



Anxiety, nausea and vomiting management in controlling blood pressure patients post general anesthesia surgery

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ABSTRACT

Surgery is a follow-up action for emergency treatment which often causes physiological reactions for the patient and requires hemodynamic monitoring such as blood pressure to prevent delays in action and complications. Excessive anxiety can change blood pressure so that it has an impact on delaying surgery schedules. Meanwhile, post-surgery nausea and vomiting are the symptoms that most often arise as a result of anesthesia. This study aims to determine the relationship between anxiety management, nausea and vomiting in controlling blood pressure in patients after general anesthesia surgery at Pringsewu Hospital, Lampung Province. This type of research is quantitative, with a research design and analytic survey design with a cross-sectional approach. The population was all preoperative soft tissue tumor patients under general anesthesia at Pringsewu Hospital, Lampung Province with a total sample of 38 respondents. The results of the study showed that there was a relationship between the level of anxiety and an increase in preoperative general anesthesia blood pressure at the Pringsewu General Hospital in Lampung Province with a p-value of 0.000 (p-value <0.05); There was no relationship between nausea and vomiting responses with postoperative blood pressure in Pringsewu Hospital, Lampung Province with a p-value of 0.574 (p-value > 0.05). Post-surgical patient care needs to get proper care according to pre- and post-operative procedures for surgical patients in order to minimize the occurrence of various effects of the anesthesia obtained.

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INTRODUCTION

Surgery procedure requires good pre and postoperative management. Preoperative management is given to eliminating pain during surgery and fear or anxiety before surgery to create optimal conditions during surgery (Sally, 2013). Postoperative management is given to recovery from general anesthesia in a controlled environment, adverse effects of anesthesia often occur in the operating room or before transport to the recovery room and this is often characterized by several complications such as airway obstruction, chills, agitation, delirium, pain, nausea and vomiting, hypothermia and autonomic lability (Morgan et al., 2013).

Post Operative Nausea Vomiting (PONV) is common in patients with general anesthesia. Nausea and vomiting is a symptom of a high reported complication. According to (Abired et al., 2019) the incidence of postoperative nausea and vomiting is around 36% in patients undergoing general anesthesia. The risk of postoperative nausea and vomiting is 9 times smaller in patients with regional anesthesia than in patients with general anesthesia (Shaikh et al., 2016). This incident of nausea and vomiting will disappear by itself along with the loss of the anesthetic effect obtained by the patient, however, this complication causes a feeling of discomfort in the patient.

This can cause several other complications that surgical patients do not expect, such as changes in blood pressure which indicate a physiological change (Stuart & Laraia,

2009dalam Rahayu, 2018). Changes in blood pressure occur as a result of anxiety which is a somatic reaction where anxiety will cause an increase in heart work, an increase in oxygen demand, shallow and short breathing which ends in an increase in blood pressure (Narmawan et al., 2020). Changes in blood pressure can raise the possibility of bleeding both during surgery and post surgery(Alimansur et al., 2015).

Researchers conducted a preliminary study in the Central Surgical Installation of Pringsewu Hospital showed that there was verbal reporting from the results of interviews with nurses stating that the delay in surgery was due to a sudden increase in the patient's blood pressure when the patient entered the pre-operative room where blood pressure was checked. by nurse anesthesiologists, a number of 10 preoperative soft tissue tumor patients who were observed to have increased blood pressure were then assessed for their level of anxiety. The results showed that 8 out of 10 patients experienced anxiety because they would be anesthetized, and 2 patients reported experiencing anxiety because they were not accompanied by their families. The results of observations of 10 patients who were operated on found that there were 2-3 (20-30%) patients who experienced postoperative nausea and vomiting with general anesthesia techniques.

Anxiety in the preoperative phase has a very large risk of complications for patients and it is necessary to prevent efforts to prevent an increase in blood pressure which can result in a delay or cancellation of surgery due to a sudden increase in blood pressure.Nursing care approaches to prevent PONV through non-pharmacology to treat nausea and vomiting, such as dietary diet approaches, physical therapy and psychological therapy (Putri, 2016). Non-pharmacological treatment of nausea and vomiting using complementary aromatherapy. The method of using aromatherapy can be given through direct inhalation, namely by inhaling essential oil vapors such as disinfectants and decongestants (Putri&Amalia, 2019).

