

Research Progress of Traditional Chinese Medicine in Immune Function of Lung Cancer Patients

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Abstract: Lung cancer is one of the most common malignant tumors in the world, ranking the first cause of death. In recent years, the incidence and mortality of patients with lung cancer have increased significantly. Western medicine generally adopts traditional treatment methods such as surgery, chemotherapy and radiotherapy, but there are inevitable adverse reactions and side effects in all of them, and new treatment methods are urgently needed to control its development. With the continuous improvement of medical technology, immunotherapy has gradually flourished in the medical field. Traditional Chinese medicine can achieve the purpose of tumor treatment by regulating the tumor immune microenvironment. This paper explores the mechanism of traditional Chinese medicine in the treatment of lung cancer from the etiology, pathogenesis and the role of traditional Chinese medicine in lung cancer immunity, and puts forward new ideas to provide reference for clinical practice.

Keywords: Traditional Chinese medicine, Lung cancer, Immunity.

1. Introduction

With the comprehensive influence of environmental pollution, living habits and other factors, the incidence and mortality of lung cancer in China are on the rise, especially in recent years [1]. Although China has made great achievements in the development of social medical level, lung cancer is still a difficult problem to overcome in the world. Lung cancer not only has a high incidence, but also a high mortality rate, ranking first in the world [2]. At present, the etiology of lung cancer is still unclear, but smoking is considered to be the most important factor in the occurrence of lung cancer, and the number of men smoking is often greater than that of women, so lung cancer is also more common in men [3]. In recent years, the cause of Chinese traditional medicine has made great achievements, and its role in the treatment of lung cancer has become more and more significant, and has been recognized by clinicians and scientific researchers. With the in-depth confirmation of research, traditional Chinese medicine plays an important role in immunotherapy, and the side effects and adverse reactions brought by traditional Chinese medicine to the body are small, which is favored by the majority of lung cancer patients. At the same time, traditional Chinese acupuncture, massage, diet therapy, Qigong, etc. also greatly help to improve the immunity of patients and play a role in resisting tumors.

2. Basic Theory of TCM Treatment of Lung Cancer

2.1 TCM's Understanding of the Causes of Lung Cancer

Tumor is a new organism formed by abnormal changes in function, structure or form of zang-fu organs, merchannels, Qi-blood and body fluid due to the destruction of various parts and factors of the human body or the coordination and balance between human and the external environment [3]. Traditional Chinese medicine generally classifies causes into three categories: internal causes, external causes and non-internal and external causes [4]. The occurrence of lung cancer is mainly caused by exogenous evil factors, namely, wind, cold,

heat, dampness, dryness, fire, etc. Traditional Chinese medicine has long recognized that the occurrence of tumor is related to the invasion of exogenous evil, and the exogenous evil of the six evil factors enters from the surface and stays in the meridians, causing the stagnation of Qi and blood, the accumulation of spittoons and toxins, and the dysfunction of meridians and zangfu organs, leading to the occurrence of lung cancer [5]. The main internal causes of lung cancer include dietary strain, emotional strain and lack of natural endowments. Dietary strain will cause spleen and stomach damage, spleen dysfunction, qi movement disorder, qi stagnation and blood stasis, resulting in the occurrence of tumors [6-7]. Emotion refers to the mental activities of the human body, namely joy, anger, worry, thinking, sadness, fear and shock as mentioned in Chinese medicine. If the body is mentally stimulated for a long time or is suddenly traumatized, which exceeds the normal range that the human body can regulate, it will lead to the failure of qi, blood, Yin and Yang, zang-fu organs and meridians, leading to the occurrence of tumors [8]. The deficiency of natural endowments is the weakness of the body itself, and it is more susceptible to the invasion of external evil, which is a basis for the occurrence of lung cancer.

