

Clinical Application of Ointment in the Treatment of Cancer-induced Fatigue

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Abstract: Cancer-related fatigue is a common manifestation in the treatment of clinical malignant tumors, which has troubled patients, family members and medical staff for a long time. Early intervention of TCM is very important. Oral herbal paste is good at delaying the repair and strengthening, and has a good effect for long-term treatment of cancer-related fatigue. By exploring the advantages of oral herbal paste in the treatment of cancer-related fatigue, this paper believes that the clinical application of TCM, especially oral herbal paste, should be paid attention to in the treatment of cancer by surgery and radiotherapy and chemotherapy. So as to achieve the purpose of reducing toxicity and increasing efficiency, improve the quality of life of patients, and prolong their life span.

1. Introduction

Cancer-related fatigue (CRF) is one of the most common symptoms in clinical cancer patients and is defined by the National Comprehensive Cancer Network (NCCN) as "painful, persistent, or cognitive fatigue or exhaustion associated with cancer or cancer treatment, disproportionate to activity, and interferes with normal functioning" [1], as shown in Figure 1. Relevant studies have found that 82%-96% of radiotherapy patients and 65%-100% of chemotherapy patients are troubled by CRF to varying degrees [2], as shown in Figure 2. The incidence rate of CRF is also increasing year by year, as shown in Figure 3. Radiotherapy heat toxicity is easy to injure yin, chemotherapy deep dive injury to healthy qi, can cause a decrease in resistance, these treatment methods caused by toxic side reactions are an important reason for accelerating or aggravating CRF.

So far, there is no definitive clinical treatment plan, but traditional Chinese medicine has unique advantages in improving fatigue symptoms, internal ointment (hereinafter referred to as ointment) as one of the traditional dosage forms of traditional Chinese medicine, its clinical application history is long, theory and preparation system is mature, so it is believed that in the treatment of cancer, radiotherapy and chemotherapy should pay attention to the advantages of traditional Chinese medicine, especially ointment. So as to achieve the purpose of reducing toxicity and increasing efficiency, improving the quality of life of patients and prolonging life.



Figure 1: Cancer-related fatigue (CRF)

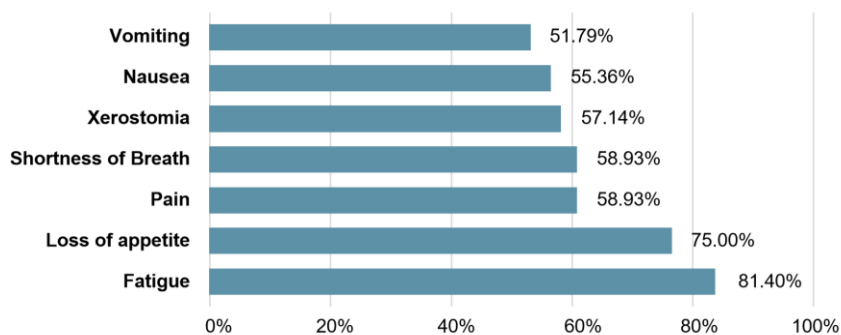


Figure 2: Incidence rate of somatic symptoms

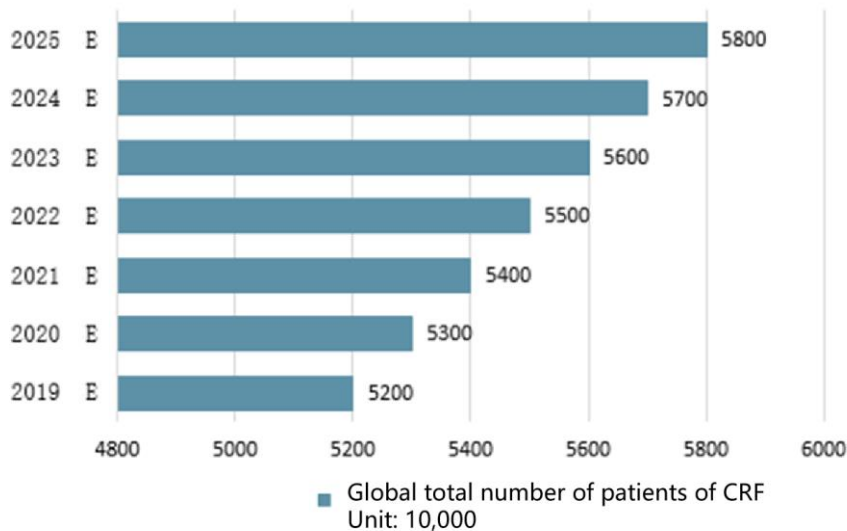


Figure 3: Prediction of the global total number of patients of CRF (2019-2025)

