

Clinical Efficacy of the Integrated Medical Care Model Combined with Psychological Intervention in Tuberculosis Patients with Lung Cancer

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Abstract: *Objective:* To explore the clinical efficacy of the integrated medical care model combined with psychological intervention in pulmonary tuberculosis patients with lung cancer. *Methods:* From January to December 2022, 60 pulmonary tuberculosis patients with lung cancer admitted to our hospital were selected as the research subjects. Using the random number table method, the patients were divided into two groups, a control group and a study group, with 30 cases in each group. The chest computed tomography (CT) examination results, mental state assessment (including depression scale and anxiety scale) scores, incidence of adverse reactions, treatment effect, and length of hospital stay were compared between the two groups. *Results:* The treatment effect of the patients in the study group was better than that of the patients in the control group ($P < 0.05$); the duration of hospitalization, chest CT examination results, mental state assessment scores, and incidence of adverse reactions of the study group and the control group, were significantly different ($P < 0.05$). *Conclusion:* The integrated medical care model combined with psychological intervention can effectively improve the treatment effect of pulmonary tuberculosis patients with lung cancer and prevent the occurrence of adverse reactions; thus, it should be promoted in clinical practice.

Keywords: Integrated medical care; Psychological intervention; Tuberculosis; Lung cancer

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1. Introduction

Tuberculosis is a highly contagious infectious disease caused by *Mycobacterium tuberculosis*. It has a long incubation period and a high recurrence rate. It takes one to two years to be completely cured from the disease, thus causing great mental distress and financial pressure to both the patients and their families. Due to its high infectivity, psychological stress reactions such as worrying about one's own safety, coupled with adverse drug reactions, insufficient knowledge of the disease, and disease recurrence may reduce patients' compliance to treatment, and thus the efficacy of treatment. Therefore, effective nursing measures should be taken in the treatment process to improve patients' understanding of the disease and their compliance to the treatment so as to improve the efficacy of treatment and ensure the safety of use. Due to long-term chemotherapy, lung cancer patients have lower immunity, higher psychological burden, low mood, fear, anxiety, etc., which may also affect the efficacy of treatment. Therefore, it is particularly important to provide psychological support to these patients, especially those who develop serious adverse reactions and

have a lower quality of life after chemotherapy. The integrated medical care model is to provide all-rounded and targeted medical care in medical teams, breaking through the original parallel relationship between healthcare providers and patients. The relationship between healthcare providers and patients must be recognized by both parties. Through such recognition, good communicative relationships among doctors, nurses, and patients can be formed, and the cohesion between doctors and patients can be strengthened. Both nurses and doctors should help patients overcome their pain, supervise the whole treatment process so as to ensure that the patients receive treatment regularly and that the treatment is in line with the guidelines, improve the awareness of patients to the disease, alleviate the patients' fear of the refractory disease through psychological guidance, and improve their enthusiasm for treatment [1-5]. The aim of this study was to determine the clinical efficacy of the integrated medical care model combined with psychological intervention in pulmonary tuberculosis patients with lung cancer.

2. Materials and methods

2.1. Baseline data

Sixty pulmonary tuberculosis patients with lung cancer who were admitted to our hospital from January to December 2022 were selected as the research subjects. There were 34 male patients and 27 female patients. The average age of the patients was 60, and their average duration of hospitalization was 17.7 ± 2.9 days. Using the random number table method, the patients were divided into two groups, a control group and a study group, with 30 cases in each group. The inclusion criteria were as follows: (1) patients who were more than 30 years old but less than 79; (2) patients whose imaging examinations results and clinical symptoms were consistent with pulmonary tuberculosis complicated with lung cancer; (3) patients who understood the study and cooperated with the investigation and intervention; (4) patients who were able to continue with the intervention.

2.2. Method

The patients in the control group were treated with the integrated medical care model plus routine nursing intervention, while those in the study group were treated with the integrated medical care model combined with psychological intervention.

