


Description Of Throat Pain In The Use Of LMA And Ett With Post-General Anesthesia Patients

Suyanti¹, Muhammad Rossy Rachasiwi², Alya Reza Ardhitia³

^{1,2,3}Institusit Teknologi Sains dan Kesehatan PKU Muhammadiyah Surakarta

Article	ABSTRAC
Keywords Sore throat, Laryngeal Mask Airway (LMA), Endotracheal Tube (ETT).	Endotracheal intubation (ETT) involves inserting a tube into the trachea through the mouth or nose with the assistance of a laryngoscope, while the Laryngeal Mask Airway (LMA) is considered a safer supraglottic airway for general anesthesia compared to ETT, which is associated with difficulties in airway management and spontaneous ventilation. A common postoperative complication following both ETT and LMA is sore throat, which can reduce patient comfort after surgery. This study aims to assess the incidence of sore throat in patients after general anesthesia with ETT and LMA, employing a descriptive observational analysis with purposive sampling. The results indicate that the mean sore throat pain scale for LMA is 2.61, while for ETT it is 3.84, indicating that the sore throat pain scale resulting from ETT use is higher compared to LMA use. The findings show that the use of the Laryngeal Mask Airway (LMA) results in a higher pain scale of 2 (23.7%), while the Endotracheal Tube (ETT) has a pain scale of 4 (21.1%). This indicates that LMA is generally more comfortable than ETT, highlighting the importance of effective pain management in clinical practice.
This is an open access article under theCC BY-NC license 	Corresponding Author Suyanti PKU Muhammadiyah Institute of Science and Health Technology suyanti@itspku.ac.id

INTRODUCTIO

General anesthesia, also called general anesthesia, is often used for major surgery or surgery that requires muscle relaxation. The anesthesia can be done with 2 techniques, namely through gas to be inhaled and drugs injected into the blood vessels. The gas used for general anesthesia is volatile and gas. Volatile gas is N₂O gas which is the only non-volatile gas that is clinically administered at room temperature in gaseous form, while volatile gases are Halothane, Desfluran, Isofluran, Seoflurane which are liquids at room temperature that require vaporizers for administration, compared to other agents in pharmacology.

The combination of anesthetics in general anesthesia can cause airway obstruction or inability to perform continuous ventilation. methods and airway management for 3, including the use of masks (face masks), (Pramono, 2017). Inserting a tube into the trachea through the mouth or nasal passages with the help of a laryngoscope is known as endotracheal intubation Laryngoscopic relief (jaw relaxation and blade resistance to the laryngoscope), vocal cord location and flow, and response to intubation determine the success of . (Pranomono 2017). Whereas LMA only inserts the LMA tube into the trachea and closes the *esophageal* canal without the use of a laryngoscope.

LMA is also considered a safer supraglottic airway for general anesthesia compared to ETT which plays a role in airway difficulty and spontaneous ventilation. Postoperative complications after ETT and LMA that often occur are sore throat, *Post-operative sore throat* (POST) is one of the complications of anesthesia that can reduce comfort after surgery. Post-operative sore throat POST is the second minor complication after PONV (*Post Operative Nausea Vomitting* (Millizia et al., 2018). In , there are reports that the complications of sore throat that arise after ETT intubation increase every year by 50%. This pain still cannot be completely inhibited (Satriyanto et al., 2014). After surgery with general anesthesia, 20-60% of patients in Indonesia complain of throat pain (Susianto et al., 2020).

Endotracheal intubation is inserting a tube into the trachea through the mouth or nasal passages with the help of a laryngoscope. Endotracheal *intubation* is judged by the ease of laryngoscopy (jaw relaxation and blade resistance to the laryngoscope), position and movement of the vocal cords, and *intubation* response (Pranomo 2017). Meanwhile, LMA only inserts the LMA tube into the trachea and closes the *esophageal* canal without the use of a laryngoscope. (Pramono 2017).