Aromatherapy works through essential oils that enter the nose and interact with receptor cells, namely cranial nerve 1 (olfactory) in the olfactory mucous membrane in the nose. These receptors whose job is to identify odors and convey messages from smell through the cranial nerves to the limbic system of the brain which results in the release of the hormones adrenaline and cortisol which function to relax the body(Kinai, 2013). According to (Sudradjat, 2020)

Eucalyptus oil, a natural medicine with many beneficial properties, contains T. Eucalyptol or 1,8-cineol, which is the active ingredient of eucalyptus oil, which has many benefits. It is commonly used for analgesics, antiemetics and makes you feel calmer.Surgical patients can be given preoperative anxiety management and management of nausea and vomiting with inhalation aromatherapy after general anesthesia surgery as a preventive measure in emergencies that can be fatal from surgery using a type of general anesthesia at Pringsewu Hospital, Lampung province.

METHODS

The research design used in this study was an analytical survey design with a crosssectional approach. The population in this study were all preoperative soft tissue tumor patients with general anesthesia at Pringsewu Hospital, Lampung Province. Samples is 38 respondents. The sample in this study used a simple random sampling technique, namely the first selection of the number of subjects counted in the (reachable) population as the research sample. Data were analyzed with statistical tests.

Measuring tool to measure anxiety status using the questionnaire The Amsterdam Preoperative Anxiety and Information Scale (APAIS) translated into Indonesian, is one of the instruments used to measure preoperative anxiety that has been validated. The observation sheet and checklist are in the form of a table which consists of the stages of giving aromatherapy to the assessment of nausea and vomiting

RESULTS AND DISCUSSION

The characteristics of the respondents in the study revealed that the majority of respondents were male, 21 people (55.3%) compared to female respondents. Based on the age of most of the respondents between the ages of 46-55 years, there were 13 people (34.2%). most of the respondents indicated severe anxiety as much as 17 (44.7%). respondents had blood pressure above 140/90 mmHg, meaning that they experienced an increase in blood pressure by 27 (71.1%).

Table 1
Characteristics of Respondents

Variabel		Amount	
		f	%
Sex	Men	21	55,3
	women	17	44,7
Age (year)	16-25	7	18,4
	26-35	8	21,1
	36-45	10	26,3
	46-55	13	34,2
	Normal	0	0
Level anxiety	Mild anxiety	1	2,6
	Moderate anxiety	13	34,2
	Severe anxiety	17	44,7
	panic	7	18,4
Blood Pressure	Not Increased (systolic < 140 mmHg, and diastolic < 90 mmHg)	11	28,9
	Increased (systolic > 140 mmHg, and diastolic > 90 mmHg)	27	71,1

Table 2
Distribution of Respondents' Nausea Vomiting Responses Before And After aromatherapy inhalation

Nausea Vomiting (Gordon)	Amount			
	Pre		Post	
	f	%	f	%
Not	0	0	7	18,4
Just feeling nauseous	0	0	25	65,8
Experiencing Retching	38	100	6	15,8
Nausea > 30 minutes or vomiting > 2 times	0	0	0	0

Table 3
The Relationship Between Anxiety and Nausea Vomiting Responses

Level anxiety	Nausea Vomiting (Gordon)			Total	p Value
	Not	Just feeling nauseous	Experiencing Retching		
	f	f	f		
Normal	1	0	0	1	0,232
Mild anxiety	2	7	4	13	
Moderate anxiety	3	13	1	17	
Severe anxiety	1	5	1	7	

Table 4
The Relationship Between Nausea and Vomiting With Blood Pressure

Nausea Vomiting (Gordon)	Blood Pressure		Total	p Value
	Not Increased (systolic < 140 mmHg, and diastolic < 90 mmHg)	Increased (systolic > 140 mmHg, and diastolic > 90 mmHg)		
	f	f		
Not	3	4	7	0,574
Just feeling nauseous	7	18	25	
Experiencing Retching	1	5	6	

Table 5
The Relationship Between Anxiety and Blood Pressure

Level anxiety	Blood Pressure				Total	<i>r</i>	<i>p Value</i>
	Not Increased (systolic < 140 mmHg, and diastolic < 90 mmHg)		Increased (systolic > 140 mmHg, and diastolic > 90 mmHg)				
	n	%	n	%			
Normal	1	2,6	0	0	1	0,643	0,000
Mild anxiety	10	26,3	3	7,9	13		
Moderate anxiety	0	0	17	44,7	17		
Severe anxiety	0	0	7	18,5	7		

Table 2 shows the results that most of the respondents before being given the intervention mostly experienced retching as many as 38 (100%); after the intervention, only 25 (65.8%) felt nauseous. Table 3 shows that the relationship between anxiety and the response to nausea and vomiting that occurred in patients found that 5 patients with panic anxiety levels felt only nauseous and 1 person experienced retching. It was found that 13 patients with severe anxiety levels only felt nauseous and 1 experienced retching. Meanwhile, patients with mild anxiety did not find any symptoms of nausea expressed by the patient. The results of the analysis show that there is no relationship between anxiety and nausea and vomiting responses in surgical patients.

