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Original Article

The effect of the fast tract nursing mode on the improvement and adverse emotions of patients with lung cancer during the perioperative period

Dandan Wang[1], Hui Wang[2], Weixia Sun[3], Lin Li[3]

[1]Department of Neurology, The First Hospital of Jilin University, Jilin, China; [2]Department of Hematology, Second Hospital of Jilin University, Jilin, China; [3]Department of Nephrology, The First Hospital of Jilin University, Jilin, China

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Abstract: Objective: This study aimed to explore the effect of fast tract nursing on patients with lung cancer during the perioperative period. Methods: 92 patients with lung cancer were selected. Among them, 46 patients who received routine nursing were included in group A and 46 patients who received fast tract nursing in addition to routine nursing were enrolled in group B. The following parameters were compared: the baseline data, the recovery and complications after one month of nursing, the SDS and SAS scores, the quality of life, and the nursing satisfaction. Results: The SAS and SDS scores of the two groups after the nursing were lower than they were before the nursing ($P < 0.001$); the SAS and SDS scores of group B after the nursing were lower than those of group A ($P < 0.001$). The time it took to get out of bed, the exhaust time, the extubation time, and the hospital stay in group B were shorter than they were in group A ($P < 0.05$). After the nursing intervention, the incidence of total complications in group B was lower than it was in group A ($P < 0.05$). The quality of life scores and the nursing satisfaction in group B were higher than they were in group A ($P < 0.05$). Conclusion: Fast tract nursing combined with routine nursing could effectively improve postoperative recovery, quality of life, and the negative emotions of patients with lung cancer, which is worthy of wide clinical promotion.

Keywords: Fast tract nursing, lung cancer, perioperative index, bad mood

Introduction

Lung cancer is a malignant tumor that occurs in the bronchial mucosal epithelium [1, 2] that has a high incidence and mortality. According to the International Health Organization, lung cancer is the most common cancer worldwide, making up 12.3% of the total number of new cancer cases diagnosed in 2018 [3]. Due to its complex pathogenesis, resection is the preferred method for the treatment of lung cancer [4, 5]. However, resection alone can't fully guarantee recovery after the operation, and the surgical resection takes a long time, causes significant trauma, and is accompanied by varying degrees of pain. The recovery of patients with lung cancer after an operation is slow, negatively impacting the life of the patients [6]. Therefore, an appropriate and effective nursing intervention is an important factor in improving the quality of life and prognosis of patients with lung cancer [7].

With the continuous development of technologies, nursing is also developing constantly. The related medical environment, the medical level, and the requirement to improve patients' psychology and quality of life are constantly improving [8]. Some studies have shown that the combination of different nursing modes is of great significance in improving the quality of life [9]. Various modern nursing methods have been continuously applied in clinical practice and have achieved satisfactory results [10]. Among the nursing values during the perioperative period, the value of fast tract surgery is an advanced nursing value applied in clinical surgery at this stage [11]. One study indicated that the fast tract nursing mode improves the surgical effect to a certain extent, reduces the probabil-

ity of postoperative complications, and shortens the hospital stay [12]. This study compared conventional nursing with fast tract nursing and explored the effect of fast tract nursing on patients with lung cancer during the perioperative period.

Materials and methods

General data

92 patients with lung cancer diagnosed and treated in our hospital were selected. Among them, 46 patients who received routine nursing were included in group A and 46 patients who received the fast tract nursing mode based on routine nursing were included in group B. There were 26 males and 20 females in group A, with an average age of (58.24±8.24) years old. There were 24 males and 22 females in group B, with an average age of (58.15±7.69) years old.

Exclusion and inclusion criteria

Inclusion criteria: patients diagnosed with clinical lung cancer that conformed to the 2015 *World Health Organization Classification of Lung Tumors* [13]. Exclusion criteria: patients with other preoperative complications; patients with conscious, cognitive, or other mental disorders. The patients and their families were informed in advance before this study, and the study was approved by the First Hospital of Jilin University Ethics Committee.

Nursing methods

The patients in group A received routine nursing for lung cancer. It included health education before the operation, consideration sin operation, and specific considerations of preoperative fasting and water deprivation for patients with lung cancer. During the operation, the close attention was paid to the changes of relevant vital signs, and different diets were formulated according to the individual conditions of the various patients after the operation.