2. TCM's understanding of cancer-induced fatigue

From the perspective of traditional Chinese medicine, CRF belongs to the category of "Tiredness" in ancient Chinese medicine, which is caused by the combined action of a variety of factors, the main pathogenesis is the decline of organ function and the weakness of qi, blood, yin and yang [3]. The deficiency of healthy qi in the human body is not enough to resist pathogenic factors, pathogenic factors are better than healthy qi, and the accumulation of poison and pathogenic factors are the

internal basis of cancer. Long-term entrenchment of cancer poison will cause huge consumption and damage to the human body, coupled with improper treatment or failure to adjust in time after illness, resulting in the loss of human qi and blood, yin and yang, etc. Common treatment methods for tumors have many foreign toxic side effects, namely "external loss" [4], which will also attack the healthy qi of the human body. As a traumatic treatment, although surgery is carried out locally, it will still deplete the whole body's qi, blood and fluid, making the whole body in a state of exhaustion; Radiotherapy is exogenous "yang heat" [5], and the ionization of radiation can cause toxic side reactions; Chemotherapy is also a foreign poison, which can dive deep into qi, blood, and bone marrow, which greatly damages the healthy qi of the human body, further aggravates the degree of fatigue, and seriously affects follow-up treatment. The yin and yang deficiency of the patient's internal organs will also lead to real evil endogenous due to deficiency and reality, including phlegm, dampness, depression, stagnation, etc. [6]. Various factors are cemented, cause and effect each other, and work together on the human body, making the disease increasingly aggravated, gradually complex, and circulating.

3. The theoretical basis of ointment treatment for cancer-induced fatigue

The World Health Organization clearly states that 1/3 of cancers can be prevented, 1/3 can be cured, and 1/3 of cancers can control symptoms and prolong life. The onset of cancer is insidious and the treatment time is long. Therefore, cancer is already classified as a chronic disease. Traditional Chinese medicine ointment has a long history, the earliest can be traced back to the Spring and Autumn Warring States period [7]. Internal decoction ointment to treat fatigue has appeared as early as the Han and Tang Dynasty works [8], as shown in Figure 4. The development of ointment mature in the Tang and Song Dynasty, "Xinxiu Materia Medica", "Renzhai Zhizhifang" and other works contain a number of ointments, the famous "Dihuang Decoction" is the representative ointment of the time. After the development of substitute doctors, the old method of ointment will be used clinically, and its application scope will continue to expand and extend, from the exploration stage to gradual maturity. Paste treatment CRF follows the dialectical treatment and holistic concept, forming a set of treatment plans with the characteristics of Chinese medicine.

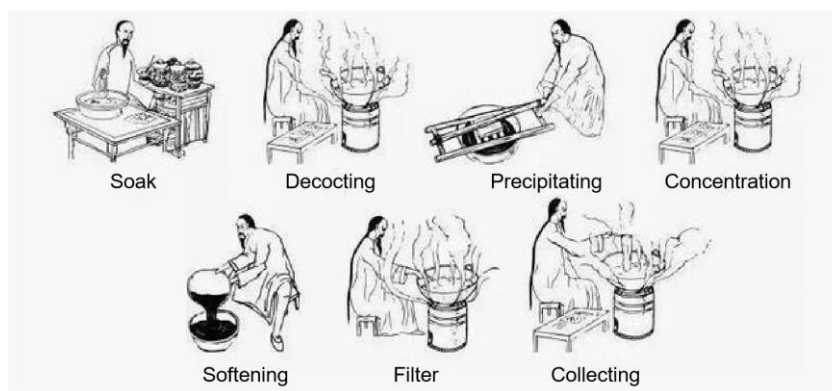


Figure 4: The production process of ancient Chinese ointment

3.1. Phased determination, dialectical supplementation

Phased treatment is carried out according to the treatment stage of CRF patients: (1) Surgical period: surgery belongs to the process of golden blade injury, loss of qi and blood consumption, and qi disorder [9], during which qi stagnation can be caused by anesthesia, drugs, psychology and other factors. During the treatment, it is necessary to nourish the blood, relieve depression and promote the

