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Original research

ASSESSMENT OF SLEEP QUALITY IN PATIENTS AFTER ABDOMINAL SURGERY

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ABSTRACT

Objectives: *Evaluating the sleep quality of patients after abdominal surgery at the General Surgery Department, Hue Central Hospital Base 2. Investigating some factors related to the sleep quality of the study subjects.*

Methods: *Description of a cross-sectional study on 92 post-abdominal surgery patients at the Hospital from February 1, 2023, to August 31, 2023, using a single random sampling method.*

Results: *The average sleep quality score of post - abdominal surgery patients on the second day was moderate (84.31 ± 30.16). Factors influencing patients' sleep quality such as postoperative pain, level of anxiety, and the impact of the care environment were statistically significant ($p < 0.05$) and had a 64.1% influence (correlation coefficient $R = 0.641$; $p < 0.001$) on the sleep quality on the second night after surgery ($F = 55.25$; $p < 0.001$). Among these factors, the highest influencing factor on sleep quality in post-abdominal surgery patients was the level of anxiety ($\beta = -0.42$; $p < 0.001$).*

Conclusion: *Developing patient - centered care programs focusing on improving sleep hygiene, enhancing access to sleep treatment methods, and educating patients about the benefits of good sleep.*

Keywords: *Sleep quality, after surgery, related factors.*

I. BACKGROUND

Sleep plays an important role in a person's overall health and well - being. The human sleep - wake cycle is regulated by a biological clock in the brain, which always maintains a balance between the human body's sleep and wake times. Good sleep is a fundamental element in a healthy life, having a positive impact on every activity of the body and also on the immune system and mental state [1, 2].

Sleep quality after surgery is an important aspect of post - operative care that can significantly impact a patient's recovery and overall health. The problem of insomnia has a significant negative impact on the recovery process after abdominal surgery, an important stage in the patient's recovery process. During sleep, especially in the state of deep sleep, our bodies release highly active cytokines, which are endocrine substances necessary for regulating the immune system, and experiments have proven that endocytosis is essential for regulating the immune system. This secretion plays an important role in stimulating the body's immune response [3].

At Hue Central Hospital, Base 2, we receive treatment for many serious diseases every day, in which the General Surgery Department of the Hospital receives many cases of complex abdominal surgery every day, etc. Therefore, we conducted research on "Assessing the sleep quality of patients after abdominal surgery at the Department of General Surgery, Hue Central Hospital, Base 2" with two goals: assessing the quality of sleep of patients after abdominal surgery at the Department of General Surgery, Hue Central Hospital, Base 2. Learn about some factors related to the sleep quality of the above study subjects.

II. MATERIAL AND METHODS

2.1. Research subjects

A cross - sectional descriptive study was conducted on a patient on the 2nd day after abdominal surgery who was being treated at the Department of General

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Surgery, Hue Central Hospital, Base 2. Selection criteria: patients are 18 years of age or older, have no mental disorders, are capable of providing information, can answer questions according to the form, and voluntarily participate in the research. Exclusion criteria: in a state of unconsciousness, difficulty in contact, mental diseases, deafness and muteness, and loss of civil act capacity. Do not agree to participate in the study.

2.2. Sample size and sampling method

Sample size: applied according to the formula:

$$n = Z^2_{(1-\frac{\alpha}{2})} \times \frac{p(1-p)}{d^2}$$

We chose: Reliability α = 0.05 => Z(1-α/2) = 1.96; d is the desired error; choose d = 0.1; Percentage of patients with insomnia on the second day after abdominal surgery with p = 0.613 (61.3%) according to research by author Dinh Thi Thu Huong and colleagues [1].

Calculated sample size: n = 92 => The selected sample consists of 92 patients.

Sampling method: single random sampling, selecting patients on the second day after abdominal surgery.

2.3. Tools and methods of data collection

The study used three sets of tools whose reliability was determined through Cronbach's alpha coefficient, respectively: the sleep quality tool (VSH) is 0.9, the anxiety assessment tool set (HADS-A) is 0.83, and impact factors from the care environment are 0.82. All data were collected by interviewing the patient and consulting additional information in the patient's medical record.

2.4. Processing and analyzing data

Data were cleaned and entered using Google Forms software. Use SPSS 20.0 software to analyze the obtained data. Using descriptive statistical methods to describe the characteristics of research subjects, sleep quality characteristics, post - operative pain level, anxiety level, and influencing factors from the care environment. A multivariate linear regression analysis was used to examine the influence of each independent variable on the secondary variable. Results are presented in tables and graphs using Microsoft Office 2010 software.

2.5. Research ethics

The study was conducted after receiving permission from Hue Central Hospital, and the research subjects were clearly explained before agreeing to participate in the study. All information related to the subject is encrypted and entered into the computer to ensure confidentiality and is only used for research purposes and to benefit the community.

