ISSN No:-2456-2165

Effects of Preoperative Visits on Anxiety Incidence among Elective Surgery Patients

Paulus Mario Tinambunan, Akhyar Hamonangan Nasution, Qadri Fauzi Tanjung
Department of Anesthesiology and Intensive Care, Medical Faculty, North Sumatera University, Haji Adam Malik General Central Hospital, Medan, Indonesia

Abstract:-

- ***Introduction:***

The incidence of preoperative anxiety has a high incidence rate thought to be related to the management of the operation and the amount of information delivered related to surgery and anesthesia.

- ***Objective:***

To determine changes in anxiety levels in elective surgery patients after a preoperative visit to General Hospital of Haji Adam Malik, Medan.

- ***Method:***

This research is a quantitative analytic study with cross-sectional design. The study was conducted at the General Hospital of Haji Adam Malik, Medan from May - June 2019. The total sample obtained was 120. The data collection used the APAIS questionnaire.

- ***Results:***

From the results, 58 people (48.3%) had preoperative anxiety before a preoperative visit, and 32 people (26.7%) had preoperative anxiety after a preoperative visit. Statistical test results using the Wilcoxon Signed Ranks Test at 95% CI and α = 0.05 obtained p value 0.001 (p <0.05) which means significant differences in the incidence of anxiety before and after a preoperative visit.

- ***Conclusion:***

There were significant differences in the incidence of anxiety before and after a preoperative visit.

Keyword:- *Preoperative Anxiety, Preoperative Visit, Amsterdam Preoperative Anxiety Information Scale (APAIS)*

I. INTRODUCTION

Anxiety is defined as a feeling of worry, nervousness or anxiety about something with an uncertain outcome. The Mitchell study (2013) reported that the incidence of preoperative anxiety occured in approximately 82% of patients and was more common in patients undergoing general anesthesia than in local anesthesia and in women than in men (Mitchell, 2013). Factors related to patients such as age, sex, level of education and economic status, pain tolerance, history of previous surgery and exposure to anesthesia, psychiatric problems, and social security can affect the level of anxiety. Factors related to surgical procedures such as major surgery, chronic illness, unscheduled emergency procedures, and destructive procedures play an important role in the emergence of anxiety in preoperative patients. The attitude of health care providers, the communication skills of doctors, and the beliefs and opinions of patients also influence the emergence of anxiety. In addition, preoperative anesthesia information, adverse effects of anesthesia, and sudden surgical recommendations have been shown to be statistically significantly associated with overall increases in anxiety levels (Regan et al., 2017).

Preoperative anxiety levels are difficult to measure accurately but can be estimated indirectly by measuring the patient's blood pressure, pulse rate, and decrease variability of heart rate and irritability, and directly by measuring plasma cortisol and catecholamine levels in urine. At present, several validated questionnaires are available and used to measure preoperative anxiety. (Matthias and Samarasekera, 2012). They include Amsterdam Preoperative Anxiety Information Scale (APAIS), State-Trait Anxiety Inventory (STAI), Hospital Anxiety and Depression Scale (HADS), Visual Analogue Scale (VAS), Multiple Affect Adjective Check List (MAACL); Examination tests can also be carried out on emotional changes and depression with Hamilton Depressive Rating Scale *(*HRDS), Beck Depression Inventatory (BDI), Major Depression Inventory (MDI) Patient Heath Questionnaire (PHQ-9) (Julian, 2011; Matthias and Samarasekera, 2012).

II. RESEARCH METHODOLOGY

- *Research Design*

This research is a quantitative analytic study with cross-sectional design. The aim is to find out the comparison of the incidence of anxiety in elective surgery patients before and after preoperative visits at the Haji Adam Malik General Hospital, Medan.

- *Place and Time of Research*

This research was conducted at the Haji Adam Malik General Hospital, Medan, from May to June 2019.

- *Population and Samples of Research*

The population was all patients who underwent preoperative procedures at the Haji Adam Malik General Hospital, Medan. The sample was a part of the population that met the inclusion and exclusion criteria.

