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Clinical Effect of Lung Qi-Diffusing and Tumor-Clearing Decoction in the Treatment of Advanced Lung Cancer

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Abstract: ***Objective:*** The main purpose of this study is to explore the efficacy of lung qi-diffusing and tumor-clearing decoction in the treatment of advanced lung cancer. ***Methods:*** Eight patients with advanced lung cancer in Inner Mongolia Baicaotang Qin's Zhong Meng Medical Hospital from February 2017 to October 2020 were randomly selected and divided into two groups, a control group and a study group, by the digital table method. The control group was treated with conventional chemotherapy, while the study group was treated with lung qi-diffusing and tumor-clearing decoction on this basis. The therapeutic effects of the two groups were observed. ***Results:*** The improvement in symptoms of the patients in the study group was higher than that of the reference group, and the incidence of adverse reactions was lower among patients in the study group compared to the reference group, $P < 0.05$. The serum immunological indexes, $CD3^+$, $CD4^+$, and $CD4^+/CD8^+$, of study group were higher than those of the reference group, and the quality-of-life score of the study group was higher than that of the reference group, $P < 0.05$. ***Conclusion:*** The clinical effect of lung qi-diffusing and tumor-clearing decoction in the treatment of patients with advanced lung cancer is significant. It effectively improves the immune indicators and reduces adverse reactions.

Keywords: Lung qi-diffusing and tumor-clearing decoction; Advanced lung cancer; Clinical effect

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1. Introduction

Lung cancer is a type of malignant tumor disease with high mortality. As patients do not show significant symptoms in the early stage, there are difficulties in detecting this disease. Often when the disease is diagnosed, it has already progressed to middle or late stage, whereby the best opportunity for surgical treatment has been missed, thus increasing the difficulty in clinical treatment [1]. For patients with advanced lung cancer, chemotherapy is often used in clinical treatment. Although it can control the development of the condition to a certain extent, adverse reactions commonly occur during the treatment, which would affect the patients' daily life. Therefore, it is necessary to explore more reasonable and effective treatment. According to traditional Chinese medicine (TCM) analysis, the use of lung qi-diffusing and tumor-clearing decoction in the treatment of advanced lung cancer can play an important role. Therefore, this study explores the curative effect of lung qi-diffusing and tumor-clearing decoction.

2. Material and methods

2.1. Basic data

Eight patients with advanced lung cancer in Inner Mongolia Baicaotang Qin's Zhong Meng Medical Hospital from February 2017 to October 2020 were randomly selected as the research subjects. All the

patients met the criteria for non-small cell lung cancer at middle or late stage through cytological and pathological examination with an expected survival time of more than 3 months. The study excluded patients with other tumors, severe mental illnesses, and those that were unable to cooperate with the treatment. In addition, patients with liver and kidney dysfunction as well as pregnant or lactating women were excluded.

The patients were divided into two groups, a study group and a reference group, with 4 patients in each group. In the reference group, there were 2 male patients and 2 female patients, the youngest was 27 years old and the oldest was 74 years old, with an average age of 58.31 ± 2.67. The course of the disease was 1-3 years, with an average of 1.46 ± 0.23 years. In the study group, there were 3 male patients and 1 female patient, the youngest was 28 years old and the oldest was 73 years old, with an average age of 58.64 ± 2.71. The course of the disease was 1-3 years, with an average of 1.46 ± 0.23 years. There were no significant differences between the two groups ($P > 0.05$).

2.2. Methods

The reference group was treated with irinotecan plus cisplatin. The patients received 60 mg/m^2 of irinotecan, provided by Qilu Pharmaceutical Co., Ltd., via intravenous drip. 25 mg/m^2 of cisplatin was given on the first day and the eighth day, with 21 days as a course of treatment, lasting for 2 courses.

The study group was given lung qi-diffusing and tumor-clearing decoction on the basis of conventional treatment. 15 grams of Dangshen, Scutellaria barbata, fried almond, gypsum, and Solanum nigrum, respectively; 12 grams of Fructus Arctii, Rhizoma Belamcandae, and Pericarpium Trichosanthis, respectively; 20 grams of Hedyotis diffusa, Astragalus membranaceus, and Platycodon grandiflorum, respectively were used for decoction. 300 ml decoction was extracted with water and taken twice, in the morning and evening, for 60 days.

2.3. Observation indexes

The improvement in symptoms of the patients in the two groups was observed and evaluated according to the TCM symptom score. The score has 4 points in total. 0 indicate no symptoms, 1 point indicate mild, 2 points indicate moderate, and 3-4 points indicate severe. The lower the score, the better the effect of improvement in symptoms [2]. After treatment, the serum immunological indexes, $CD3^+$, $CD4^+$, and $CD4^+/CD8^+$, were measured. Adverse reactions such as leucopenia, nausea, vomiting, and loss of appetite were observed.

The quality-of-life scale was used to evaluate the quality of life from four dimensions: physiological function, psychiatric health, somatic function, and mental health. The higher the score, the better the quality of life of patients [3].

2.4. Statistical analysis

The data were processed and analyzed by using SPSS version 23.0. T-test and chi-square test were used; ($\overline{x}$ ± s) and (n/%) were used to express. $P < 0.05$ indicate a difference in the statistical data.

