The relation between sex, age, education level, and premedication towards lower-abdominal postoperative pain intensity at Sanglah General Hospital

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Abstract

Background: Pain reporting is very subjective. Several studies reveal sex, age, education level, and premedication have impacts on postoperative pain intensity. However, other studies report no relationship between these factors to pain intensity. There only a few researches on pain predictors in Bali, so this study conducts to determine the relation between sex, age, education level, and premedication towards lower abdominal postoperative pain intensity at Sanglah Hospital.

Patients and Methods: This is an analytic cross-sectional study. The data were collected from medical records of patients after lower abdominal surgery at Sanglah Hospital from January to July 2018 and fit into only inclusion criteria. Data of patient's characteristics were collected to identify their relation toward pain intensity on the first day.

Results: There are 99 patients post-lower abdominal surgery in this study. The mean pain intensity based on sex is 2.83 ± 0.87 for males and 2.98 ± 1.16 for females. Based on ages, they are 3.04 ± 1.11 for young, 2.90 ± 0.95 for adults, and 2.40 ± 0.96 for older patients. Based on the education level 2.40 ± 1.26 for elementary educated patient, 2.72 ± 1.27 for patients with junior high education, 2.96 ± 1.04 for patients with high school education, and 3.15 ± 0.74 for college patients. The average of pain intensity in patients with premedication is 2.81 ± 0.94 while the patient without premedication is 3.81 ± 1.16 . After performing a correlation test, only the premedication factor showed a significant impact ($p < 0.05$) to the pain intensity.

Conclusion: Therefore, premedication has a dominant role in determining postoperative pain intensity at Sanglah Hospital.

Keywords: VAS, pain management, premedication, postoperative pain

Cite this article:

Wiguna KAA, Aribawa IGNM, Aryabiantara IW, Senapathi TGA. The relation between sex, age, education level, and premedication towards lower-abdominal postoperative pain intensity at Sanglah General Hospital. *Neurologico Spinale Medico Chirurgico*. 2020.3(1):21-23. DOI:10.36444/nsmc.v3i1.92

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Introduction

Pain perception is very subjective. Therefore, the postoperative pain intensity among patients will be different from each other even though some of them have the same characteristics. This proves that pain perception is very dependent on several factors.¹

Postoperative pain occurs due to tissue damage or noxious stimuli. Noxious stimuli are caused due to inflammation that makes inflammatory cells will come out and attach to pain receptors called nociceptors. These receptors are directly related to free nerve endings which generally consist of two types, those are delta-A fibers and type C.² These fibers continue into the spinal cord and the brain through two main pathways namely the spinothalamic pathway and spinoreticular pathway. Rapid pain messages consist of A-delta fibers that have myelin and then passed through the spinothalamic tract to a specific location in the brain and passed to the cortex cerebri. This type of pain can localize pain. Another stimuli will travels by type C fibers and considered as slow pain. Slow pain messages travel through the spinoreticular tract. The spinoreticular tract has branches towards the reticular formation and limbic systems. Reticular formation is respon-

sible for regulating awareness, while the limbic system is responsible for processing emotions. Therefore, there will be an emotional influence on pain perception.^{3,4}

Several studies have been carried out by various countries to identify the predictors of postoperative pain. However, some of them showed contrast results. Several factors are believed to be the nature of the difference in pain intensity, including sex and age. Some studies show women feel more pain than men, but not a few studies also show that there is no difference in pain intensity felt by women or men.⁵ Age is believed to be the nature of the intensity of pain. Older adults are believed to report less pain the younger due to higher pain threshold. The level of education has not been much discussed. However, several studies believe that low education is associated with a higher incidence of pain conditions.⁵ Several studies conduct that the relationship between education level and postoperative pain intensity cannot be concluded.⁶ Lau and Pathil in their study stated that between education level and pain intensity did not show any relationship but the study was only based on a small number of patients.⁷ Other studies showed premedication could work in reducing postoperative pain intensity and was believed to reduce levels of opioid consumption.

This study was conducted to analyze the relation between sex, age, education level, and premedication toward lower-abdomen postoperative pain intensity in Sanglah General Hospital, Denpasar-Bali in order to define the postoperative pain predictors and give the right pain management to decrease the number of morbidity.