Throat pain after ETT and LMA intubation is very diverse and the incidence is the same, some experience pain when swallowing, itching in the throat, and feeling dry in the throat, but some patients do not experience throat pain (Pramono, 2017). Patients under general anesthesia who receive ETT or LMA intubation often experience throat pain, which is difficult to control even though surgical pain is well controlled with systemic analgesia. Studies show that approximately 9% of patients experience sore throat 24 hours postoperatively as a result of endotracheal cuff pressure or forced LMA insertion (Keijer & Buitelaar, 2019). Complications of sore throat after ETT intubation are also reported to increase every year by up to 50% and until now cannot be completely prevented (Satriyanto et al., 2014). Throat pain after ETT and LMA extubation is usually characterized by the presence of blood at the time of extubation either in the ETT tube or in the LMA due to the depth or size of the ETT and LMA. The response to throat pain in both is generally the same from difficulty swallowing, sore or dry throat, to itchy throat and wanting to drink continuously (Mangku, 2016).

METHODS

The research was conducted at Karanganyar Hospital during March 2024, the population in this study were all ETT and LMA general anesthesia patients then purposive sampling was carried out and the calculation of the respondent formula using the Slovin technique, so obtained the number of respondents as many as 38 Respondents. This study uses a quantitative method with an observational descriptive analysis research design to see a description of the level of throat pain in respondents who use ETT and LMA. How to measure the pain scale using NRS (Numeric Rating Scale) measurement theory by providing a scale of 0-10 where 0 means no pain and 10 is the most severe pain. The independent variable in this study is throat pain, and the dependent variable in this study is LMA and ETT. Variables are characteristics of research subjects to be observed that can be categorized into at least two different categories, or can provide at least two different measurement results (Roflin, Liberty, & Pariyana, 2021).

RESULTS AND DISCUSSION

Research Results

Descriptive Analysis of Respondent Characteristics

Table 1

Variables		Analysis Test Results
Age	Length of Operation	
38	38	N Valid
0	0	Missing
40.89	116.84	Mean
37.50	100.00	Median
20	80	Mode
13.406	44.909	Std. Deviation
49	160	Range
20	80	Minimum
69	240	Maximum

Source: Primary Data 2024

Based on the table of respondent characteristics, it can be seen that the age variable has a mean of 40.89, the length of surgery is 116.84, then for the median obtained at age 37.50 and at a length of surgery of 100.00, and for the mode obtained at variable age 20 and at a length of surgery of 80. Then for the minimum value of age 20 years and maximum 69 years, for the variable length of surgery, the minimum value is 80 minutes and maximum 240 minutes

Descriptive Analysis of Operation Type Characteristics

Table 2

No.	Variables	Frequency	Percent (%)
1	Craniotomy	7	18.4
2	Appendectomy	4	10.5
3	Cholecystectomy	2	5.3
4	Laparotomy	7	18.4
5	Mastectomy	5	13.2
6	ORIF	7	18.4
7	Hysterectomy	1	2.6
8	Splenectomy	1	2.6
9	THR	1	2.6
10	TKR	1	2.6
11	Thyroidectomy	1	2.6
Total		38	100

Source: Primary Data 2024

Based on the table of characteristics of the type of surgery above, it can be seen that the most common types of surgery are craniotomy, laparotomy and ORIF with each presentation being (18.4%)

Throat pain in ETT and LMA use

Table 3. LMA

Pain Scale	Frequency	Percent (%)
0	6	15.8
1	5	13.2
2	9	23.7
3	7	18.4
4	5	13.2
5	3	7.9
6	2	5.3
8	1	2.6
Total	38	100

Source: Primary Data 2024

Based on the table of pain description with the use of LMA above, it was found that the most pain scale was at number 2 with 9 respondents (23.7%).

Table 4. ETT

Pain Scale	Frequency	Percent (%)
0	4	10.5
1	3	7.9
2	4	10.5
3	4	10.5
4	8	21.1
5	7	18.4
6	3	7.9
7	3	7.9
8	1	2.6
9	1	2.6
Total	38	100

Source: Primary Data 2024

Based on the table of pain description with the use of ETT above, it was found that the most pain scale was at number 4 with 8 respondents (21.1%).

Table 5

Variables	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
LMA Pain Scale	38	8	0	8	2.61	.312	1.925
ETT Pain Scale	38	9	0	9	3.84	.374	2.308

Source: Primary Data 2024

Based on the analysis table, it can be seen that the throat pain scale variable with LMA has a mean of 2.61, while the throat pain scale with ETT is 3.84, indicating that the throat pain scale produced by the use of ETT is higher than the use of LMA.