ISSN No:-2456-2165

➢ *Procedure*

1. This study was first approved by the health ethical research committee of Faculty of Medicine, University of North Sumatra and Haji Adam Malik General Hospital, Medan.
2. The researcher then asked for informed consent from outpatients who received preoperative visits from Haji Adam Malik General Hospital, Medan.
3. All samples to be studied met the specified requirements and were in accordance with the needs of this study.
4. Patients were given an explanation of the planned objectives, possible follow-up plans, and the benefits of this study.
5. After the patients agreed, they were interviewed using PHQ-9 questionnaire and assessed for anxiety scale using APAIS score.
6. Preoperative visits and education to patients were then carried out according to hospital operating procedure standards
7. After that the patients were interviewed again to get the anxiety scale value according to the APAIS score.
8. Finally, numbering and tabulation were carried out on the questionnaire, followed by data analysis

➢ *Management Plan and Data Analysis*

Univariate analysis and bivariate test were performed on the data to see the relationship between variables.

III. RESEARCH RESULT

➢ *Sample Characteristics*

This research was conducted for one month in May 2019 at the Haji Adam Malik General Hospital, Medan. The aim was to to determine changes in anxiety levels in elective surgery patients after a preoperative visit by Haji Adam Malik General Hospital Medan. Samples obtained in this study amounted to 120 samples which met the inclusion and exclusion criteria. Sample characteristics are shown in Table 1.

Sample characteristics	
Age (year), Mean (SD)	42.4 (7.2)
Gender, Total (%)	
Male	46 (38.3)
Female	74 (61.7)
Education, Mean (SD)	23.8 (2.1)
High School	112 (93.3)
Bachelor Degree	8 (6.7)
ASA, Total (%)	
I	82 (68.3)
II	38 (31.7)
Total	120 (100)

Table 1:- Sample characteristics

Based on Table 1 on the distribution of sample characteristics, it can be seen that the average age of patients was 42.4 ± 7.2 years. Most patients were female with a percentage of 61.7%. Almost all patients (112 people or 68.3%) had a high school education of and were classified as ASA I.

➢ *Comparison of patients' APAIS questionnaire scores before and after preoperative visits at the Adam Malik Hajj General Hospital, Medan*

Comparison of anxiety levels in patients assessed with APAIS before and after preoperative visits at the Haji Adam Malik General Hospital, Medan, is shown in Table 2.

Questions	Median (min-max)	
	Before treatment	After treatment
I am afraid of being sedated	3 (1-5)	2 (1-4)
I keep thinking about anesthesia	3 (1-4)	2 (1-3)
I want to know as much as possible about anesthesia	2 (1-5)	1 (1-3)
I'm afraid of the surgery	2 (1-5)	1 (1-4)
I keep thinking about the surgery	2 (1-5)	1 (1-4)
I want to know as much as possible about the surgery	1 (1-5)	1 (1-4)

Table 2:- Comparison of anxiety levels in patients assessed with APAIS before and after preoperative visits

Note: 1 (absolutely not); 2 (not very); 3 (a little); 4 (somewhat); 5 (very)

Based on Table 2, APAIS questions before and after the preoperative visit for question 1 resulted in a decreased median value, from 3 to 2. In question 2, the median value decreased from 3 to 2; in question 3, the median value decreases from 2 to 1; in question 4, the median value decreases from 2 to 1; in question 5, the median value decreases from 2 to 1; and in question 6 the median value of the patient's answers before and after the preoperative visit remained with a score of 1. This shows that the preoperative visit resulted in a decrease in scores based on each question of the APAIS questionnaire.

ISSN No:-2456-2165

➢ *Comparison of the Incidence of Preoperative Anxiety Assessed with APAIS before and after Preoperative Visits*

Comparison of the incidence of preoperative anxiety assessed with APAIS before and after preoperative visits is shown in Table 3.

Group	No preoperative anxiety (APAIS <11)		Preoperative anxiety (APAIS ≥11)		p Value
	n	%	n	%	
Before visit	62	51,7	58	48,3	0.001
After visit	88	73,3	32	26,7	
* Wilcoxon Signed Ranks Test, α Value <0.05					

Table 3:- Comparison of the incidence of preoperative anxiety assessed with APAIS before and after preoperative visits

Based on Table 3, it appears that 58 people (48.3%) experienced preoperative anxiety before preoperative visits and 32 people (26.7%) experienced it after preoperative visits. This shows that preoperative visits can reduce the incidence of preoperative anxiety.

A statistical test using the Wilcoxon Signed Ranks Test at 95% CI and α = 0.05 produced a p-value of 0.001 (p <0.05) so Ho was rejected. This means there are significant differences in anxiety incidence before and after preoperative visits.

➢ *Comparison of the information needs of patients who would undergo elective surgery as assessed with APAIS before and after preoperative visits*

Comparison of the information needs of patients who would undergo elective surgery as assessed with APAIS before and after preoperative visits is shown in Table 4.