Table 4 shows the results that as many as 5 out of 6 patients who experienced retching also showed increased blood pressure. Patients who felt nauseous and had increased blood pressure were 18 out of 25 patients. There

were 4 out of 7 patients who were not nauseous who experienced increased blood pressure. The results of the analysis show that there is no relationship between the response of nausea and vomiting with the blood pressure of surgical patients. Table 5 shows the results that of the 38 respondents who have mild anxiety are known as follows; 1 respondent (2.6%) with mild anxiety did not experience an increase in blood pressure, out of 13 respondents who had moderate anxiety it was known that 10 (26.3%) did not experience an increase in blood pressure, 3 (7.9%) experienced an increase in blood pressure ; Of the 17 respondents who had severe anxiety, it was found that 17 (44.7%) had increased blood pressure; of the 7 respondents who had panic, it was found that 7 (18.5%) experienced an increase in blood pressure, the results of the chi square analysis obtained a p-value = 0.000, meaning $p < \alpha = 0.05$ (H_0 is rejected), it can be concluded that there is a relationship between anxiety and increased blood pressure in

preoperative soft tissue tumor patients with general anesthesia. The results of the contingency coefficient test obtained a value of $r = 0.643$ meaning that the strength of the relationship is strong, the direction of the positive relationship where the more anxiety increases the higher the respondent's blood pressure.

The management of surgical patients who have been performed shows that blood pressure has increased by 71.1%. Management of nausea and vomiting using simple inhalation aromatherapy is proven to reduce the response rate of nausea and vomiting of patients but was not found to affect blood pressure. Conditions of nausea and vomiting. Research by (Supatmi & Agustiniingsih, 2014) said aromatherapy works by diverting nausea and vomiting stimuli to relaxed and fresh stimuli, this makes the nausea reflex disappear or decrease. Pharmacologically, fragrances from essential oils (EO) can have direct effects on the central nervous system and endocrine system without realizing it. The response to nausea and vomiting encountered by each patient is of course different. This can be influenced by various factors. As the factors that affect PONV include patient factors, procedure factors and anesthesia factors (Qudsi & Jatmiko, 2016).

Anxiety management is known to have a relationship with changes in blood pressure. Anxiety obtained in the study most of the respondents showed severe anxiety as much as 17 (44.7%). The condition of anxiety experienced by preoperative patients is an actual psychological response to threats felt to individual integrity when facing surgery (Tarwoto, 2006). The anxiety experienced by the patient may not be obvious. Some descriptions of patient responses that show anxiety, among others, often ask continuously even though the patient has received answers to his questions. Another symptom of anxiety that can be seen is that the patient has trouble sleeping and exhibits excessive movement. Patients who experience anxiety can also be described by anxiety or tension and hemodynamic signs that change to be abnormal (Maurício et al., 2021).

Most preoperative patients experience anxiety with moderate anxiety (56.3%), followed by severe anxiety (19.8%) and mild anxiety (17.7%). In his research, it was concluded that respondents who were going to undergo surgery experienced moderate levels of anxiety, which were known to show several symptoms such as difficulty sleeping, feeling doubtful whether the operation was still being carried out, thinking about alternative treatment, thinking if the postoperative condition would get worse, and asking the doctor. and nurses, even though the surgical procedures have been explained regarding the procedures and postoperative effects, the respondents still experience anxiety, and also because of the Covid-19 pandemic situation which makes them afraid of contracting Covid, but on the other hand the respondents also want to recover even though they are still worried about doing surgery (Saputro et al., n.d.).

