STATUS SURVEY OF SLEEP QUALITY OF LUNG CANCER PATIENTS AND ANALYSIS OF INFLUENCING FACTORS

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ABSTRACT

Introduction: *To investigate the current situation of sleep quality of lung cancer patients and analyze the influencing factors.*

Materials and methods: *120 lung cancer patients (from January 2019 to January 2020) were selected, PSQI scale survey was conducted, and the factors influencing the sleep quality of lung cancer patients were analyzed, and targeted nursing countermeasures were formulated.*

Results: *A total of 120 questionnaires were sent out, 120 were returned, 115 were effectively returned, and the effective recovery rate was 95.83%. ① Among the 115 patients, there were 63 patients with sleep disorders, accounting for 54.78%, and 52 patients without sleep disorders, accounting for 45.22%. ② Patients' gender, age, education level, and medical insurance were not related to sleep disorders (P>0.05) while sleep environment, nocturnal treatment, nausea and vomiting, fatigue, pain, and dyspnea were related to sleep disorders (P<0.05). ③ By multiple linear regression analysis, sleep environment, nocturnal treatment, nausea and vomiting, fatigue and dyspnea were related to patients' sleep disorders (P<0.05).*

Conclusion: *The problem of sleep disorders in lung cancer patients is prevalent and closely related to sleep environment, nocturnal treatment, nausea and vomiting, fatigue and dyspnea, etc., which should be paid great attention to.*

Keywords: *Lung cancer, sleep quality, status survey, influencing factors.*

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Introduction

Lung cancer, also known as primary bronchogenic carcinoma, a common type of cancer, is caused by cancerization of the bronchial mucosa or mucosal epithelium, which has a high incidence and lethality rate and has a significant impact on patients' health[(1)]. Studies have shown[(2)] that in addition to symptoms such as pain and fatigue, patients with lung cancer also have symptoms of sleep disorders of varying degrees. For lung cancer patients, sleep quality is an important index to examine the survival quality of patients. High-quality sleep can maintain the normal physiological function of the body, improve the immunity of the body, and promote the recovery of the body, but the appearance of sleep disorders can affect their physical and mental health and quality of life, and even affect the treatment effect and deteriorate the condition[(3)]. However, clinical health care professionals pay little attention to sleep disorders in lung cancer patients. With the improvement of medical care concept, coupled with the enhancement of knowledge about patients' survival quality, clarifying sleep quality and analyzing the influencing factors have become the focus of clinical research[(4, 5)]. In view of this, in order to further improve the sleep quality of lung cancer patients, this paper aims to investigate the

sleep quality of lung cancer patients and analyze the influencing factors, aiming to provide richer research content for clinical care of lung cancer patients. Details are as follows.

Materials and methods

General information

A convenient sampling method was adopted to select 120 patients with hospitalized lung cancer from January 2019 to January 2020.

Inclusion criteria:

• Pathological confirmed diagnosis;

• Simple communication ability;

• No serious radiotherapy or chemotherapy reaction;

• 18-70 years old;

• Voluntary participation in the survey study.

Exclusion criteria:

• History of mental illness;

• Inability to communicate such as disturbance of consciousness;

• Refusal to participate in this study.

This study was approved by the medical ethic committee (approval number: 2022XY-019), and patients and their families signed an informed statement.

Methods

Patient basic information questionnaire and PSQI scale were used to investigate patients' basic information and sleep quality.

The former included age, gender, and education level; the latter included sleep quality and time to sleep, etc. A score of ≥7 was considered as a patient with sleep disorder. Before the questionnaire/scale was distributed, the survey was informed and precautions were emphasized, and patients completed it independently.

On the day of the survey (the day after the patients finished chemotherapy), the questionnaires were filled out and collected on the spot to check for any omissions, and if there are any omissions, the reasons should be explained, or filled in. A total of 120 questionnaires were sent out, 120 were collected, 115 were validly collected, and the effective recovery rate was 95.83% (115/120).

Statistical treatment

Statistical software SPSS 25.0, measure ($\bar{x}\pm s$) and count (%) data, give t, χ^2 tests; P<0.05 indicated data discrepancy.