2.2 Understanding of the Pathogenesis of Lung Cancer in TCM

Traditional Chinese medicine has a profound understanding of lung cancer. Wu Shili et al believed that the pathogenesis of cancer is mainly qi, phlegm, stasis and poison, and profoundly summarized the occurrence characteristics of lung cancer [9]. But specifically speaking, it mainly has the following aspects: deficiency of healthy qi, phlegm dampness in the lung, smoke poison in the lung, evil poison and so on. Among them, the most important pathogenesis should be the weakness of healthy qi, the so-called "healthy qi is stored in the body, evil cannot be dried", the body is not able to have enough power to resist external evil, resulting in evil qi attacking the viscera tissues, easy to cause a variety of diseases [10]. Phlegm-dampness in the lung, smoke poison in the lung, evil poison in the lung, etc. are due to the lack of healthy qi in the

body, can not resist external evil, resulting in pathological factors. Dampness is Yin evil, which will form phlegm turbidity for a long time. As traditional Chinese medicine says, "the lung is the reservoir of phlegm", therefore, phlegm turbidity is easy to gather in the lung, and as time goes by, phlegm turbidity turns into heat, resulting in lung blood and flesh rot and the formation of lung cancer [11]. Long-term heavy smoking will damage the lung Yin, and smoke poison can condense with phlegm, forming blood stasis, leading to lung cancer. In short, lung cancer belongs to a class of complicated diseases with deficiency and accumulation, and its pathogenesis is nothing more than to feel evil, the internal and viscera Qi blood Yin and Yang disorders, lung function damage, can not play its role normally, the formation of some pathological factors, and transform into lung cancer with the development of time.

3. Immune Microenvironment of Tumor

Tumor microenvironment refers to the environment in which tumor grows and lives, including not only tumor cells themselves, but also vascular endothelial cells, immune cells, platelets, red blood cells, white blood cells, fibroblasts, etc. surrounding tumor cells, as well as extracellular matrix and liquid components, which together constitute the microenvironment for tumor cell growth and survival. The tumor microenvironment is the soil on which the tumor depends for survival and is related to the survival, development and reproduction of tumor cells [12].

The immune microenvironment of tumor is a breakthrough point to kill tumor cells, and many clinicians and researchers study the treatment of tumor on this basis. Studies have found that immunoglobulin can promote the malignant transformation of tumor cells, induce thrombosis and increase the susceptibility to tumor. Therefore, tumor can be prevented by blocking immunoglobulin [13]. Through research, Li Xiaopeng found that tumor cells can secrete a large amount of lactic acid during the growth process, which helps tumor cells grow and plays an important role in the immune escape process of tumor cells, and has become a hot topic in recent years [14]. Chinese medicine, compound medicine and proprietary Chinese medicine injection also play an important role in immune microenvironment, which can restore the activity of immune cells in the body and improve immune capacity [15]. In addition, some tumor cells can evade the body's immune surveillance system and continue to grow and reproduce in the body, a phenomenon called immune escape. In recent years, immune checkpoint inhibitors have been widely used, and selective targeted immunotherapy has become a research focus to regulate immune escape [16]. Tang Xiaoxia's team found through experiments that Xiaoyao SAN can combat tumor metastasis activity, and lung metastatic lesions can be significantly reduced after patients were interfered with by Xiaoyao SAN [17]. It can be seen that the tumor microenvironment plays an important role in the prevention and treatment of tumors, but the tumor cell microenvironment is more complex and changeable, and its mechanism is not clear, so this treatment method is also limited in many aspects.

4. The Research Progress of Western Immunotherapy

Although the level of science and technology in the world has been greatly improved compared with the past, the clinical treatment of cancer is still a worldwide problem, and there is not yet a way to completely cure cancer patients worldwide. Generally, patients with tumors are treated with surgery at an early stage, which can also be combined with chemotherapy and radiotherapy. However, such traditional treatment also has inevitable side effects and adverse reactions, which will not only relieve the pain of patients with tumors, but also bring another kind of harm [18]. In order to maximize the cure rate of patients and reduce side effects, many clinicians and scientific researchers are also actively exploring new treatment methods, and immunotherapy is a hot clinical treatment in recent years, Dai Ying mentioned in the literature that immunotherapy has promoted the research progress of non-small cell lung cancer, through research shows that, Patients with high expression of programmed death receptor ligand PD-L1 are more sensitive to immunotherapy, and their symptoms are significantly improved after immunotherapy, greatly prolonging the survival time of patients [19].