Another study conducted by (Sugiarta et al., 2021) stated that the majority of pre-operative patients at Buleleng Hospital experienced a mild level of anxiety of 46.7%, moderate anxiety of 24.4%, and severe anxiety of 6.7%. The signs that often appear in preoperative patients with mild anxiety from the results of the questionnaire include physiological responses, namely increased blood pressure, anxiety, difficulty sleeping, sensitivity to sound, lack of concentration, occasional shortness of breath, mild stomach symptoms, facial wrinkles. , and dry lips. (Fronk & Billick, 2020) found that preoperative anxiety affects millions of pediatric surgery patients every year and can have short and long term side effects in the postoperative period. As a result,

it is very important for health care providers and others involved in child care, such as parents, to be aware of the interventions that can be used to reduce the incidence of preoperative anxiety and, thereby, possibly be aware of the negative effects of preoperative anxiety causes and its influence on the development of maladaptive behavioral, emotional, and physiological changes.

Based on the description above, the researchers argue that anxiety occurs in preoperative patients because of the worry and fear that will occur in individuals against the threat of physical and psychological harm. Anxiety may be unavoidable because some of the symptoms that are felt or shown by the patient are in accordance with the APAIS anxiety measurement questionnaire, including statements of fear of anesthesia, and the operations that are undertaken must appear in preoperative patients.

Respondent's Blood Pressure most of the respondents did not show increased blood pressure by 27 (71.1%). Blood pressure in a person can change under certain conditions. The mechanism for regulating blood pressure lies in the brain medulla, which continues down the spinal cord, ultimately stimulating post-ganglionic nerve fibers to the blood vessels, where the release of norepinephrine causes blood vessel constriction (Brunner et al., 2010). The research is in line with what has been done by (Rismawan et al., 2019) who found respondents were in the picture of a mild level of anxiety, namely as many as 9 people (21.4%) moderate anxiety level, namely as many as 21 people (50.0%), with a severe level of anxiety, namely as many as 12 people 12 (28.6%) and 42 respondents (100%).

Preoperative patients who will receive general anesthesia should monitor blood pressure. Warning of complications after administration of general anesthesia can be hypertension and hypotension. Hypertension and hypotension can be known by measuring blood pressure. Blood pressure in a person is not constant but is influenced by many factors continuously throughout the day. The results of the research conducted by Ramarianda & Kamsiah found that the factors that influence increased blood pressure include age, food consumption factors, stress factors and low physical activity factors (Ramarianda, 2018).

High blood pressure is caused by increased heart pumping disorders. So that in patients who are going to surgery blood pressure must be stable or normal. If the patient who is going to surgery has high blood pressure it will cause the risk of serious surgery and it is feared that there will be continuous bleeding which can cause hypovolemic shock (a weakened state due to lack of excessive body fluid volume) and if left untreated it can cause death (Mariam et al., 2019). Research from Saudah & Basuki (2018) found that the average respondent's blood pressure before surgery was not up to 140 mmHg or still relatively normal, but there were still found 11 respondents who had blood pressure of 140 mmHg and above.

Initial blood pressure during pre-surgery is a factor related to the patient, because it is to determine the condition of the heart organs and as a prevention of further complications before surgery and anesthesia are performed. In surgery and anesthesia, various drugs are used and consideration is needed about the effects of drugs on anesthesia which can cause changes in blood pressure (Asri, 2020). Physical preparation as well as supporting examinations and mental preparation are very necessary because the success of a client's surgery begins with the success of the preparations made during the preparatory

stage. Mistakes made during preoperative actions of any kind can have an impact on later stages, for this reason good cooperation is needed between each competent component to produce optimal outcomes, namely complete patient recovery. Integral assessment of patient function including physical, biological and psychological functions is very necessary for the success and success of an operation (Tarwoto&Wartanah, 2006).

Based on the description above, the researchers argue that a person's blood pressure requires continuous monitoring. This is in line with the mechanism of regulating blood pressure which is not constant and is influenced by several factors, including: age, food consumption factors, stress factors and low physical activity factors. Stable blood pressure in preoperative patients is needed as a basis for considering surgery and anesthesia and preventing further complications. The relationship between anxiety and blood pressure shows that most preoperative patients who have anxiety also experience increased blood pressure; The results of the study showed that preoperative patients whose anxiety was measured using the APAIS instrument had anxiety with several levels, namely: 17 people with severe anxiety, followed by 13 people with moderate anxiety, 7 people with panic and 1 person with mild anxiety. The anxiety factor is known to be associated with an increase in blood pressure where the results of the study showed that out of 38 respondents who had mild anxiety, it was known that 1 (2.6%) did not experience an increase in blood pressure; Of the 13 respondents who had moderate anxiety, it was known that 10 (26.3%) did not experience an increase in blood pressure, 3 (7.9%) had an increase in blood pressure; Of the 17 respondents who had severe anxiety, it was found that 17 (44.7%) had increased blood pressure; Of the 7 respondents who had panic, it was found that 7 (18.5%) experienced an increase in blood pressure.