Patients and Methods

This is an analytic study with a cross-sectional design. This research was conducted at Sanglah Hospital, Denpasar, Bali from February to March 2019. Patients with age 17 to 65 years old and had performed lower-abdomen surgery during January to June 2018 will be included to this study. Patients with history of complications after surgery including severe bleeding and shock, unconscious or in a coma for more than 3 days, suffering chronic pain, experiencing psychiatric disorders, and experiencing preoperative anxiety disorders will be excluded. The data were collected from medical records. Then the patient's identity will be recorded including sex, age, and education level. Then, we record the type of surgery, history of premedication, as well as the intensity of pain perceived on the first day. Samples were taken by purposive sampling to get all patients who suit the criteria during the short period. This study protocol was approved by the Committee of Ethical Research of Udayana University/Sanglah General Hospital.

Data were analyzed using SPSS ver. 16 software. Pearson Chi-Square test was performed to determine the relationship between sex, age, education level, and premedication with the intensity of postoperative pain on the first day. A p-value of <0.05 was considered significant.

Result

An amount of 99 patients were include to this study. The characteristics are divided into sex, age, level of education, use of premedication, and type of surgery. The highest number of samples belong to women consists of 56 people (56.60%). Young age was found to dominate this study with a total of 49 people (49.5%) while for the patients' level education, the majority had completed higher education with a total of 78 people (78.8%). 88 patients (88.9%) had received dexamethasone combined diphenhydramine as the premedication and mostly type operation done is open appendectomy with 97 people (98%). These data are shown in table 1.

Table 1. *Characteristics of patients.*

Characteristic		N=99	%
Sex			
Male		43	43.40
Female		56	56.60
Age			
Young	(<26 y.o)	49	49.50
Adults	(26-45 y.o)	40	40.40
Older	(>45 y.o)	10	10.10
Education level			
High	(Senior High School and above)	78	78.80
Low	(Elementary and Junior school)	21	21.20
Premedication			
	(Dexamethasone and Diphenhydramine)		
Given		88	88.90
Not given		11	11.10
Type of operation			
Open Appendectomy		97	98.0
Laparotomy TAH		2	2.0

Table 2 shows that there is no statistically significant relationship between sex factors and pain intensity ($p > 0.05$), age with pain intensity ($p > 0.05$), and education level of postoperative pain intensity ($p > 0.05$) $p > 0.05$). However, there was a statistically significant relationship between premedication and postoperative pain intensity on the first day ($p < 0.05$).

Table 2. *Postoperative pain distribuion on first day.*

Variables	Mean $\pm$ SD	p	RR (CI 95%)
Sex		0.216	-
Male	2.83 $\pm$ 0.87		
Female	2.98 $\pm$ 1.16		
Age		0.078	-
Young	3.04 $\pm$ 1.11		
Adult	2.90 $\pm$ 0.95		
Older	2.40 $\pm$ 0.96		
Education level		0.224	-
Elementary	2.40 $\pm$ 1.26		
Junior High School	2.72 $\pm$ 1.27		
Senior High School	2.96 $\pm$ 1.04		
University student	3.15 $\pm$ 0.74		
Premedication		0.017	
Given	2.81 $\pm$ 0.94		1.7 (2.61-3.01)
Not given	3.81 $\pm$ 1.16		

Discussion

The results of this study indicate that the factors of sex, age, and level of education do not have a significant relationship with the postoperative pain intensity. This also happens in a study conducted by Vivian who obtained an insignificant relationship due to preoperative premedication. In that study, patients who received premedication would feel less pain than the control group.⁹

Administration of dexamethasone combined with diphenhydramine in this study is common as a preoperative management with different effect on postoperation. The administration of dexamethasone only as a premedication in Mohtadi's study found that pain intensity at the second, sixth and twelfth hours was lower than in patients without preoperative.

Conclusion

There was no significant relationship found between sex, age, and education level on the intensity of postoperative abdominal pain. Considering that pain is very subjective, this found may lead us to a conclusion that gender might has a role on defining people emotion. Education and age don't come along with the emotional maturity. Beside that, this found may indicates that premedication factors has more dominant effect in influencing postoperative pain intensity.

Acknowledgment

We declare that there were no conflicts of interest in this study.

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