A popular treatment method in Western medicine is the use of immune checkpoint inhibitors, which can improve the immune microenvironment around the tumor and activate the activity of immune cells in the body, thus achieving the purpose of anti-tumor [20]. Although immune checkpoint inhibitors are widely used in clinical practice, effectively improving the cure rate of patients and greatly reducing the pain of patients, they cannot be used for a long time, because studies have found that immune checkpoint inhibitors can also cause adverse reactions, such as pneumonia, resulting in chest pain, cough, and hemoptysis. Fever, chills, hypothyroidism, hyperthyroidism, etc. [21-22]. The occurrence of these adverse reactions may be due to the use of immune checkpoint inhibitors to activate the activity of immune cells in the body, but this immune surveillance and killing ability can not damage tumor cells, but also destroy normal cells or tissues in the human body, resulting in some immune system overreaction.

5. Research Progress of TCM Immunotherapy

The culture of traditional Chinese medicine is extensive and profound, which is very different from the theory of Western medicine. Western medicine focuses more on treating symptoms. For patients with lung cancer, Western medicine focuses more on eliminating pathogens, so as to relieve some uncomfortable symptoms of patients. However, since ancient times, Chinese medicine has always started from the whole body and comprehensively considered the etiology, pathogenesis, condition and outcome of patients, so as to establish the principles of lung cancer treatment and the selection of treatment methods and prescriptions, the core of which is people-oriented [23]. Therefore, for patients with lung cancer, traditional Chinese medicine should not only treat tumor cells, but also consider the changes of the whole body, and achieve the balance of the five viscera, Qi, blood and Yin and Yang through the principle of the five elements. The embodiment of TCM in immunotherapy is that it can regulate the functional state of the whole body and restore the

healthy qi of the human body. Healthy qi refers to the immune ability of the body. When the healthy qi of the human body is full, it is difficult for various pathological factors such as external evil qi to cause damage to the body. If the body has been damaged by various pathogenic factors, traditional Chinese medicine can also achieve the purpose of expelling evil spirits from the body by supporting healthy qi. Zhu Kechun concluded through research that Chinese medicine immunotherapy, relatively speaking, can not only play a role in fighting tumors and relieving patients' uncomfortable symptoms, but also regulate the functional state of the whole body by starting from the whole body, thus reducing many adverse reactions and side effects of immunotherapy [24]. Therefore, TCM immunotherapy has also been favored by many lung cancer patients.

6. The Role of Traditional Chinese Medicine in Lung Cancer Immunity

According to the theory of traditional Chinese medicine, the essence of lung cancer is the deficiency of the original and the deficiency of the actual condition. The patient's immunity is low, which makes various pathological factors more likely to invade the human body, such as phlegm, stasis and poison, and eventually form lung cancer [25]. According to the theory of "positive deficiency and latent toxicity", Tian Jianhui pointed out in his article that when the body is weak in positive qi, the immune surveillance ability will decline, and the weakness of positive qi cannot restrict the latent toxins in the body, so the growth of tumor cells will lose its restriction, and eventually cause the occurrence of tumor [26]. At present, the main reasons for the deficiency of positive qi in patients are as follows: First, patients with insufficient innate endowments, small area lung cancer patients have family genetic history, resulting in congenital weakness of zang-fu function in patients; Second, exogenous sex, dietary fatigue, and environmental pollution in recent years, and more and more new generations of young people are subjected to more social pressure, poor psychological quality, will also lead to reduced immunity, causing tumors. Third, some patients with lung cancer themselves suffer from basic diseases, which are mistreated for a long time. The disease consumes the healthy qi of the human body, leading to the weakness of the body, low immunity, and the formation of tumors. Fourthly, studies have found that the incidence of lung cancer is proportional to age, with an average age of more than 50 years old, which is because with the growth of age, the function of the human body will also decline, zang-organ disorders, qi and blood weakness, resulting in pathological factors to invade the body and cause tumors [27].