Results

Sleep quality score

Of the 115 patients, the PSQI score was (8.23±2.42). Among them, there were 63 patients with sleep disorders (PQSI score ≥7), accounting for 54.78% (63/115), and PSQI score was (11.42±2.58); there were 52 patients without sleep disorders (PSQI score <7), accounting for 45.22% (52/115), and PSQI score was (4.23±1.27).

Single factor analysis influencing sleep quality

Patients' gender, age, education level, and health insurance were not associated with sleep disorders (P>0.05); while sleep environment, nocturnal treatment, nausea and vomiting, fatigue, pain, and dyspnea were associated with sleep disorders (P<0.05), as shown in Table 1.

Influencing Factors		(n=63) Sleep Disorders (n=63)	(n=52) No Sleep Disorder (n=52)	t/χ^2 Value	*P* Value
Sex	Male	42 (66.67)	31 (59.62)	0.611	0.434
	Female	21 (33.33)	21 (40.38)		
Age (Years)		55.63±5.67	54.83±5.82	0.744	0.458
Education Level	Junior High School and Below	29 (46.03)	27 (51.92)	0.396	0.529
	High School and Above	34 (53.97)	25 (48.08)		
Medical Insurance	Yes	21 (33.33)	15 (28.85)	0.267	0.606
	No	42 (66.67)	37 (71.15)		
Sleeping Environment	Good	54 (85.71)	52 (100.00)	8.059	0.005
	Poor	9 (14.29)	0 (0.00)		
Nocturnal Treatment	Yes	15 (23.81)	2 (3.85)	9.012	0.003
	No	48 (76.19)	50 (96.15)		
Nausea and Vomiting	Yes	32 (50.79)	6 (11.54)	19.841	<0.001
	No	31 (49.21)	46 (88.46)		
Fatigue	Yes	44 (69.84)	23 (44.23)	7.684	0.006
	No	19 (30.16)	29 (55.77)		
Pain	Yes	49 (77.78)	21 (40.38)	16.723	<0.001
	No	14 (22.22)	31 (59.62)		
Dyspnea	Yes	13 (20.63)	2 (3.85)	7.079	0.008
	No	50 (79.37)	50 (96.15)		

Table 1: Single factor analysis influencing sleep quality.

Multiple linear regression analysis of factors influencing sleep quality

By multiple linear regression analysis, sleep environment, nocturnal treatment, nausea and vomiting, fatigue and dyspnea were associated with sleep disorders in patients (P<0.05), as shown in Table 2.

Influencing Factors	β	*SE*	*Normalized* β	*t* Value	*P* Value
Sleeping Environment	0.648	0.241	0.168	2.683	0.008
Nighttime Treatment	0.865	0.396	0.134	2.182	0.031
Nausea and Vomiting	0.349	0.106	0.273	3.297	0.001
Asthenia	0.126	0.059	0.134	2.126	0.036
Dyspnea	0.295	0.090	0.207	3.283	0.001

Table 2: Multiple linear regression analysis of factors influencing sleep quality.

Discussion

Sleep quality

Sleep disorders, mainly characterized by abnormal amount of sleep and abnormal behavioral symptoms during sleep, and are manifested as easy waking and difficulty in falling asleep. Relevant surveys have shown that lung cancer patients have sleep disorders and poor sleep quality. In this study, 115 patients had PSQI scores (8.23±2.42), among which the PSQI scores of sleep disorders and no sleep disorders were (11.42±2.58) and (4.23±1.27), with significant differences compared with the two groups. This shows that sleep disorders are more common in lung cancer patients. In a study by Lian Jianjuan(6), 106 lung cancer patients, assessed by PSQI scale, had a score of (13.56±1.66), and all PSQI scores were >7. Suggestion: sleep problems are prevalent in lung cancer patients.

Factors influencing sleep quality and nursing countermeasures

This study showed that sleep environment, nocturnal treatment, nausea and vomiting, fatigue and dyspnea were associated with sleep disorders in patients by multiple linear regression analysis ($P<0.05$). Suggestion: the factors influencing the sleep quality of patients are, sleep environment, nocturnal treatment, nausea and vomiting, fatigue, and dyspnea. By analyzing the influencing factors and developing targeted nursing countermeasures based on the results of the analysis, there is a clear effect of improving sleep disorders and contributing to the improvement of patients' sleep quality[7].