recovery of the patient's physical strength after surgery; At this time, the patient can be given an ointment to replenish qi and blood, strengthen the spleen and stomach, and assist the patient to complete the postoperative recovery. (2) Radiotherapy period: the ionization of radiation belongs to fire and heat, the main cause of illness during this period was heat poisoning and consumption of yin, and when the treatment is done, it should be fully clear the heat and detoxify [10], so that the poison and evil can quickly dissipate, and cooperate with the blood circulation drug to give the pathogenic factors a way out, and accelerate the elimination of poison; The duration of radiotherapy is long, and the psychological pressure on the patient is greater, so at this stage, while closely monitoring the patient's condition, the patient can be given an ointment to clear away heat and detoxify, nourish yin and rejuvenate the body, and relieve depression. (3) Chemotherapy period: chemotherapy has the evil characteristics of "cold and heat inclusion" [11], accompanied by obvious toxic side effects, such as bone marrow suppression, inflammatory reactions, gastrointestinal reactions, etc. It seriously damages the healthy qi of the human body, resulting in acquired dysfunction, biochemical deficiency of qi and blood, liver and kidney denourishment. So the treatment uses the method of strengthening the spleen and stomach, nourishing the liver and kidneys. Chemotherapy into periodic treatment, chemotherapy interval is to help patients restore positive qi, improve immunity of the best period. At this time we should give the patient some ointments that can replenish qi and blood and replenish righteous qi at the same time, in order to achieve a better physical state to face the next chemotherapy cycle.

3.2. Balance yin and yang, qi and blood symbiosis

Pang Li et al. [12] believe that there is also a constantly evolving "yin and yang" state between different inflammatory factors in the tumor microenvironment, and the imbalance of yin and yang is the key to disease progression. CRF patients are manifested as simultaneous imbalance of qi, blood, yin and yang, and should pay attention to restoring their dynamic balance and balancing qi, blood, yin and yang. In view of the characteristics of cancer-induced fatigue, through the targeted preparation of ointments, the deviation of the yin and yang state of the human body is corrected, the balance of relevant physiological functions of the body is restored, and the constitution of patients with long-term fatigue is improved. Professor Chen Xinyi believes that the main purpose of the treatment of cancer-induced fatigue is to alleviate clinical symptoms and improve the quality of life of patients, rather than to treat the cancer itself, so it is necessary to focus on the treatment of the etiology and pathogenesis. Professor Lin Lizhu used ointment to treat cancer-related fatigue, guided the treatment of ointment prescription with the idea of "yin and yang balance", and paid attention to strengthening the spleen and marrow with drug compatibility, and the clinical effect was well feedback.

3.3. Improve immunity, replenishment and transport combination

The occurrence and development of tumor is closely related to the regulation of the body's autoimmune system, and tumor cells can evade the body's immune system monitoring and overproliferate [13]. There are many traditional Chinese medicines have extensive anti-tumor effects, such as ginseng, astragalus and other drug of reinforcing qi. Due to its thousands of years of clinical use, a large amount of modern literature indicated that it has immune enhancing and antiviral effects [14-15]. Studies have found that ginseng and ginseng drugs have improved the CRF remission rate to some extent [16]. Astragalus membranaceus can regulate the immune function of CRF patients by enhancing the function of T lymphocyte (CD4, CD8) levels, further improving fatigue [17]. Astragalus membranaceus has the effect of supporting toxin and promoting muscle growth, which is very good for wound healing after surgery [18]. Because the ointment is mainly used to replenish

deficiency medicine, containing a lot of gums, its quality is difficult, there will be some greasy hindering the flow of qi and blood, add some Chinese medicine that can activate qi , so that the supplement without stagnation, qi and blood are filled.