6.1 Focus on Spleen and Stomach Function to Help Correct Qi

Generally speaking, weakness of the spleen and stomach usually runs through the whole time of tumor patients. The spleen and stomach are the fundamental acquired nature of our human body, and the good or bad function of the spleen and stomach directly affects our immune function [28]. The function of the spleen and stomach is to digest the food we eat daily to form chyme, and then transport the fine part of the chyme to the viscera through the function of the spleen, so that the viscera can get enough energy supply to better play their

respective functions. Studies have found that if a patient's spleen and stomach are weak and cannot produce enough qi and blood to nourish the whole body, it will cause weakness of healthy qi, resulting in low immunity of the patient and eventually lung cancer [29].

Wang Liang's team started from Li Gao's "Spleen and stomach Qi theory" and used Dunhuang Da Buspleen Decoction to supplement the deficiency of the spleen and stomach, help the healthy qi, make the spleen and stomach biochemical active, and relieve the debilitating state of tumor patients [30]. According to Li Zhongzi's theory of "nine methods for treating diarrhea", Hu Shuaihang's team proposed that the spleen and stomach could be regulated from the nine methods, which could also be combined with other methods for promoting blood circulation and removing blood stasis, which could not only help to correct qi, but also eliminate some pathological factors, and make full use of the principle of delay and urgency of specimens to promote patients' recovery [31]. Wang Fangting discussed the treatment of malignant tumors based on Sijunzi Decoction in literature. Sijunzi Decoction can strengthen spleen Qi, assist healthy qi to resist evil qi, improve patients' immunity and promote body recovery [32].

6.2 Regulate the Patient's Physique

Constitution is the natural existence of our body, such as Qi deficiency, phlegm dampness, Yin deficiency and other constitutions, patients can easily lead to certain diseases due to their own factors, such as tumors are more easily produced by Qi deficiency, phlegm dampness and so on. Through research, Tan Xin et al. found that the occurrence and development of diseases are closely related to the physique of patients, that is to say, physique is the key to the occurrence and treatment of diseases of patients. According to data, traditional Chinese medicine can improve the symptoms of Qi deficiency in elderly patients, treat qi deficiency from the three viscera of lung, spleen and kidney, tonalize qi and improve the quality of life of patients [33]. Through research, Wu Fengming et al. found that traditional Chinese medicine can correct diabetes patients with phlegm-dampness constitution, and the blood sugar of patients can be significantly reduced through traditional Chinese medicine conditioning. Therefore, I think traditional Chinese medicine can also correct tumor patients with phlegm-dampness constitution [34]. Li Houqin pointed out that patients with Yin deficiency of normal body are easy to cause a variety of diseases, Yin deficiency is more common in the lungs, heart, kidney and other viscera, you can use sour jujube kernel, cypress kernel and other tonifying heart Yin; Tonifying lung Yin with Rehmannia and fritillaria; Use cooked Rehmannia to tonify kidney Yin [35]. At the same time, traditional Chinese medicine pays attention to personalization, so it is necessary to select the principle of individualized treatment for cancer patients. Some individuals cannot tolerate immunotherapy and are prone to various stress reactions. Traditional Chinese medicine can improve the physique of patients, reduce the adverse reactions of immunotherapy, and improve the sensitivity of patients to immunotherapy, so as to achieve better therapeutic effects.

7. Conclusion

At present, the state attaches more and more importance to the culture of traditional Chinese medicine, and the clinical effect of traditional Chinese medicine is becoming more and more significant. Many clinicians and researchers have begun to explore the role of traditional Chinese medicine in lung cancer patients. Through a large number of clinical studies, it has been found that traditional Chinese medicine can improve the immunity of lung cancer patients, improve the immune escape phenomenon, and alleviate the symptoms of lung cancer patients. Improve the quality of life of lung cancer patients and prolong the survival time of lung cancer patients, at the same time, traditional Chinese medicine can also be combined with Western medicine treatment, reduce the side effects of Western medicine treatment, and enhance the sensitivity of body tissues and cells to anti-tumor drugs, reduce drug resistance.