An analysis of the relationship between anxiety and blood pressure obtained a p-value = 0.000, meaning that there is a relationship between anxiety and increased blood pressure in preoperative soft tissue tumor patients under general anesthesia. This research is in line with that conducted by Almalki, et.al (2017) who found several other causes that often cause patients to experience preoperative anxiety, namely fear of death, fear of postoperative complications, and fear of unexpected surgery results. Other results were also revealed by the research of (Bedaso & Ayalew, 2019) states that the cause of anxiety in preoperative patients is negative feelings such as fear of disability due to loss of organs and/or body functions. This research is in line with what has been done by (Muliana et al., 2016), namely the results of the study found that half of the respondents experienced moderate anxiety as many as 15 respondents (50%), Most of the respondents experienced an increase in blood pressure as many as 19 respondents (63.3%) Using the Spearman rank correlation test, it is known that there is a significant relationship between the anxiety level of preoperative patients and increased blood pressure (p-value: 0.003).

The relationship between anxiety and hypertension is thought to be through sympathetic nerve activity, increased nerves can increase blood pressure intermittently (erratic). Anxiety will result in the emergence of stress which can result in persistently high blood pressure. Although this has not been proven, the incidence of people in urban areas is higher than in rural areas. This can be related to the influence of stress experienced by groups of people who live in cities. Stress will increase peripheral vascular resistance and cardiac output so that it will stimulate sympathetic

nerve activity (Bustan, 2015). Another study on the relationship between anxiety and blood pressure was obtained from (Altınbaş et al., 2021) who found that patients who experienced anxiety during surgical procedures increased compared to patients who did not receive action. Observations of blood pressure show that patients with high levels of anxiety also experience increased blood pressure. Causal factors are associated with having experience and not having action experience.

In the research of (Fernandez-Aguilar et al., 2020) found that, although there was no statistically significant difference between the DAS and gender variables, there was a significant difference between the values obtained through the DAS and the "postoperative analgesia" variable. In the research of (Wang et al., 2017) found that high levels of anxiety (obtained through a different scale from DAS), are usually due to previous bad experiences. The characteristic associated with anxiety is that gender has no relationship with anxiety. The results of a study by (Mulugeta et al., 2018) stated that women tend to express their anxiety more than men, because women are more sensitive to frightening events and there are differences in hormone fluctuations between women and men. Meanwhile, the results of this other study found no relationship between gender and anxiety levels in patients (McDonald et al., 2022).

Measurement of anxiety using the APAIS instrument in preoperative patients is known to have a picture of anxiety with several levels. The level of anxiety obtained during measurement in patients can be used to find the right approach to overcome anxiety before anesthesia and surgery. APAIS is an effective method of measuring patient anxiety and may be useful for use during preoperative visits. Patient satisfaction and superior results can be achieved in this way. Preoperative anxiety is still very common among adult patients who are scheduled to undergo elective procedures. Therefore, it must be evaluated regularly. Anxiety about surgery and anxiety about anesthesia differ in many patients. For this reason, anxiety about surgery and anxiety about anesthesia should be assessed separately. This will allow providing more individualized support to patients to deal with their anxiety and may require special attention by the surgeon or anesthesiologist (Celik & Edipoglu, 2018).

LIMITATION OF THE STUDY

This study only examines the relationship between anxiety, nausea and vomiting with increased blood pressure. Other factors that may influence or control factors are not examined so that the closeness of the relationship cannot be proven dominantly that anxiety is a factor that causes blood pressure to increase.

CONCLUSIONS AND SUGGESTIONS

Most of the surgical patients with general anesthesia increased blood pressure by 27 respondents (71.1%). Management of anxiety is known to be associated with increased blood pressure compared with management of nausea and vomiting. However, nausea and vomiting responses are known to be mostly found in patients with severe anxiety levels in surgical patients. There is a relationship between the level of anxiety and increased blood pressure in pre-operative soft tissue tumor patients

with general anesthesia in Pringsewu Hospital, Lampung province; There was no relationship between nausea and vomiting responses with postoperative blood pressure in Pringsewu Hospital, Lampung Province with a p-value of 0.574 (p-value > 0.05)

Hospital management can use research results as additional information about the management of anxiety, nausea and vomiting on blood pressure which can be used as a basis for decision making or policies to improve patient care through the implementation of standard operating procedures for surgical patients.

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