Discussion

The results showed a significant difference in post-anesthesia throat pain levels between Laryngeal Mask Airway (LMA) and Endotracheal Tube (ETT) use. With a mean throat pain scale of 2.61 for LMA and 3.84 for ETT, it can be concluded that patients using LMA experienced less throat pain compared to those using ETT. This difference can be explained by several factors. Firstly, the LMA is a less intrusive device on the structures of the throat and larynx than an ETT, which requires deeper placement and may cause irritation to the soft tissues along the airway. Also, ETTs often require more invasive intubation techniques, which may increase the risk of trauma to the throat and larynx, thus contributing to higher postoperative pain.

Secondly, the use of an LMA may reduce physiological stress on the patient, as it is easier to fit and does not require complex manipulation. This may reduce the likelihood of intubation-related complications, including sore throat. Thirdly, the importance of effective postoperative pain management cannot be overlooked. With lower pain levels in patients using LMA, this suggests that proper selection of intubation method may contribute to improved patient comfort after anesthesia procedures. In clinical practice, it is important to consider the use of LMA as a more comfortable alternative, especially in patients who are at high risk of postoperative throat pain.

Overall, the results of this study emphasize the need for more attention to intubation method selection and postoperative pain management to improve patient experience and clinical outcomes. Further research is needed to explore other factors that may influence post-anesthesia throat pain and to identify better strategies to manage this pain (Huang et al., 2020; Kheterpal et al., 2016).

According to Santrock (2019) By law, anyone aged 21 to 40 is an early adult. Age affects the patient's level of throat pain, where throat pain is more prevalent in younger patients. Respondents in this study were female and male. However, in this study female respondents experienced more throat pain than male respondents, this is in accordance with research conducted by Gemechu et al., (2017) women experience more pain because the mucosa in women is thinner so that edema easily occurs. In addition, there are differences in laryngeal anatomy in men and women where the female larynx is smaller.

Sore throat can also be caused by upper airway trauma or edema due to contact between the ETT tube and upper airway mucosa. In , aspiration of mucus in the mouth after ETT intubation can cause sore throat (Gemechu et al., 2017). Factors that trigger throat pain after ETT and LMA intubation include the endotracheal cuff connected to the trachea, the scale of the endotracheal tube, lubrication use, endotracheal cuff pressure, intubation and trauma, age, and gender. The incidence ranges between 11 and 100 percent (Thomas & Beevi, 2017). A frequent problem with LMA insertion in patients without airway anatomy is failure to achieve correct positioning of the LMA in the hypopharynx. The ideal position of the LMA is when the epiglottis and esophagus are outside the LMA and the laryngeal door is

completely inside the LMA, so that successful installation can also affect the incidence of pain (Tamsuri, 2017) The results of this study are supported by research conducted by Hamin et., al (2018) regarding differences in throat pain levels after ETT and LMA installation in the surgical treatment room of Cilacap Hospital. The sample was divided into 2 groups, namely the ETT group (32 respondents) and the LMA group (32 respondents). This study showed there is a difference in throat pain after ETT and LMA installation in the surgical treatment room at Cilacap Hospital, with a static test $p= 0.012$

CONCLUSION

The results obtained from the pain scale table with the use of Laryngeal Mask Airway (LMA) and Endotracheal Tube (ETT) showed some important findings. In the use of LMA, the highest pain scale was at 2 with a total of 9 respondents (23.7%), which indicates that most respondents experienced mild to moderate pain when using this breathing device. The higher frequency of pain on scale 2 suggests that although the use of LMA is relatively safe, there is still a proportion of patients who feel discomfort that needs to be considered in postoperative pain management. Meanwhile, in the use of ETT, the results showed that the highest pain scale was at number 4 with 8 respondents (21.1%). This finding indicates that patients using ETT tend to experience more significant pain than those using LMA. With respondents reporting pain on a scale of 4, it is important to consider more effective pain management strategies for patients using ETT. This suggests the need for special attention in the management of postoperative pain in patients using ETT.

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