However, there are still the following problems in the transformation of traditional Chinese medicine. First, the composition of traditional Chinese medicine is complex, even the unit drug contains a variety of natural ingredients, the effective ingredients are difficult to determine, the technical level has objective limitations, and the progress is slow. Secondly, the clinical application of TCM compounds is flexible, the prescription is changeable, and the treatment of syndrome differentiation is emphasized. Therefore, in order to highlight the leading role of traditional Chinese medicine in lung cancer immune function, the synergistic effect of major diseases, and the core role in the process of disease rehabilitation, it is necessary to strive to seek a balance between modern medicine and further strengthen the objectivity, standardization, and scientific research of traditional Chinese medicine. How to give full play to the advantages of traditional Chinese medicine and promote collaborative innovation is an important proposition at this stage.

References

- [1] Zhu Xiaoqiong, Jiang Dongming, Shen Jiying, Niu Zheyun, Hu Ming, Zeng Huiying, Yang Zhiyu, Zhang Zihan, Zhao Cunzhi, Cao Guangwen. Analysis of lung cancer incidence and mortality rates in countries with different human development indices worldwide [J/OL]. Shanghai Preventive Medicine: 1-14 [2023-04-11]. DOI: 10.19428/j.cnki.sjpm.2023.22838.
- [2] Li Xiang, Gao Shen. Analysis of trends in lung cancer incidence, prevalence, and mortality among Chinese residents from 1990 to 2019 [J]. Chinese Journal of Chronic Diseases and Prevention and Control, 2021, 29(11): 821-826. DOI: 10.16386/j.cjpcdd.issn.1004-6194.2021.11.005.
- [3] Qian Fang. Research status of lung cancer etiology [J]. Journal of Integrative Traditional Chinese and Western Medicine in Cardiovascular Diseases and Respiration, 2019, 7(8): 148. DOI: 10.16282/j.cnki.cn11-9336/r.2019.08.108.
- [4] Li Xianxiao and Wei Yun: Three Causes of Fatigue Syndrome [J]. Chinese Journal of Traditional Chinese Medicine, 2018, 33(8): 3538-3540.
- [5] Wang Jing and Zhang Putong: A Brief Discussion on the Correlation between External Infection and Tumor Development [J]. Chinese Journal of Traditional Chinese Medicine, 2019, 60(18): 1560-1562. DOI: 10.13288/j.11-2166/r.2019.18.008.
- [6] Zhu Guanghai, Li Yuanhao, Gao Yaxue, and Guo Lihua: Treatment of Malignant Tumor Based on the Theory of "One Body and Two Wings, Dissipating Qi Stagnation" [J]. Chinese Journal of Traditional Chinese Medicine, 2020, 35(10): 5046-5049.
- [7] Zhang Haishan, Zheng Honggang, Hua Baojin. Progress in Traditional Chinese Medicine Etiology Research of Gastric Cancer Precancerous Lesions [J]. Medical Review, 2020, 26(3): 475-479.
- [8] Huang Wangan, Zheng Lifeng, Wang Neng, Lu Chuanjian, Lin Yi, Wang Zhiyu. Research on the Pathogenesis and Traditional Chinese Medicine Intervention of Tumor Based on the Theory of Emotional Pathogeny [J]. Chinese Journal of Traditional Chinese Medicine, 2021, 36(9): 5441-5444.
- [9] Wu Shilei, Xu Zhenye. Progress in Traditional Chinese Medicine Etiology and Pathogenesis of Malignant Tumor in the Last Decade [J]. Jilin Tradit Chin Med, 2020, 40(7): 976-980. (Published on July 2020) DOI: 10.3969/j.issn.1673-842x.2020.07.038.
- [10] Zou Yitong, Yang Yufeng. Basic Exploration of the Theory of TCM Pathogenesis and Pathology of Diabetic Nephropathy [J]. Journal of Liaoning University of Traditional Chinese Medicine, 2023, 25(4): 185-189. (Published on April 2023) DOI: 10.13194/j.issn.1673-842x.2023.04.040.
- [11] Li Juan, Guo An, Sun Zengtao. Discussion on the treatment of primary lung cancer from the perspectives of qi deficiency and yang deficiency, phlegm-dampness and blood stasis blockage[J]. Chinese Medical Journal, 2022, 63(05): 491-493. DOI: 10.13288/j.11-2166/r.2022.05.017.
- [12] Feng Wangyou, Li Jia, Liao Wenjing, Chen Lin, Zhao Minye, Yang Hong. Progress in establishment and application of simulated tumor immune microenvironment organoid model. Journal of Air Force Medical University: 1-11[published online]. (2023-04-13). <http://kns.cnki.net/kcms/detail/61.1526.R.20230412.1805.004.html>
- [13] Ma Rui and Chang Qing. Progress in the study of the role of immunoglobulin in the tumor immune microenvironment. Modern Cancer Medicine, 2023, 31(09): 1752-1756.
- [14] Li Xiaopeng and Hu Baoguang. The effect of lactic acid on tumor cells and NK cells in the tumor microenvironment. Chinese Medicine Innovation, 2023, 20(09): 163-166.
- [15] Li Yue, Huang Jing, Chen Ting, and Shen Hongmei. Progress in the study of traditional Chinese medicine intervention on immune cells in the tumor microenvironment [J/OL]. World Chinese Medicine: 1-6 [2023-04-13]. <http://kns.cnki.net/kcms/detail/11.5529.R.20230317.1109.022.html>.
- [16] Zhang Yuanxin, Peng Mengfan, Wang Xue, Miao Mingsan. The Impact of Immune Evasion on the Development and Progression of Cancer and

