International Journal of Clinical and Experimental Medicine Research, 2024, 8(1), 139-142
https: //www.hillpublisher.com/journals/ijcemr/
ISSN Online: 2575-7970
ISSN Print: 2575-7989

Clinical Efficacy Analysis of Chemoradiotherapy Combined with Cell Immunotherapy in Broad-stage Small Cell Lung Cancer

Wei Qin, Liyan Zhang*

Department of Integrative Medicine, Affiliated Hospital of Hebei University, Baoding, Hebei, China.

How to cite this paper: Wei Qin, Liyan Zhang. (2024) Clinical Efficacy Analysis of Chemoradiotherapy Combined with Cell Immunotherapy in Broad-stage Small Cell Lung Cancer. *International Journal of Clinical and Experimental Medicine Research*, 8(1), 139-142.
DOI: 10.26855/ijcemr.2024.01.026

Received: January 17, 2024
Accepted: February 14, 2024
Published: March 11, 2024

***Corresponding author:** Liyan Zhang, Department of Integrative Medicine, Affiliated Hospital of Hebei University, Baoding, Hebei, China.

Abstract

Objective: To analyze the clinical efficacy of chemoradiotherapy combined with cell immunotherapy in extensive stage small cell lung cancer. **Methods:** from March 2022 to 2023, a total of 100 cases were randomized into the control group (n=49) and experimental group (n=51), the control group used conventional chemoradiotherapy, the experimental group with extensive small cell lung cancer chemotherapy combined with cell immunotherapy, comparing the two groups of behavioral ability (Karnofsky, KPS) score, median survival, and 1-year survival rate. **Results:** Before treatment, there was no significant difference in KPS scores between the two groups (P> 0.05), and after treatment, the KPS score of the experimental group was significantly higher than that of the control group (P <0.05); the median survival and 1-year survival rate of the experimental group were significantly higher than that of the control group (P <0.05). **Conclusion:** Radiation and chemotherapy combined with extensive stage small cell lung cancer effectively improves the KPS score of patients with extensive stage small cell lung cancer, and improves the median survival period and 1-year survival rate, which is worth popularizing.

Keywords

Radiotherapy and chemotherapy for extensive small cell lung cancer, cellular immunity, clinical efficacy and medication compliance

Lung cancer, also known as bronchopulmonary cancer, often occurs in the bronchial mucosa and can be divided into two types, including small cell lung cancer, and non-small cell lung cancer, among which extensive small cell lung cancer (Southern Connecticut Library Council, SCLC) is the type of lung cancer with low incidence, but the disease is fast, often accompanied by endocrine abnormalities or carcinoid syndrome [1]. The incidence of extensive small cell lung cancer is closely related to smoking, highly invasive, and may lead to liver and brain metastasis [2]. The common clinical treatment of extensive small cell lung cancer is conventional radiotherapy and chemotherapy, but drug resistance is easy to appear after continuous treatment for a period of time, leading to the reduction of clinical efficacy [3]. Cellular immunity is safe by using autoimmune cells to kill pathogens in its own blood and tissues. Based on this, this study combines the radiochemotherapy of extensive small cell lung cancer combined with cellular immunity to investigate its efficacy in the treatment of small cell lung cancer, which is reported as follows.

1. Data and methods

1.1 General information

A total of 100 patients admitted to our hospital from March 2022 to March 2023 were randomized to the control

group (n=49) and the experimental group (n=51). There was no significant difference between the general data of the two groups (P> 0.05), as shown in Table 1.

Table 1. Comparison of general data in the two groups ($\overline{X}$ ± S)

Group	Example number (n)	Sex		Mean age (years)	Mean disease duration (years)	Disease situation	
		The male sex	Femininity			right lung	left lung
Control group	49	25	24	65.20±2.11	13.50±2.50	24	25
Experimental group	51	26	25	65.10±2.10	13.00±2.00	24	27
t	-	0.000		0.237	1.084	0.000	
p	-	0.996		0.812	0.280	0.996	

Inclusion criteria: (1) all patients have signed informed consent; (2) KPS score of 60; (3) imaging and pathological diagnosis of our hospital; (4) targeted tumor therapy.