The patients in group B received a fast tract nursing mode based on routine nursing. (1) Before the operation: the relevant medical staff should communicate fully with the patients with lung cancer and their families; the relevant medical staff should be patient and explain the causes in detail, and the occurrence, development, treatment and prognosis of lung cancer to the patients with lung cancer and their families; the relevant medical staff should actively enlighten the preoperative psychology of the patients, so that the patients with lung cancer and their families have a correct understanding of the related diseases and can cooperate more with the treatment. (2) During the operation: the relevant medical staff should pay attention to the pain and sedation of patients with lung cancer during the operation period and should avoid the use of short-acting analgesics as far as possible. If used, the relevant medical staff should always pay attention to the speed and dosage of short-acting analgesics. The relevant medical staff should always pay attention to the humidity and temperature regulation in the operating room, keep the patient's body temperature stable, and avoid hypothermia. (3) After the operation: the relevant medical staff should formulate a diet for patients with lung cancer after the operation. The patients need to eat liquid food within six hours of the operation and gradually increase the intake of high protein and high fiber nutritious food one day after the operation. The postoperative rehabilitation training should be formulated according to the recovery of patients, so the patients can get out of bed properly accompanied by their relevant medical staff. The relevant medical staff should always pay attention to the patients' psychological state after the operation, understand the psychological feelings of patients in a timely manner, relieve or guide the patients' bad emotions in a timely manner and help patients to establish a good rehabilitation mentality.

Outcome measures

The general clinical data of group A and group B were compared. The recovery and complications of the two groups after one month of nursing were compared. The self-rating depression scale (SDS) [14] and the self-rating anxiety scale (SAS) [15] were utilized to assess the mental health and bad moods of group A and group B. The score was directly proportional to the degree of anxiety and depression.

The QOL-C30 scale [16] was applied to compare the quality of life (including four dimen-

Table 1. General clinical data of two groups of patients

Group	Group A (n=46)	Group B (n=46)	t/X^2	P
Age	58.24±8.24	58.15±7.69	0.054	0.957
Gender			0.175	0.676
Male	26 (56.52)	24 (52.13)		
Female	20 (43.48)	22 (47.83)		
BMI (kg/m^2)	18.44±2.73	19.02±1.84	1.195	0.235
Smoking situation			0.000	1.000
Have	46 (100.00)	46 (100.00)		
No	0 (0.00)	0 (0.00)		
Drinking situation			0.187	0.666
Have	30 (65.22)	28 (60.87)		
No	16 (34.78)	18 (39.13)		
pathological typing				
Adenocarcinoma	15 (32.61)	16 (34.78)	0.049	0.825
Small cell carcinoma	19 (41.30)	20 (43.48)	0.045	0.833
Squamous cell carcinoma	12 (26.09)	10 (21.74)	0.239	0.625
Differentiation				
High	16 (34.78)	18 (39.13)	0.187	0.666
In	11 (23.91)	11 (23.91)	0.000	1.000
Low	19 (41.30)	17 (36.96)	0.183	0.669
Lymph node metastasis			0.226	0.635
Have	35 (76.09)	33 (71.74)		
No	11 (23.91)	13 (28.26)		

sions of physical health, mental health, material life, and social function) between group A and group B. The score was directly proportional to the quality of life. The nursing satisfaction of the two groups was compared. The results of the above indicators are regularly recorded by relevant medical personnel and professional caregivers, and in-hospital and out-of-hospital follow-up surveys are conducted every week.

Statistical methods

SPSS 19.0 (Asia Analytics formerly SPSS China) was applied for the statistical analysis. The enumeration data were expressed as [n (%)]. The enumerations between the two groups were tested using an χ^2 test. The measurement data were expressed as (X ± S). A paired *t*-test was used to compare the indexes before and after treatment, and an independent sample *t* test was used to compare the values of the means of two groups. $P < 0.05$ indicated a significant difference.

Results

General clinical data

There was no obvious difference in the baseline data, such as age and gender, between the two groups (P > 0.05) (**Table 1**).

Comparison of negative emotions before and after nursing between group A and group B

The SAS and SDS scores of the two groups after nursing was lower than it was before the nursing (P < 0.001). The SAS and SDS scores of group B after the nursing was lower than that of group A (*P* < 0.001) (**Figures 1**, **2**).

Comparison of postoperative recovery

After the nursing intervention, the time of getting out of bed, and the extubation time, exhaust time, and hospital stay of group A were (33.34±4.28) h, (4.28±1.39) d, (4.58±0.83) d, and (4.77±2.36) d, respectively. The time of getting out of bed, the extubation time, exhaust time, and hospital stay of group B were (17.28±3.72) h, (2.16±0.80) d, (2.01±0.54) d, and (2.04±0.81) d, respectively. The time of getting out of bed, the extubation time, exhaust time, and hospital stay in group B were shorter than they were in group A (P < 0.001) (**Table 2**).

Comparison of complications

After the nursing intervention, the incidence of total complications of pulmonary infection, arrhythmia, pleural effusion, and varicose veins of the lower limbs in group B was lower than it was in group A (P < 0.05) (**Table 3**).