- Intervention by Traditional Chinese Medicine [J/OL]. Chinese Journal of Traditional Chinese Medicine: 1-14 [2023-04-13]. <<http://www.cnki.net/kcms/detail/21.1546.R.20230306.1737.004.html>>
- [17] Tang Xiaoxia, Deng Wanli, Zhang Yong, Chen Bin, Chai Ni, Zhang Shu, Xie Manli. Xiaoyao Powder Inhibits Lung Metastasis Microenvironment Formation by Regulating the Immune Microenvironment [J]. Tianjin Medicine, 2023, 51(3): 263-268.
 - [18] Sun Yemeng, Xu Shu. On the Creation of a "Three-Discipline Six-Method" Therapy System for the Treatment of Cancer in Traditional Chinese Medicine [J]. Chinese Journal of Traditional Chinese Medicine, 2021, 36(12): 6939-6942.
 - [19] Dai Ying, Ni Jianjiao, Yang Xi, Zhu Zhengfei. Treatment of stage IIIA/B non-small cell lung cancer in the era of immunotherapy from the perspective of radiotherapy. Journal of Practical Oncology, 2023, 38(2): 110-116. DOI:10.13267/j.cnki.syzlzz.2023.019.
 - [20] Zhu Bo. Mechanism and Overcoming Strategies of Immune Therapy Resistance in Cancer. Chinese Journal of Biomolecular Therapy, 2023, 30(3): 187-195.
 - [21] Chen Huiying, Dou Hongbiao, Wen Libo, Wang Zunxian. Immune checkpoint inhibitors and related pneumonia in non-small cell lung cancer patients. Medical Theory and Practice, 2022, 35(18): 3082-3084. DOI:10.19381/j.issn.1001-7585.2022.18.007.
 - [22] Ding Xiaohan, Wang Xinyu, Yang Fan, Liao Yan, Chen Zhuangsen, and Yao Weili. Adjuvant endocrine toxicities of immune checkpoint inhibitors. Journal of Guangdong Medical University, 2022, 40(1): 104-108.
 - [23] Liu Yan, Wu Yaosong, Liu Jun, Wang Wenbin, Ren Shanshan, Yang Tiezhu, and Chen Yulong. Ecological Laws of Tumor Formation Based on the Holistic Understanding of Traditional Chinese Medicine. Shanghai Journal of Traditional Chinese Medicine, 2021, 55(7): 5-8. DOI:10.16305/j.1007-1334.2021.2009134.
 - [24] Zhu Kechun, Xiao Hua, Ma Ping, Lai Yu, Liang Renlong, Li Zengchang. Progress in the study of the impact of traditional Chinese medicine on immune function in lung cancer patients. Chinese Journal of Integrative Medicine in Electronic Journal, 2020, 8(20): 141. DOI:10.16282/j.cnki.cn11-9336/r.2020.20.123.
 - [25] Shen Yubo, Yan Boyu, Liu Feng, Lan Xiangyu, Zhang Xiaoxue, Liu Wei. Research Progress on Pathogenesis and Treatment of Lung Cancer-Related Fatigue. Journal of Chinese Medicine Guidance, 2023, 20(06): 51-54. DOI: 10.20047/j.issn1673-7210.2023.06.11
