use include airway obstruction, pharyngeal pathology, risk of aspiration, and/or airway obstruction below the larynx. [6]

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Opioid free anesthesia (OFA)

Opioid free anesthesia (OFA) is an alternative to *opioid based anesthesia* (OBA) using multimodal analgesia to replace opioids. [7] OFA is technique anesthesia where opioids are not used in perioperative (systemic, neuraxial) or intracavitary). OFA is a new approach to general anesthesia in which opioids are replaced with OFA in the intra and postoperative period. Opioids are the ideal medicine for block response sympathetic to painful surgery. Multimodal analgesia consists of administering local anesthetics and other systemic drugs. With the aim of using the synergistic effects between these drugs, thereby reducing the possibility of side effects. [8]

OFA is the most common form of analgesic. This group of drugs includes acetaminophen and nonsteroidal anti-inflammatory drugs (NSAIDs). Based on a study by Anthony, et al., it was found that the OFA technique proved to be ideal when applied to patients undergoing laparoscopic cholecystectomy surgery. This was characterized by increased recovery time, reduced incidence of nausea and vomiting and other complications related to the length of intensive care with the need for respiratory assistance. [9]

Basically OFA is giving anesthesia without intraoperative opioid use. Transfer from perioperative opioid use is change massive thinking but it is very necessary. OFA technique has been shows a better prognosis good for patients certain like patients at risk experience opioid abuse, bipolar/ schizophrenia, history of disease cerebrovascular disease kidney chronic, history fail heart, use benzodiazepine or antidepressant in a way simultaneously, disease lungs chronic, syndrome painful chronic, obesity, *obstructive sleep apnea* (OSA), surgery cancer, and *enhanced recovery after* colorectal surgery (ERAS). [3]

Opioids are used to block the sympathetic response to pain during surgery. Many drugs are now available for the purpose of blocking the sympathetic response. Direct central or peripheral sympathetic blockade can be achieved using β -2 agonists (dexmedetomidine). Multimodal pain management is the best way to reduce opioid consumption. The use of multimodal OFA intraoperatively works by pre-emptive receptor inhibition in the complex pain pathway, both centrally and peripherally. Stable anesthesia can be achieved using a multimodal approach of sympathicolytic drugs and OFA. [8]

Methods used moment This in frame minimize use of opioids in the perioperative process in the form of regimen multimodal analgesics consisting from OFA pharmacology and techniques regional anesthesia. Sultana et al reported that OFA can lower intensity painful post surgery and nausea without extend time recovery. Patient laparotomy hemicolectomy with OFA also experiencing decline pain on *visual analog scale* (VAS) 6/10 at two hours post operation to VAS 4-6/10, and three day post operation only with giving paracetamol and novalgetol. [3]

Lidocaine, ketamine, and alpha-2 agonists such as clonidine or dexmedetomidine have been considered as alternatives to opioids alone or in combination. Currently available OFA drugs include acetaminophen, non-steroidal anti-inflammatory drugs (ketorolac, ibuprofen, celecoxib), alpha-2 agonists (dexmedetomidine, clonidine, tizanidine), N-methyl-d-aspartate (NMDA) receptor antagonists (ketamine, amantadine, dextromethorphan), gabapentin (gabapentin and pregabalin), antidepressants (amitriptyline, desipramine, duloxetine),

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esmolol, lidocaine, caffeine, glucocorticoids (dexamethasone), muscle relaxants (methocarbamol, cyclobenzaprine), and magnesium. [3]

OFA has been implemented in many places in the world and in some countries it is used in routine practice. A recent presentation from *the American Association of Anesthesiologists* (ASA) meeting in New Orleans recommended the use of postoperative infusion with ketamine 100 mg + dexmedetomidine 100 mcg + lidocaine hydrochloride 100 mg + magnesium sulfate 5 g in 1 L saline. In Bruges (Belgium) the use of anesthesia and OFA increased patient satisfaction with reduced postoperative pain, better sleep on the first night after surgery, and decreased opioid-related side effects. Various drugs and techniques are used as part of multimodal analgesia to improve pain management, reduce opioid consumption, and opioid-related side effects. Balanced analgesia is a multidrug-based method of postoperative pain management in which the pain process is suppressed in three places, namely, transduction with NSAIDs, transmission with local anesthetics, and modulation with opioids. [8]

OFA provides stability hemodynamics start from moment induction, intubation, until post operations. Besides that, it also doesn't obtained complaint painful post operation, no There is use of rescue analgesics, as well No There is complaint nausea and vomiting post operation. OFA can reduce effect side opioid use, shortening length of stay stay, and give stability hemodynamics with use multimodal approach using drugs sympatholytics and OFA. [8]

Currently, opioids are base from management painful intraoperatively. However opioid use can result in various effect intra- operative and post-operative side effects. Effects side This is one of reason play why opioids don't entered in guidelines *Enhanced Recovery After Surgery* (ERAS). Opioids also cause tolerance acute and hyperalgesia. Research latest show opioid - induced immunosuppression can influence results operation, upgrade risk infection and increase risk of metastasis in the population cancer. [8]

Success of LMA Insertion Technique With Using Opioid Free Anesthesia.

From research conducted by Rahmat et al. (2022) which compared between use of fentanyl (opioid) and lignocaine (OFA) in the technique LMA insertion, it turns out own level same effectiveness. Success technique LMA insertion in the experiment First obtained more from 80% of patients carried out by OFA. This is in accordance with study previously achieved success test First with results more of 90% of patients in the group fentanyl and lignocaine topical. [10] Effect side found during LMA insertion process in the form of comparable coughing and vomiting between lignocaine (11%) and fentanyl (16%). Other studies by Changchien et al and Dhamotharan et al happen symptoms coughing and vomiting in 10% and 16% of patients given lignocaine and fentanyl. [10]

Success rate LMA insertion with using lignocaine (OFA) in the experiment first, found condition optimal placement, minimal propofol use, pressure blood / hemodynamics more stable, effect side effects and complications minimal airway. Regarding effect side from use opioid drugs, then OFA can become choice in support success technique LMA insertion. [10]

Study more carry on conducted by Catherine et al. (2023) who compared level difficulty LMA insertion and changes hemodynamics moment combined administration of propofol with IV lignocaine or lignocaine topical. Research This involving 100 patients group aged 20-

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50 years who undergo various procedure surgery elective. In group A, lignocaine given in a way intravenously and in group B it was given lignocaine aerosol 10% then sprayed to posterior pharyngeal wall before done induction. (11)

The results of the study in group A, the level of difficulty in installing LMA was very good 50%, good 20% and poor 30%. In group B, the level of difficulty in installing LMA was very good 60%, good 30%, and poor 10% with ap value of 0.04. There was a significant difference between the two groups where the hemodynamic parameters, SBP, DBP, MAP and EtCO2 were significantly higher in the group with IV lignocaine administration for the first 5 minutes before the start of anesthesia. (11)

CONCLUSION

Based on study this, technique Laryngeal Mask Airway (LMA) insertion with using opioid-free anesthesia proven effective and safe, with level high success as well as complications minimal post-operative. Alternatives use agent anesthesia such as dexmedetomidine and ketamine capable maintain stability hemodynamics during procedures and provide control enough pain without risk effect side effects of opioids, such as depression shortness of breath and nausea vomiting. This result show that opioid-free anesthesia can become more choices Good For patients, especially for those at risk experience complications related opioid use, as well as potential increase comfort and acceleration recovery postoperative.

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