Comparison of the quality of life

The QOL-C30 scale scores of physical health, mental health, material life, and social function in group A were (53.48±6.12), (65.20±7.28), (64.90±6.21), and (64.43±4.27). The QOL-C30

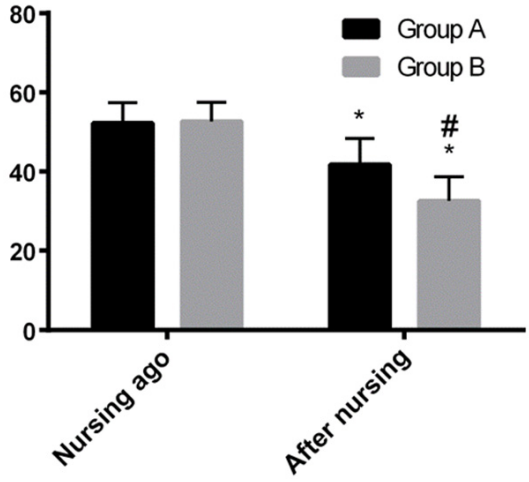

Figure 1. Changes of SAS before and after nursing in group A and group B. Note: *indicates that the SAS after nursing in both groups was lower than that before nursing (P < 0.001); #indicates that the SAS after nursing in group B was lower than that in group A (P < 0.001).

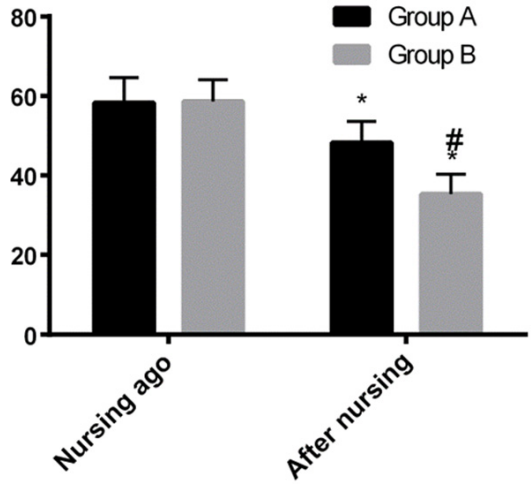

Figure 2. Changes of SDS before and after nursing in group A and group B. Note: *indicates that the SDS after nursing in both groups was lower than that before nursing (P < 0.001); #indicates that the SDS after nursing in group B was lower than that in group A (P < 0.001).

scale scores of physical health, mental health, material life, and social function in group B were (53.74±5.44), (78.61±6.75), (79.57±5.35), and (71.29±5.88). The scores of physical health, mental health, material life and social function in group B were higher than those in group A (P < 0.001) (**Table 4** and **Figure 3**).

Nursing satisfaction of group A and group B

The total satisfaction of nursing in group B was higher than it was in group A (P < 0.05) (**Table 5**).

Discussion

Patients with lung cancer suffer from pain and great health and economic problems during the operation and recovery period. The patients with lung cancer and their families have greater physical and psychological pain, and their emotions are in a bad state [17]. The fast tract nursing mode significantly improves the indicators and adverse emotions of patients with lung cancer during the perioperative period [18].

In this study, the improvement of adverse emotions in group A and group B before and after nursing was analyzed. It was found that the SAS and SDS scores were decreased in both groups after nursing, but group B showed lower SAS and SDS scores after nursing than group A. The relevant studies have shown that patients with bad mental state in the course of treatment have a slower recovery speed or a worse therapeutic effect than patients with positive and optimistic attitudes [19]. In recent years, some studies on the psychology of patients have shown that the appropriate psychological intervention to relieve patients' anxiety, depression and other negative emotions can effectively improve the cooperate treatment degree, and alleviate patients' excessive attention to pain in the treatment process, which is also very good for the recovery after treatment [20]. Therefore, it is believed that the fast tract nursing mode based on routine nursing can improve the anxiety, depression, and other adverse emotions of patients with lung cancer to a certain extent. Then, by comparing the recovery and complications of group A and group B, it was found that after the nursing intervention, the time of getting out of bed, the extubation time, exhaust time, and the hospital stay of group B were shorter than group A's times, and the incidence of total complications of pulmonary infection, arrhythmia, pleural effusion and varicose vein of lower limbs in group B were also lower than those of group A. The recurrence of pulmonary infection is often a serious threat to the poor prognosis of patients with lung cancer after an operation.