 - [26] Tian Jianhui, Luo Bin, Que Zujun, Yao Jialiang, Yang Yun, Li Yan. The Theory of "Vital Qi Deficiency and Poisonous Toxin" in the Subclinical Stage of Cancer Metastasis. Shanghai Journal of Traditional Chinese Medicine, 2021, 55(10): 1-3, 13. DOI: 10.16305/j.1007-1334.2021.2105080
 - [27] Liang Xin, Liu Mengwen, Zhang Li, Gao Ting, Yang Jian, Qiu Tinglin. Analysis of Lung Cancer Incidence Trends and Age Changes in Selected Regions Worldwide. Chinese Journal of Oncology, 2022, 31(09): 683-692.
 - [28] Wang Yonghong and Zhang Yanzhong. Application of regulating spleen and stomach methods in the treatment of tumors [J]. Guangming Chinese Medicine, 2020, 35(11): 1644-1646.
 - [29] Chen Jienah, Li Yuan, Ding Xia. Exploring tumor immune regulation based on the physiological function of traditional Chinese medicine spleen and stomach [J]. Journal of Beijing University of Traditional Chinese Medicine, 2023, 46(01): 32-36.
 - [30] Wang Liang, Liang Jianqing, Ma Jun. Experience of Wang Daokuan based on the Qi of spleen and stomach in the treatment of tumor cachexia with modified Da Bu Tang from Dunhuang [J]. Chinese Traditional Therapies in China's Folk Therapies, 2022, 30(14): 11-13. DOI: 10.19621/j.cnki.11-3555/r.2022.1404.
 - [31] Hu Shuaohan, Li Yuxiao, and Hou Wei. Discussing the Regulation of Stomach and Spleen in Cancer Patients from the "Nine Methods of Treatment for Diarrhea" by Li Zhongzong. Journal of Liaoning University of Traditional Chinese Medicine, 2021, 23(09): 186-190. DOI: 10.13194/j.issn.1673-842x.2021.09.038.
 - [32] Wu Fangting and Zheng Minglan. Application of Regulating Stomach and Spleen Method in the Treatment of Malignant Tumor. Journal of Traditional Chinese Medicine for Oncology, 2020, 2(02): 54-58. DOI: 10.19811/j.cnki.ISSN2096-6628.2020.02.007.
 - [33] Tan Xin, Jiang Ai-hua, Zhang Li-ping. Application of traditional Chinese medicine health management in elderly patients with Qi deficiency constitution [J]. Journal of Traditional Chinese Medicine Management, 2021, 29(19): 198-200. DOI: 10.16690/j.cnki.1007-9203.2021.19.095.
 - [34] Wu Feng-ming, Xiao Ying-ya, Xie Li-qin. Clinical therapeutic effect of traditional Chinese medicine intervention on elderly diabetic patients with phlegm-dampness constitution [J]. China Modern Pharmaceutical Technology and Application, 2021, 15(16): 197-199. DOI: 10.14164/j.cnki.cn11-5581/r.2021.16.077.
 - [35] Li Hou-qin, Ni Cheng. Screening of main medicine and main prescription for deficiency-heat constitution based on constitution and syndrome differentiation [J]. Tianjin Traditional Chinese Medicine, 2021, 38(02): 157-159.