III. RESULTS

Table 1: General information about the patient

General information		N	Rate (%)
Age			
The average age		56.1 ± 16.9 (Youngest age: 18; oldest age: 92)	
Age group	35 years and under	16	17.4
	36 to 60 years old	41	44.6
	60 years and older	35	38.0
Gender			
Male		39	42.4
Female		53	57.6
Ethnic			
Kinh		92	100

General information	N	Rate (%)
Religion		
No	78	84.8
Buddhism	13	14.1
Catholicism	1	1.1

The average age of the 92 patients participating in the study was 56.1 ± 16.9. The proportion of patients in the age groups of 36 - 60 and over 60 is 44.6% and 38.0%, respectively; 17.4% of patients are in the age group of 35 and under. The proportion of female patients is 57.6%. 100% are Kinh ethnic groups. Patients mostly do not follow any religion.

Table 2: Information about the health conditions of the patient

Health condition	N	Rate (%)
Patient's sleep status before admission to the hospital		
Normal	92	100
Surgical history		
Never	60	65.2
Surgery once	25	27.2
Surgery 2 times	7	7.6
Type of surgery		
Program surgery	50	54.3
Emergency surgery	42	45.7
Surgical method		
Endoscopic surgery	69	75.0
Open surgery	23	25.0

Most patients participating in the study had never undergone surgery, accounting for 65.2%. Elective surgery is more common than emergency surgery, with 54.3%, and laparoscopic surgery is the majority, accounting for 75.0%. All patients included in the study believed that their pre-hospital sleep status was normal or that they did not receive treatment for insomnia.

Table 3: Sleep quality of patients on the second day after surgery

Sleep quality	Medium score			Standard deviation
	Max	Minimum	Medium	
Effects of disturbance	10	1	5.84	2.35
Waking up after starting to sleep	10	0	5.87	2.56
Mid - Sleep Awakenings	10	2	6.3	2.15
Start sleeping	9	2	6.38	2.11
Falling asleep	9	2	6.4	2.09

Sleep quality	Medium score			Standard deviation
	Max	Minimum	Medium	
Movement during sleep	10	2	6.52	2.37
Soundness of Sleep	10	1	6.21	2.31
Sleep disorders	68	10	43.52	15.94
Subiective Quality of Sleep	10	2	6.32	2.39
Total sleep time	10	2	6.34	1.69
Assess sleep adequacy	10	2	6.41	2.43
Feeling when waking up	10	3	6.66	2.17
Sleep efficiency	40	9	25.73	8.68
Sleep during the day	4	0	1.9	0.81
Sleep in the afternoon	5	0	1.99	1.32
Morning sleep	7	2	3.5	1.55
Awake after the last awakening	10	2	7.67	1.86
Sleep supplement	26	4	15.06	5.54
Total	134	23	84.31	30.16

The patient's sleep quality on the second day after surgery showed: The average score of the patient's sleep quality was average (84.31 ± 30.16). Among them, the most common sleep disorders of patients are "quality of disturbance" (5.84 ± 2.35) and "wake up after starting to sleep" (5.87 ± 2.56). The patient's sleep efficiency was lowest when asked about "subjective sleep quality" (6.32 ± 2.39) and "total sleep time" (6.34 ± 1.69). is a sick person who doesn't have a good night's sleep. Sleep supplementation shows that patients often sleep in the morning after waking up with the question "Morning sleep" (3.50 ± 1.55). The results show that the patient still feels sleepy after waking up. wake up.

Table 4: Current status of pain, anxiety, and environmental factors

Factors	Medium score			Standard deviation
	Max	Minimum	Medium	
Pain after surgery	6	1	3.43	1.43
Worry	20	2	12.07	4.86
Influence from the care environment	96	10	31.87	15.76

The level of pain after surgery, anxiety, and influence from the care environment results show that: the level of pain and anxiety of patients after surgery had an average pain level of 3.43 ±1.43; the mean of anxiety was 12.07 ± 4.86; and the mean of factors from the care environment was 31.87 ± 15.76.

Table 5: Pearson's correlation analysis between pain factors, anxiety factors, environmental factors, and sleep quality

		Sleep quality	Worry	The care environment	Pain after surgery
Sleep quality	Pearson Correlation Sig.(2-tailed)	1	- 0.71 0.000	- 0.68 0.000	- 0.49 0.000
Worry	Pearson Correlation Sig.(2-tailed)	- 0.71 0.000	1	0.56 0.000	0.38 0.000
The care environment	Pearson Correlation Sig.(2-tailed)	- 0.68 0.000	0.56 0.000	1	0.37 0.000
Pain after surgery	Pearson Correlation Sig.(2-tailed)	- 0.49 0.000	0.38 0.000	0.37 0.000	1

Results from Pearson correlation analysis show that there is a strong negative correlation between anxiety and patient sleep quality (Pearson's r = -0.71; p < 0.001), a negative correlation between care environment and patient sleep quality (Pearson's r = -0.68; p < 0.001), and an inverse correlation between postoperative pain and sleep quality (Pearson's r = -0.49; p < 0.001).