3.4. Attack and complement each other, and trace back to the source

CRF is mostly a subjective fatigue of patients, which can be caused by cancer or by cancer-related treatments, so the correlation between cancer and CRF cannot be ignored. The pathological properties of cancer are essentially illusory, but externally manifested as empirical [19]. At the same time, the method of "eliminating the strong and dispersing" is suitable for the treatment of tumors [10], taking the initiative to gradually dissipate the evil qi of its reunion, and controlling its growth and spread, which echoes the initiative of the World Health Organization, that is, "encourage people to treat cancer-related viral diseases and chronic diseases" [20]. In the treatment, it is of vital significance to deal with the root cause of cancer, and to pay attention to overall maintenance, which is of vital significance in CRF treatment.

4. Characteristic advantages of ointment treatment for cancer-induced fatigue

CRF patients suffer from impaired spleen and stomach function, weak stomach qi, insufficient absorption and transportation in the valley, and the subtle nutrition can not be supplied to the branches of the whole body, and the human body is deprived of nourishment. Decoction is the most commonly used dosage form, but the so-called "souper, swing, to use it for serious diseases", decoction is more handsome and fierce to cleanse the stomach, and is not suitable for this. The paste is viscous, slower to absorb in the human body, long residence time, can better play a nourishing role than other dosage forms, and has the following characteristic advantages (Figure 4). (1) The ointment is made of drug refining and concentration, and its drug component content is relatively high, and because it is a drug concentrated product, it has the advantages of small size, easy to carry and easy to unpack; (2) Because it is a paste-like solid state, it is not easy to volatile and deteriorate, and the medicinal properties are relatively stable and easy to preserve; (3) Compared with Chinese medicine decoction, the ointment does not need to be fried in multiple steps when taking, and there is no bitter and unbearable taste, the author believes that the ointment is "The ointment is medicine, but it does not behave like medicine", it has the effect of decoction but is more palatable and more favored by patients; (4) From an economic point of view, the price of the ointment is more affordable, the cost of treatment is reduced, and the acceptance of patients is high.



Figure 4: Ointment with modern technology plastic packaging

5. Clinical application of ointment in the treatment of cancer-induced fatigue

5.1. Cure the disease before it happens

"Preventive treatment of disease" emphasizes that people should pay attention to cultivating healthy qi, improving the body's ability to resist diseases and evil spirits, and being able to prevent the occurrence of diseases before illness, prevent their further development after illness, and prevent the recurrence of diseases after healing [21]. The long course and many symptoms of CRF are the result of long-term effects under a long dynamic process. The idea of "preventive treatment" runs through the theoretical basis of ointment dialectical application, and contains the characteristic ideas of flexible prevention, in-depth disease prevention and treatment, which are similar to the tertiary prevention of modern oncology.

5.2. Slowly support the right qi and nourish the surrounding body

CRF can continue to affect the quality of life of patients for many years [22-24], the body's qi, blood, yin and yang are lost, all internal organs are damaged. It can be cured by one medicine overnight, and it is forbidden to use offensive drugs or use large doses of tonic products. Professor Yan Dexin [25] summarized the "three small" characteristics of ointment with low toxicity, small reaction and small dosage, and he learned from the modern famous Mr. Qin Bowei, and accepted the view of "light hair and fall" in the composition of the ointment, believing that the dosage and medicinal properties of the ointment should not be too heavy. The ointment is an ideal dosage form for long-term use of CRF patients.

5.3. Correct the disease and replenish the qi

CRF is fundamentally due to illness caused by deficiency, simple disease elimination or deficiency are lacking, dialectical treatment at the same time need to cultivate healthy qi, Mr. Qin Bowei believes that the ointment is not a simple supplement, but also a treatment of diseases and health preservation, which has a dual meaning. The ointment dosage form is suitable for consumptive and chronic diseases, just as the so-called "surgical industry has a specialty", the ointment has a high degree of applicability in CRF and can achieve good therapeutic effects.

6. Summary

With the advancement and development of science and technology, the change of medical concepts and the continuous improvement of treatment technology, cancer treatment methods are gradually diversified, and the survival rate is improving year by year, how to improve the quality of life of patients has become an important part of today's cancer treatment practice. As a traditional Chinese medicine treatment technique, the role of ointment in the treatment of CRF cannot be ignored. In order to inherit and develop the precious knowledge treasure trove of traditional Chinese medicine, we should adapt to the requirements of the times and the development of disciplines. And we should strive to tap into the potential application of ointments, playing better role in the new era and benefiting all humanity.

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