Table 2. Comparison of pain levels in group A and group B

Group	Group A (n=46)	Group B (n=46)	t	P
Time of getting out of bed (h)	33.34±4.28	17.28±3.72	19.210	< 0.001
Extubation time (d)	4.28±1.39	2.16±0.80	8.965	< 0.001
Exhaust time (d)	4.58±0.83	2.01±0.54	17.600	< 0.001
Hospital stay (d)	4.77±2.36	2.04±0.81	7.421	< 0.001

Table 3. Comparison of complications in group A and group B

Group	Group A (n=46)	Group B (n=46)	X^2	P
Lung infection	2 (4.35)	0 (0.00)	-	-
Arrhythmia	2 (4.35)	1 (2.17)	-	-
Pleural effusion	2 (4.35)	0 (0.00)	-	-
Varicose vein of lower limb	3 (6.52)	1 (2.17)	-	-
Total	9 (19.57)	2 (4.35)	5.059	0.025

Table 4. Comparison of quality of life after intervention in group A and group B

Group	Group A (n=46)	Group B (n=46)	t	P
Physical health	53.48±6.12	63.74±5.44	8.498	< 0.001
Mental health	65.20±7.28	78.61±6.75	9.161	< 0.001
Material life	64.90±6.21	79.57±5.35	12.140	< 0.001
Social function	64.43±4.27	71.29±5.88	6.403	< 0.001

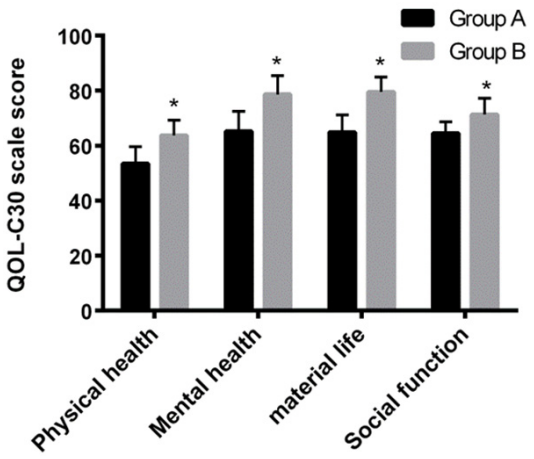

Figure 3. Comparison of quality of life between group A and group B after intervention. Note: *indicates that the scores of physical health, mental health, material life, and social function in group B were higher than those in group A (P < 0.001).

The occurrence of arrhythmia, pleural effusion, and varicose veins of lower limb is often affected by the patient's own constitution and improper nursing scheme. Reducing or preventing the occurrence of postoperative complications of patients with lung cancer is of great significance to improving the therapeutic effect [21, 22]. Therefore, it is believed that the fast tract nursing mode based on routine nursing can reduce or prevent the occurrence of postoperative complications of patients with lung cancer to a certain extent. Finally, the quality of life and nursing satisfaction of group A and group B were investigated after one month of intervention. The results of the QOL-C30 scale showed that the scores of physical health, mental health, material life, and social function of group B were higher than those of group A. A good mental state can also promote patients' physical health. Physical and mental health are important aspects reflecting patients' prognosis [23]. Similar studies have confirmed that the implementation of the appropriate nursing mode by the relevant medical staff has a positive impact on the psychological state and quality of life of patients after an operation [24]. It was concluded that the effect of the fast tract nursing mode on improving the quality of life of patients with lung cancer is better and more valuable than that of routine nursing. It was found that the total nursing satisfaction of group B was higher than that of group A. We conclude that the acceptance of the fast tract nursing mode based on routine nursing is far beyond that of the routine nursing intervention for patients with lung cancer. In recent years, studies on lung cancer nursing have also confirmed that the patients with lung cancer or their families were more satisfied with the fast tract nursing mode than the routine nursing intervention [25].

In this study, there are still some shortcomings. No other biochemical indicators were tested or recorded. The formulated nursing scheme was also affected by the local medical level, which might be different from other regions.

Table 5. Nursing satisfaction of patients in group A and group B

Group	Group A (n=46)	Group B (n=46)	X^2	P
Very satisfied	10 (21.74)	24 (52.17)	-	-
Satisfied	10 (21.74)	10 (21.74)	-	-
General	8 (17.39)	10 (21.74)	-	-
Not satisfied	18 (39.13)	2 (4.35)	-	-
Total satisfaction	28 (60.87)	44 (95.65)	33.440	< 0.001

The follow-up time was too short. In view of these shortcomings, one should pay more attention to the latest relevant research results and regularly review patients' prognosis to improve the study.

In conclusion, the postoperative recovery and improvement of quality of life is better using the fast tract nursing mode based on routine nursing. The bad moods of the patients with lung cancer were alleviated to a certain extent, and the acceptance of related patients is also higher, which is worthy of wide clinical promotion.

Disclosure of conflict of interest

None.

Address correspondence to: Lin Li, Department of Nephrology, The First Hospital of Jilin University, No.71 Xinmin Street, Jilin 130021, China. Tel: +86-15804301816; E-mail: linli190703@163.com

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