Group	No need for more information (SUM I <5)		Need more information (APAIS ≥5)		p Value
	n	%	n	%	
Before visit	69	57.5	51	42.5	0.001
After visit	74	61.7	46	38.3	
* Wilcoxon Signed Ranks Test, α Value <0.05					

Table 4:- Comparison of the information needs of patients who would undergo elective surgery as assessed with APAIS before and after preoperative visits

Based on Table 4, it was found that 69 people (57.5%) needed more information before preoperative visits, and 74 people (61.7%) needed more information after preoperative visits. In addition, the need for more information on patients undergoing elective surgery was also still high with a percentage of 51 people (42.5%).

Statistical tests using the Wilcoxon Signed Ranks Test at 95% CI and α = 0.05 resulted in a p-value of 0.001 (p <0.05) so that Ho was rejected. This means that there are significant differences in the information needs of patients before and after a preoperative visit.

IV. DISCUSSION

In this study, observations were made on 120 patients who would undergo elective surgery. The study was conducted for 1 month at the Haji Adam Malik General Hospital, Medan. This study aimed to determine changes in anxiety levels in elective surgery patients after a preoperative visit by Haji Adam Malik General Hospital, Medan. Samples obtained in this study amounted to 120 samples. Based on Table 1 on the distribution of sample characteristics, it can be seen that the average age of patients was 42.4 ± 7.2 years. Most patients were female with a percentage of 61.7%. Patients had an average body mass index (BMI) of 23.8 ± 2.1 kg / m² and the majority, as much as 31.7%, were classified as ASA II. Based on the literature, the level of preoperative anxiety experienced by a patient is influenced by many factors such as age, sex, education level, type of surgery, duration of surgery, underlying disease, previous surgery experience and the ability of each individual to deal with stressful situations. Based on studies, female patients have higher anxiety levels than men.

Based on Table 2, APAIS questions before and after the preoperative visit for question 1 resulted in a decreased median value, from 3 to 2. In question 2, the median value decreased from 3 to 2; in question 3, the median value decreases from 2 to 1; in question 4, the median value decreases from 2 to 1; in question 5, the median value decreases from 2 to 1; and in question 6 the median value of the patient's answers before and after the preoperative visit remained with a score of 1. This shows that the preoperative visit resulted in a decrease in scores based on each question of the APAIS questionnaire.

Based on Table 3, it appears that 58 people (48.3%) experienced preoperative anxiety before preoperative visits and 32 people (26.7%) experienced it after preoperative visits. Statistically there were significant differences in the incidence of anxiety before and after a preoperative visit. This shows that the incidence of preoperative anxiety was still very high at around 48.3% at the Haji Adam Malik General Hospital, Medan. This is consistent with research

conducted in Jakarta that preoperative anxiety has become the main theme of various studies in the field of health psychology in recent years. The incidence of preoperative anxiety from various studies around the world varies greatly between 10% and 80%. However, in Indonesia there are no data that mention the incidence of preoperative anxiety in patients who will undergo elective surgery. In 2013 there were 5920 elective surgery cases at the Cipto Mangunkusumo National Center General Hospital.

In addition, this study shows that preoperative visits can reduce the incidence of preoperative anxiety. This is consistent with research conducted by Kiyohara (2004) that the lack of information and time for patients during pre-anesthesia consultations increases patient anxiety. Study by Kiyohara et al. found that patients who received presthesia information during the visit with the anesthesiologist showed a better reduction in anxiety compared with those who did not receive it. At the time of admission before surgery, anxiety can be increased in patients, because they have deal with inpatient stress and anxiety related to the operation to be performed (Kiyohara et al., 2004).

Based on Table 4, it was found that 69 people (57.5%) needed more information before the preoperative visit, and 74 people (61.7%) needed more information after the preoperative visit. In addition, the need for more information on patients undergoing elective surgery was also still high with a percentage of 51 people (42.5%). In this study there were significant differences in the information needs of patients before and after a preoperative visit. Another similar finding was also reported by Mill et al., in which out of 135 patients, 76% had anxiety before surgery, and an important factor contributing to teh anxiety was the lack of information. (Valenzuela Millán et al., 2010). In another study conducted by Kiyohara et al., preoperative visits and education by anesthesiologists significantly reduced anxiety in the patients (Kiyohara et al., 2004). In 2007, Asghari et al. showed that cortisol levels were significantly decreased in inpatients who had received preoperative visits in the ear, nose and throat treatment compared to the control group. (Asghari and Lotfi, 2009). Surgical procedures and anesthesia are associated with complex stress responses that are proportional to the magnitude of the injury, the total operating time, the amount of intraoperative blood loss and the level of postoperative pain. The adverse metabolic and hemodynamic effects of this stress response can cause many problems in the perioperative period.