2.2.1. Integrated medical care model

(1) Forming comprehensive nursing teams, which include 2 doctors and 3 nurses in each team

Each nursing team has to undergo systematic training on the diagnosis, treatment, and nursing knowledge of lung diseases and lung cancer, with the head nurse as the team leader, taking responsibility for the work of the entire team. The patients under them are relatively stable, and they have a good understanding of their patients and provide overall medical services for the patients in a team-like manner.

(2) Clarifying the responsibilities of doctors and nurses, formulating the treatment goals, considering patients' medical and living needs, and standardizing the medical treatment and nursing care of patients. All these are done to ensure that all medical treatment and nursing work in the hospital truly realize the responsibility to the patients. For patients with pulmonary tuberculosis and lung cancer, the treatment duration is relatively long, and patients who have been hospitalized many times in the past still require a nursing team that provides diagnosis, treatment, and nursing services during their first hospitalization. The nurse and the doctor in charge will conduct ward inspections together; after that, the doctor and nurse in charge will be assisted by the doctor and nurse on duty to further understand the patient's condition and the nursing status in their jurisdiction, so as to ensure that the patient can receive comprehensive and efficient medical treatment.

- (3) Strengthening communication with patients, the management of patients' respiratory system, diet care and psychological care, as well as patients' self-confidence.

2.2.2. Psychological intervention methods

- (1) Implementing the integrated medical care model
Patients are provided with one-to-one nursing, guided by nurses and supported by other nursing staff.
- (2) Strengthening psychological counseling for patients
Group activities are organized by specialized nurses and those in charge. In addition to the relevant knowledge, the purpose and significance of the activities are explained to the patients. The patients are encouraged to participate in group activities so that they can actively express their thoughts and feelings.
- (3) Psychological intervention for patients with low mood and pessimism
Encouragement is often the method used. They are encouraged to seek help from the medical staff when they need to, and a suitable environment is often provided to these patients so that they can express their negative emotions.
- (4) Psychological counseling for those who are ADL-dependent (inability to perform activities of daily living on their own)
One-to-one psychological counseling is conducted for patients with physical diseases or mobility difficulties. Group conversations are also carried out, depending on the patient. Individualized treatment programs are implemented for anxiety and depression symptoms caused by different diseases.
- (5) Psychological counseling for those who are prone to depression
Individualized psychological counseling programs are developed for those with obvious depression tendencies.
- (6) Strengthen communication and coordination with family members and create good family environment
Having the family members understand and cooperate with the nursing staff would benefit patient care. They are encouraged to participate in nursing activities and, at the same time, strengthen their awareness of self-protection to avoid accidental injuries.

2.3. Observation indicators

Both groups underwent chest CT examination and mental state assessment. The incidence of adverse reactions, treatment effect, and length of hospital stay were observed in both groups of patients [6-8]. (1) Mental state assessment: depression scale and anxiety scale were used. (2) Treatment effect (markedly effective, effective, ineffective): total effective rate = (markedly effective + effective)/total number of cases * 100%. (3) Duration of hospitalization: from the time of admission to the time of completion of discharge procedures.

2.4. Statistical analysis

SPSS 25.0 was used to analyze the data. The counting and measurement data were expressed in n/% and $\bar{x} \pm s$, respectively, and χ^2 and t tests were performed. $P < 0.05$ was considered statistically significant.

3. Results

3.1. Comparison of chest CT examination and duration of hospitalization between the two groups of patients

The average duration of hospitalization of patients in the study group was 13.4 ± 3.2 d, and that of patients in the control group was 10.1 ± 3.6 d; the difference was statistically significant ($P < 0.05$). The chest CT examination results of the two groups of patients were compared at 6 months; the average chest CT examination results of the control group and the study group were 12.1 ± 3.1 mm and 10.2 ± 3.6 mm,

respectively. The recovery of lung function in the study group was better than that in the control group ($P < 0.05$). See **Table 1** for details.