3. Results

3.1. Symptom improvement

As shown in the **Table 1**, the scores of the study group were lower than those of the reference group, $P < 0.05$.

Table 1. Statistics of symptom scores ($\overline{x}$ ± s)

Group	N (sample)	Bloody phlegm	Chest pain	Shortness of breath	Cough
Reference group	4	3.01±0.25	3.02±0.15	2.97±0.24	2.86±0.23
Study group	4	2.37±0.14	2.28±0.11	2.15±0.13	2.14±0.15
t		4.4672	7.9565	6.0085	5.2442
P		0.0042	0.0002	0.0010	0.0019

3.2. Serum immunological indexes

According to the statistical data in **Table 2**, the serum immunological indexes of the study group were higher than those of the reference group, $P < 0.05$.

Table 2. Statistics of immune indexes after treatment ($\overline{x}$ ± s)

Group	N (sample)	CD_3^+	CD_4^+	CD_8^+	CD_4^+/CD_8^+
Reference group	4	68.15±3.14	41.12±2.57	33.47±2.15	1.71±0.29
Study group	4	75.33±4.32	46.52±3.12	40.01±3.69	2.37±0.38
t		2.6888	2.6718	3.0628	2.7614
P		0.0361	0.0369	0.0221	0.0328

3.3. Adverse reactions

The incidence of adverse reactions in the study group was lower than that in the reference group, $P < 0.05$. (**Table 3**).

Table 3. Incidence of adverse reactions (n/%)

Group	N (sample)	Dizziness and vomiting	Leukopenia	Anemia	Total incidence
Reference group	4	1	0	1	50.00
Study group	4	0	0	0	0.00
X^2					4.0157
P					0.0495

3.4. Quality of life

As shown in **Table 4**, the quality-of-life scores of the study group were higher than those in the reference group, $P < 0.05$.

Table 4. Statistics of quality-of-life scores ($\overline{x}$ ± s)

Group	N (sample)	Physiological function	Psychiatric health	Somatic function	Mental health
Reference group	4	60.54±2.85	61.17±5.22	66.56±6.11	62.14±5.36
Study group	4	70.14±3.02	72.65±5.73	76.85±6.03	74.58±6.22
t		4.6238	2.9621	2.3974	3.0301
P		0.0036	0.0252	0.0535	0.0231

4. Discussion

Lung cancer is one of the most common malignant tumor diseases seen in clinical practice. Non-small cell carcinoma is the most common type. Usually, patients do not have obvious symptoms in the early stage. Therefore, when patients are diagnosed, it is common that the disease has already progressed to middle or advanced stage. At this stage, patients would have missed the best opportunity for treatment, so most of the patients would receive chemoradiotherapy in order to kill the cancer cells and prevent metastasis, thus prolonging their survival. However, in the process of radiotherapy and chemotherapy, patients often develop several adverse reactions; in addition, they may cause damage to the liver and kidney function. This results in poor treatment compliance among such patients. Therefore, it is necessary to combine other methods to reduce the adverse reactions and to control the symptoms [4].

From the perspective of traditional Chinese medicine, lung cancer is under the category of "lung accumulation" and "cardia stagnation." It is believed that lung cancer is mainly caused by the deficiency of vital qi and the dysfunction of viscera. With the invasion of pathogenic factors, the accumulation of phlegm and toxin with the occurrence of blood stasis result in "lung accumulation." In addition to that, it is also believed that lung cancer is related to the dysfunction of spleen and kidney. Therefore, the main principle of TCM treatment is to remove phlegm, detoxify, and regulate the lungs. The use of lung qi-diffusing and tumor-clearing decoction can play an important role. Platycodon grandiflorum, Arctium lappa, Belamcanda chinensis, and Trichosanthes kirilowii have the effects of promoting lung, throat, and qi; Fritillaria thunbergii and Gleditsia sinensis have the functions of softening, strengthening, and dispersing; Scutellaria barbata and Hedyotis diffusa can detoxify dampness and eliminate cancer; Astragalus membranaceus and Panax quinquefolium can protect healthy qi, replenish qi, nourish yin, and help the body to eliminate pathogenic factors. The combined use of multiple drugs may result in a therapeutic effect, which regulates the lungs, detoxify, and eliminate cancer [5].

Modern pharmacological studies have shown that ephedra, licorice, Trichosanthes kirilowii, Arctium lappa, Scutellaria barbata, and Belamcanda play certain roles in anti-inflammatory response and detoxification. Ephedra, almond, and Trichosanthes kirilowii can be used as antitussives, anti-asthmatics, and expectorants; they can also be used for detoxification. At the same time, Astragalus membranaceus, Codonopsis pilosula, and Hedyotis diffusa are able to produce anti-cancer effect and improve the immunity of patients [6-9]. In this study, the serum immunological indexes of the study group were higher than those of the reference group, the improvement of symptoms and quality of life of the study group were better than those of the reference group; in addition, the patients in the study group had no adverse reactions.

In conclusion, the effect of lung qi-diffusing and tumor-clearing decoction in the treatment of patients with advanced lung cancer is significant, and the adverse reactions are mild.

Disclosure statement

The author declares no conflict of interest.

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