Exclusion criteria: (1) severe kidney disease; (2) incomplete clinical data; and (3) those who have received cellular immunotherapy.

1.2 Method

1.2.1 Control group

Routine radiotherapy and chemoradiotherapy for the control group, the specific treatment contents: (1) receive the patient to the hospital, 1-5d before treatment, prepare etoposide (national drug approval word H37023182), and establish venous channels for the patient at 100 mg/m^{2}An intravenous infusion for the patient. (2) Merck Supelco cisplatin (national drug approved H21020751) 75mg/m was selected on treatment 1d and treatment 8d^{2}Intravenous infusion, combined for 21d of treatment. (3) Local radiotherapy can be used in local lesions to improve the treatment effect.

1.2.2 The experimental group

Combined with cell immunotherapy for extensive stage small cell lung cancer was given to the experimental group. Specific treatment content: (1) the content of radiotherapy and chemotherapy for extensive stage small cell lung cancer is consistent with the control group. (2) DC-CIK cell immunotherapy: subcutaneous DC was injected in the 1d, 14d, 21d and 28d of treatment, the lymph node drainage area was selected to complete the injection, and the expanded good CIK cells were infused in vein transfusion, which can be divided into three refusions.3 months after each treatment cycle.

1.3 Observational indicators

(1) Behavioral ability (KPS) score: a 5-point method, scored according to the patient's activity level, serious symptoms, and working ability. Patients with lower scores have lower health, while higher scores indicate significant improvement in health.

(2) Median survival period and 1-year survival rate: the median survival period refers to the corresponding survival time when the survival rate is 50%, comparing the 1-year survival rate of the two groups.

1.4 Statistical method

Data analysis was performed using SPSS 22.0 statistical software, and measurement data were expressed in ($\overline{X}$ ± S) and T-test; count data were expressed in [n (%)] using X^2 Test, P <0.05 indicates a statistical difference.

2. Results

2.1 KPS score comparison

Before treatment, there was no significant difference in KPS scores between the two groups (P> 0.05), and after treatment, the KPS was significantly higher than the control group (P <0.05), as shown in Table 2.

Table 2. Comparison of KPS scores between groups ($\overline{X}$ ± S, score)

Divide into groups	Example number (n)	Pretherapy	Post-treatment
Experimental group	51	61.20±0.50	77.31±1.50
Control group	49	61.11±0.40	70.20±1.05
t	-	0.899	27.548
P	-	0.370	< 0.001

2.2 Median survival and 1-year survival rate

The median survival period and 1-year survival rate of the experimental group were significantly greater than those of the control group (P <0.05), as detailed in Table 3.

Table 3. Comparison of median survival, 1-year survival rate among groups ($\overline{X}$ ± S) n (%)]

Divide into groups	Example number (n)	Median survival period (weeks)	One-year survival rate was (%)
Experimental group	51	25.30±0.16	47 (92.16)
Control group	49	20.52±0.15	37 (75.51)
T/x^2	-	154.183	5.152
P	-	< 0.001	0.023

3. Discussion

Lung cancer is the first malignant tumor in the incidence and mortality rate in China. With the development of society and the change of national living habits, the incidence of lung cancer in China is on the rise. The incidence of small cell lung cancer accounts for between 10% and 15% of lung cancer, and the degree of malignancy is high. Most patients with small cell lung cancer are prone to metastasis, and the prognosis is very poor. Clinical treatment of small cell lung cancer requires staged treatment, which can be divided into limited stage and extensive stage. Extensive index lesions have exceeded one side of the chest, including malignant thorax and pericardial effusion and blood transfer. radiotherapy and chemotherapy commonly used in the treatment of extensive small cell lung cancer, using high-energy radiation irradiation tumor to kill tumor cells, belongs to a "non-invasive" lung cancer treatment, commonly known as "light" or "electrotherapy". Chemotherapy can kill cancer cells and have a certain therapeutic effect. Adding residual chest radiotherapy can improve the tumor control rate, and improve the median survival period and survival rate of patients, with fewer complications. However, radiotherapy and chemotherapy will cause normal tissue damage, and blood system changes, including bone marrow suppression, leading to the decrease of white blood cells and platelets. In addition, small cell lung cancer is a more aggressive malignant tumor, and the metastasis speed of cancer cells is very fast, and it is difficult to completely remove cancer cells through surgical resection [4]. Patients receiving small cell lung cancer have therapeutic effects in the initial stage, but re-currence may occur in the later stage, and chemoradiotherapy may also show resistance [5]. The immune system plays the function of clearing bacteria and viruses in the human body, and the occurrence of tumors is related to the immune deficiency of human beings. The treatment of extensive stage small cell lung cancer needs to help the human body to regulate cellular immunity. Cellular immunity, namely cell-mediated immunity, can improve the immunogenicity of patients' cancer with the help of molecular biology technology and cell engineering technology. Therefore, the combination of chemoradiotherapy combined with cell immunotherapy for extensive stage small cell lung cancer can effectively adjust the anti-tumor immune response and achieve good therapeutic effects.