Table 1. Comparison of chest CT examination and duration of hospitalization between the two groups of patients

Group	Length of hospital stay (d)	Chest CT examination results (mm)
Control group (n = 30)	10.1 ± 3.6	12.1 ± 3.1
Study group (n = 30)	13.4 ± 3.2	10.2 ± 3.6
<i>t</i>	7.2271	6.4206
<i>P</i>	0.0000	0.0000

3.2. Comparison of the mental status between the two groups of patients

The Self-Rating Anxiety Scale (SAS) and Self-Rating Depression Scale (SDS) scores of the study group were 42.33 ± 3.95 and 43.92 ± 4.72 , respectively, while those of the control group were 51.63 ± 5.28 and 52.34 ± 4.73 , respectively. The anxiety and depression scores of the study group were significantly lower than those of the control group ($P < 0.05$), see **Table 2**.

Table 2. Comparison of the mental status between the two groups of patients

Group	SAS	SDS
Control group (n = 30)	51.63 ± 5.28	52.34 ± 4.73
Study group (n = 30)	42.33 ± 3.95	43.92 ± 4.72
<i>t</i>	7.2271	6.4206
<i>P</i>	0.0000	0.0000

Abbreviations: SAS, Self-Rating Anxiety Scale; SDS, Self-Rating Depression Scale.

3.3. Comparison of treatment effect and incidence of adverse reactions between the two groups of patients

The incidence of adverse reactions and the treatment effect of the study group were better than those of the control group ($P < 0.05$), see **Table 3**.

Table 3. Comparison of treatment effect and incidence of adverse reactions between the two groups of patients

Group	Incidence of adverse reactions (%)	Treatment effect (%)
Control group (n = 30)	9 (30.00)	21 (70.00)
Study group (n = 30)	2 (6.67)	28 (93.33)
t/χ^2	6.3626	5.0545
<i>P</i>	0.0117	0.0246

Note: The treatment effect is the total effective rate.

4. Discussion

The integrated medical care model applies the holistic nursing theory and modern evidence-based medicine research results to nursing practice and has been widely used in hospital nursing management. Its advantages lie in improving medical quality, shortening hospital stay, and reducing the occurrence of

complications. [9-12]. Integrated medical care refers to the combination of medical personnel's professional knowledge and patients' daily care in the process of diagnosis, treatment, and management, so as to achieve the purpose of comprehensive and targeted management of patients. The integrated medical care model can effectively reduce patients' medical expenses and adverse reactions, improve patients' quality of life, and reduce their psychological pressure [13-15].

When pulmonary tuberculosis patients have concomitant lung cancer, due to the impairment of lung function, psychological disorders such as anxiety, depression, irritability, fear, and poor tolerance to chemotherapy often occur. The integrated medical care model extends high-quality nursing resources and medical care services in the hospital to the wards to meet the needs of patients, thereby improving the efficacy of treatment in patients. The mental state of such patients is extremely important during treatment. A good mental state can help alleviate anxiety in patients and enhance their confidence in overcoming the disease. The integrated medical care model refers to a model in which nurses and doctors form a medical team provides comprehensive professional and high-quality nursing services for patients with impaired pulmonary function. The integrated medical care model can effectively solve the difficulties in drug treatment and patients' daily care, improve the treatment effect and psychological problems in patients, address the conflict between doctors and patients caused by medical treatment and nurses' poor attitude toward patients. This study shows that the incidence of adverse reactions in the study group (6.67%) was significantly lower than that in the control group (30.00%), and the treatment effect of the patients in the study group (93.33%) was significantly higher than that of the patients in the control group (70.00%). Each member of the integrated medical care model has a full understanding of the possible adverse reactions during chemotherapy, and the duration of hospitalization of the study group (10.1 ± 3.6 d) was lower than that of the control group (13.4 ± 3.2 d), thus improving the efficacy of treatment.

There are certain shortcomings in this study. First, the sample size was small. Second, it was not feasible to compare the differences in effect of the two models on the treatment of different types of pulmonary tuberculosis with lung cancer.

The integrated medical care model can effectively improve the treatment effect of tuberculosis patients with lung cancer and prevent the occurrence of adverse reactions; thus, it should be promoted and applied in clinical practice.

Disclosure statement

The authors declare no conflict of interest.

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