Sawangarom and Hughes showed the same results as this study. Anxiety in patients who received a preoperative visit decreased when they entered the operating room. While in the control group, anxiety increased when they entered the operating room (Hughes, 2002). Blay et al. also reported that preoeprative education can reduce complications following laparoscopic cholecystectomy, and patients with lower levels of nausea and vomiting were found more in the intervention group compared with the control group (Blay and Donoghue, 2005). This is consistent with the theory that the consequences of perioperative anxiety primarily occur in cardiac events such as acute myocardial infarction, heart failure, pulmonary edema, and the level of readmission after surgery (first 6 months, 1 year), and bad quality of life. Impacts correlate with high postoperative pain, increased consumption of analgesics and anesthesia, length of stay in hospital, adverse effects during induction of anesthesia and recovery of patients, and reduce patient satisfaction with the perioperative experience (Székely et al., 2007). The same finding was reported by Lin et al. that preoperative care visits are effective in controlling patient anxiety levels. Participants in the study suffered less pain 4 hours after surgery and significantly less pain within 24 hours after surgery. (Lin and Wang, 2005).

V. CONCLUSION

- There is a significant difference in the anxiety incidence before and after a preoperative visit.
- The rate of preoperative anxiety before a preoperative visit is 48.3%
- The rate of preoperative anxiety after a preoperative visit is 26.7%

REFERENCES

[1]. Anderson, K.O., Masur, F.T., 1983. Psychological preparation for invasive medical and dental procedures. J. Behav. Med. 6, 1–40.
[2]. Anesthesiology, A. society of, 2015. Sedation, Analgesia and Anesthesia. ASA, United States, pp. 1–2.
[3]. Asghari, K., Lotfi, M., 2009. Effect of preoperative nursing visiton serum cortisol levels in patients waiting for operation: A randomized study with control group. Med J Tabriz Univ 30, 8–13.
[4]. Blay, N., Donoghue, J., 2005. The effect of pre-admission education on domiciliary recovery following laparoscopic cholecystectomy. Aust. J. Adv. Nurs. 22, 14–9.
[5]. Butterworth, J.F., Mackey, D.C., Wasnick, J.D., 2015. Clinical Pharmacology. In: Morgan & Mikhail Clinical Anesthesiology. McGraw Hill, United States, pp. 143–277.
[6]. Caumo, W., Schmidt, A.P., Schneider, C.N., Bergmann, J., Iwamoto, C.W., Bandeira, D., Ferreira, M.B., 2001. Risk factors for preoperative anxiety in adults. Acta Anaesthesiol. Scand. 45, 298–307.
[7]. Celik, F., Edipoglu, I.S., 2018. Evaluation of preoperative anxiety and fear of anesthesia using APAIS score. Eur J Med Res 23, 41.
[8]. Cohn, S.L., 2016. Preoperative Evaluation for Noncardiac Surgery. Ann. Intern. Med. 165, ITC81.
[9]. Flood, P., Rathmell, J.P., Shafer, S., 2015. Neurologic System. In: Stoelting's Pharmacology & Physiology in Anesthetic Practice. Wolters Kluwer, United States, pp. 98–160.
[10]. Forman, S.A., Chin, V.A., 2008. General anesthetics and molecular mechanisms of unconsciousness. Int. Anesthesiol. Clin. 46, 43–53.