In this study, there was no significant difference in KPS scores between the two groups before treatment (P> 0.05), and after treatment, the KPS score in the experimental group was significantly higher than that of the control group (P <0.05); the median survival and 1-year survival rate in the experimental group were significantly higher than that of the control group (P <0.05). It suggests that chemoradiotherapy combined with cellular immunity in extensive stage small cell lung cancer can effectively improve behavioral ability score and improve survival rate. The reason is that lung cancer cells have various mechanisms to escape the recognition and killing of immune cells. Radiation therapy can kill cancer cells, but it can not regulate the immune system of patients. But on the basis of

radiotherapy and chemotherapy for cell immunotherapy, can the fundamental strengthening of the immune resistance of immune response, help patients to restore a large number of anticancer active substances, killing tumor function cells will patients in the body, achieve the effect of killing tumor, and immune cell therapy with high safety, will not cause harm to patients, can improve the quality of survival and survival [6].

4. Conclusion

In conclusion, chemoradiotherapy combined with cellular immunity in broad-stage small cell lung cancer effectively improves the behavioral capacity of patients with broad-stage small cell lung cancer and improves the median survival and 1-year survival rate.

References

[1] Wang Mengjuan, Kong Tiantian, Li Hongyu, Liu Chaoying. Clinical effect of duvalizumab plus chemotherapy for extensive stage small cell lung cancer [J]. Chinese Journal of Gerontology, 2023, 43 (23): 5676-5679.

[2] Li Jianguo, Li Shuman, Chen Hui. Efficacy and safety of anlotinib combined with PD-1 inhibitor in broad-stage small cell lung cancer [J]. Journal of Practical Medicine, 2023, 39 (17): 2248-2252.

[3] Jing Yawan, Zeng Hao, Cheng Ruixin, Tian Panwen, Li Yarun. Mechanism of immunoresistance and coping strategies in non-small cell lung cancer [J]. Chinese Journal of Lung Cancer, 2023, 26 (1): 66-77.

[4] Zhang Xiaohan, Zhu Wentao, Ju Wenxiang, Zhao Yingying, Lu Luolan, Shen Aizong. Cost-effectiveness analysis of adliberlizumab plus first-line chemotherapy for broad-stage small cell lung cancer [J]. Chinese Journal of Hospital Pharmacy, 2023, 43 (22): 2545-2550.

[5] He Hua, Hu Wenteng, Ma Minjie, Han Biao. Systematic evaluation of efficacy and Meta-analysis of surgical resection and concurrent chemoradiotherapy in A-N2 stage non-small cell lung cancer after induction chemotherapy or chemoradiotherapy [J]. Chinese Clinical Journal of Thoracic and Cardiovascular Surgery, 2023, 30 (1): 133-139.

[6] Min Xuhong, Wang Shanghu, Sheng Lei, Song Biao, Wang Mengjie, Li Yun, Shi Shanshan, Ma Dongchun. Clinical analysis of carlizumab combined with concurrent chemoradiotherapy for locally advanced non-small cell lung cancer [J]. Chinese Journal of Cancer Prevention and Treatment, 2023, 30 (10): 600-605.