In this regard, the following nursing countermeasures were developed:

• Optimize the sleep environment: based on the actual conditions of the hospital, the hospitalization environment of some patients is not ideal, such as: living in a six-room ward, living in a ward near the bathroom, etc. Light, night walking, instrument noise, etc., all affect the sleep quality of patients to a certain extent. In response, nursing staff keep gentle movements during nursing period to create a comfortable and quiet sleeping environment. Those who snore at night or are treated at night shall be placed separately in independent wards so as not to affect other patients[8-10].

• Proper arrangement of treatment time: to alleviate adverse reactions, infusion quantity need > 1,500 ml/d and water intake need > 1,500 ml/d. According to the actual situation, arrange infusion for patients with high infusion quantity as early as possible. Also, ask to drink more water during the day. Avoid infusion or drinking water at night, which causes frequent nocturnal urination and has an impact on the patient's sleep quality. Patients who need infusion of antibiotics or oral analgesics should arrange the treatment time reasonably according to the actual situation of the patients so as not to affect their sleep.

• Symptom nursing: during the patient's treatment, more serious symptoms such as nausea, fatigue, dyspnea and pain often occur because of tumor invasion or treatment. Suggestion: All the above symptoms are one of the factors influencing sleep disorders. In this regard, patients should be closely monitored and treated and cared for accordingly. In case of nausea and vomiting, eat a light diet with many small meals but little food at each and more fresh fruits and vegetables. Pain assessment shall be enhanced, pain relief measures shall be instructed, and tertiary analgesic treatment shall be carried out promptly[11, 12]. For those with fatigue, avoid strenuous activities, pay attention to work and rest, and avoid falls and slips. For those with dyspnea, abstain from smoking and alcohol, enhance warmth, instruct effective breathing patterns, and implement oxygen therapy if necessary.

• Sleep education: understand patients' sleep habits; emphasize the advantages of high-quality sleep for patients with poor sleep habits, and correct poor sleep habits, such as: appropriate daytime activities, avoiding staying up late, and not drinking strong tea and coffee before bedtime.

• Reasonable use of sedative-hypnotic drugs: combine patients with severe sleep disorders, use analgesic-hypnotic drugs correctly according to their conditions, assess the effects and adverse reactions, and strengthen monitoring to ensure safety.

• Mental nursing: actively communicate with patients to understand psychological and emotional

changes and try to meet reasonable needs in order to reduce anxiety and depression[13, 14]. At the same time, using verbal and nonverbal methods, administering behavioral principles and techniques, targeted education, treatment and training are provided to patients to improve their emotional state and thus improve their sleep quality. Education about lung cancer can be adopted to relieve patients' fear and anxiety. Relaxation imagery technique and progressive muscle relaxation therapy can be used to make patients physiologically relaxed and thus improve their sleep quality.

• Music therapy six-step method: it includes improvisation, music-guided imagination, etc. Using music expertise, it can correct patients' poor sleep behaviors and habits, keep patients in a good physical and mental state, and then improve patients' sleep quality. At the same time, using the music therapy six-step method can make patients relax in the environment of music, adjust their psychological states, and then actively cooperate with clinical treatment and care, and help patients establish confidence and perseverance to overcome the disease, thus improve their sleep quality.

• Comprehensive nursing intervention: according to the specific conditions of patients, the causes of sleep disorders are analyzed, and comprehensive nursing interventions such as health education and psychological interventions are adopted, which can alleviate patients' sleep disorders and improve their sleep quality. The clinical treatment of lung cancer patients is affected by various factors such as patients' conditions and chemotherapy cycles. It is necessary to understand the basic conditions of patients and analyze them, adopt targeted comprehensive nursing interventions, flexibly use various nursing measures, create good patient-care relationship and strengthen social support to improve patients' sleep quality.

In conclusion, the problem of sleep disorders in lung cancer patients is widespread and closely related to sleep environment, nocturnal treatment, nausea and vomiting, fatigue, and dyspnea, etc., which should be highly valued, and it is crucial to provide the most effective and feasible nursing interventions to improve patients' sleep quality. However, in this process, there may be certain problems, such as: unchangeable sleep quality, fixed ward environment, and poor patient compliance, etc. It is necessary to draw on the contents of previous clinical studies, summarize experiences, and actively explore more suitable nursing interventions for lung cancer patients in combination with the actual clinical situation to further improve the sleep quality of patients.

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