Table 6: Relationship between pain factors, anxiety, environmental factors, and sleep quality

Related factors	Regression coefficient	Standardized regression coefficient (Beta)	
Influence from the care environment	-0.53	-0.38	Constant = 134.18 Adjusted R Square = 0.641 F = 55.25 và p = 0.000
Worry	-1.92	-0.42	
Pain after surgery	-2.84	-0.18	

Results from multivariate linear regression analysis between factors influencing sleep quality show that post-operative pain, anxiety level, and influence from the care environment have an influence of 64.1% (system). correlation number (R = 0.641; p < 0.001) on sleep quality on the second night after surgery in patients after abdominal surgery at the General Surgery Department (F = 55.25; p < 0.001). Among them, the factor that has the highest impact on sleep quality in patients after abdominal surgery is the level of post-operative anxiety (β = -0.42; p < 0.001), followed by the influencing factor from the care environment (β = -0.38; p < 0.001).

IV. DISCUSSION

The sleep quality of 92 patients on postoperative day 2 was average (84.31 ± 30.16). Our results are consistent with previous studies; the results are similar to the study by author Mai Ba Hai in 2018 at the Department of Trauma Surgery, Hue University of Medicine and Pharmacy Hospital, on sleep quality at an average level (83.24 ± 15.17), and problems encountered in sleep also correspond to this author's results [4]. Our results are higher than those of author Nguyen Thi Truong Xuan and her colleagues in 2013 at the General Surgery Department of Binh Duong Provincial General Hospital with poor sleep quality in patients (206.65

± 47.80) [5]. The difference in results may be due to differences in research areas, patient characteristics, medical conditions, and problems encountered in sleep. But in general, complaints about poor sleep, sleep disorders, and poor sleep are symptoms that patients often encounter during hospitalization and especially when having surgical interventions.

Research results show that there is a negative correlation between postoperative pain and sleep quality (Pearson's r = -0.49; p < 0.001). This result is consistent with many previous studies, such as the results of author Dinh Thi Thu Huong and colleagues in 2021 at Tuyen Quang Provincial General Hospital, showing that the level of pain affects sleep status (p < 0.05): the more pain, the more insomnia [1]. Also, the results of the above study showed that pain and insomnia decreased the most after day 2. There is a relationship between pain and sleep quality. The degree of pain relief and insomnia is related to the quality of recovery after surgery.

The results of this study showed that patients had mild pain on the second day after surgery (3.43 ± 1.43). Patients experience pain as an inevitable consequence of muscle, nerve, and blood vessel damage after surgery. According to research by Nguyen Thi Xuan and colleagues, nocturnal pain was average after 3 days of surgery (5.81 ± 0.82) [5]. According to research by Chouchou F. and colleagues, 42% of patients complained about sleep after surgery, and 23% of cases had unsatisfactory sleep quality until the fourth day. The results of the above study also found that several factors known to influence postoperative pain, chronic sleep, and preoperative complaints were the strongest determinants of pain during surgery. rest after surgery [6].

Research results show that there is a strong negative correlation between anxiety and patients' sleep quality (Pearson's r = -0.71; p < 0.001). There is a statistically significant relationship (p < 0.05) between anxiety and sleep quality in patients after surgery (12.07 ± 4.86). According to the research results of author Chu Thi Chi and colleagues in 2020 at Hanoi Medical University Hospital, similar to the factors of anxiety disorders, stressful life issues are statistically significant. sleep quality (p < 0.05) [7]. At the same time, research by Zhang Lei and colleagues shows that worry about illness deeply affects the patient's sleep quality. Anxiety has disturbed the patient's sleeping habits [8].

Research results show that there is a negative correlation between the care environment and patient sleep quality (Pearson's r = -0.68; p < 0.001). There is a statistically significant relationship between the care environment and patient sleep quality (p < 0.05). The level of influence from the care environment is 31.87 ± 15.76. According to the results of author Chu Thi Giang Thanh and colleagues in 2021 at the Department of General Surgery, Central Highlands General Hospital, environmental factors such as patient room lighting, medical staff activities, and noise from surrounding devices are related to the patient's sleep quality (p < 0.05) [9]. The study by Merdiye Şendir et al. showed that noise (31.4%) affected the sleep quality of hospitalized patients [10]. According to the above research results, sleep disorders can be caused by many exogenous factors, such as environmental noise, bright light, and repeated intervention by medical staff.

V. CONCLUSION

Develop patient - centered care programs that focus on improving sleep hygiene, enhancing access to sleep treatments methods, and educating patients about the benefits of good sleep. Additionally, providing important information can help organizations and facilities plan better treatment and care, improve patients' quality of life, and reduce health care costs related to the disorder sleep disorder.

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