[11]. Glassman, P., 2009. A review of guidelines for sedation, anesthesia,and alternative interventions for people with special needs. Spec. Care Dent. 29, 9–16.
[12]. Hughes, S., 2002. The effects of giving patients pre-operative information. Nurs. Stand. 16, 33–37.
[13]. Julian, L.J., 2011. Measures of anxiety: State-Trait Anxiety Inventory (STAI), Beck Anxiety Inventory (BAI), and Hospital Anxiety and Depression Scale-Anxiety (HADS-A). Arthritis Care Res. (Hoboken). 63, S467–S472.
[14]. Katz, J., Melzack, R., 2013. Pain Measurement in Persons in Pain. In: Wall, P., Melzacks, R. (Eds.), Textbook of Pain. Churchill Livingstone, Endiburg, pp. 337–51.
[15]. Kiyohara, L.Y., Kayano, L.K., Oliveira, L.M., Yamamoto, M.U., Inagaki, M.M., Ogawa, N.Y., Gonzales, P.E.S.M., Mandelbaum, R., Okubo, S.T., Watanuki, T., Vieira, J.E., 2004. Surgery information reduces anxiety in the pre-operative period. Rev. Hosp. Clin. Fac. Med. Sao. Paulo. 59, 51–6.
[16]. Klopfenstein, C.E., Forster, A., Van Gessel, E., 2000. Anesthetic assessment in an outpatient consultation clinic reduces preoperative anxiety. Can. J. Anesth. 47, 511–515.
[17]. Leuner, B., Shors, T.J., 2013. Stress, anxiety, and dendritic spines: What are the connections? Neuroscience 251, 108–119.
[18]. Lin, L.-Y., Wang, R.-H., 2005. Abdominal surgery, pain and anxiety: preoperative nursing intervention. J. Adv. Nurs. 51, 252–260.
[19]. Mahajan, V.A., Ni Chonghaile, M., Bokhari, S.A., Harte, B.H., Flynn, N.M., Laffey, J.G., 2007. Recovery of older patients undergoing ambulatory anaesthesia with isoflurane or sevoflurane. Eur. J. Anaesthesiol. 24, 505–510.
[20]. Maranets, I., Kain, Z.N., 1999. Preoperative anxiety and intraoperative anesthetic requirements. Anesth. Analg. 89, 1346–51.
[21]. Matthias, A.T., Samarasekera, D.N., 2012. Preoperative anxiety in surgical patients - experience of a single unit. Acta Anaesthesiol. Taiwanica 50, 3–6.
[22]. Michalak, J.R., Lin, F.C., Twiss, C.O., 2017. Review Article: Preoperative Evaluation and Optimization of the Geriatric Urological Patient. Urol. Pract. 4, 499–507.
[23]. Mitchell, M., 2013. Anaesthesia Type, Gender and Anxiety. J. Perioper. Pract. 23, 41–47.
[24]. Moerman, N., van Dam, F.S., Muller, M.J., Oosting, H., 1996. The Amsterdam Preoperative Anxiety and Information Scale (APAIS). Anesth. Analg. 82, 445–51.
[25]. Perdana, A., Firdaus, M.F., Kapuangan, C., . K., 2015. Construct Validity and Reliability of The Amsterdam Preoperative Anxiety and Information Scale (APAIS) Indonesian Version. Maj. Anest. dan Crit. Care 33.
[26]. Regan, D.W., Kashiwagi, D., Dougan, B., Sundsted, K., Mauck, K., 2017. Update in perioperative medicine: practice changing evidence published in 2016. Hosp. Pract. 45, 158–164.
[27]. Shevde, K., Panagopoulos, G., 1991. A survey of 800 patients' knowledge, attitudes, and concerns regarding anesthesia. Anesth. Analg. 73, 190–8.
[28]. Suhandoko, Pradian, E., Maskoen, T.T., 2014. Reliabilitas dan Validitas Penilaian Skala Sedasi Richmond Agitation Sedation Scale (RASS) dan Ramsay pada Pasien Kritis dengan Ventilasi Mekanik di Ruang Perawatan Intensif. J. Anestesi Perioper. 2, 186–193.
[29]. Székely, A., Balog, P., Benkö, E., Breuer, T., Székely, J., Kertai, M.D., Horkay, F., Kopp, M.S., Thayer, J.F., 2007. Anxiety Predicts Mortality and Morbidity After Coronary Artery and Valve Surgery—A 4-Year Follow-Up Study. Psychosom. Med. 69, 625–631.
[30]. Torpy, J.M., Lynm, C., Golub, R.M., 2011. General Anesthesia. JAMA 305, 1050.
[31]. Valenzuela Millán, J., Barrera Serrano, J.R., Ornelas Aguirre, J.M., 2010. Anxiety in preoperative anesthetic procedures. Cir. Cir. 78, 147–51.
[32]. Visu-Petra, L., Miclea, M., Visu-Petra, G., 2013. Individual differences in anxiety and executive functioning: A multidimensional view. Int. J. Psychol. 48, 649–659.
[33]. Zambouri, A., 2007. Preoperative evaluation and preparation for anesthesia and surgery. Hippokratia 11, 13–21.