

Research Progress in the Treatment of Peripheral Neuropathy after Chemotherapy by Blood Letting in Shixuan (EX-UE 11) and Qiduan (EX-LE 12)

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Abstract: Peripheral neuropathy after chemotherapy is one of the common side effects in patients with malignant tumors after chemotherapy, which seriously affects patients' quality of life. Therefore, safe and effective therapeutic measures have become the focus of clinical research in recent years. Shixuan (EX-UE 11) and Qiduan (EX-UE 12) bloodletting has the function of promoting blood circulation, removing blood stasis and relieving pain, detoxifying and saprophytic, which can relieve the discomfort symptoms of numbness and pain of hands and feet caused by chemotherapy, improve the quality of life of patients, and is worthy of clinical application.

1. Introduction

At present, chemotherapy is still the main means of clinical treatment for malignant tumors. With the increasing incidence of malignant tumors, peripheral neuropathy (CIPN), one of the side effects caused by chemotherapy, is also on the rise. Peripheral neuropathy caused by chemotherapy is mainly manifested as numbness, pain, paresthesia and other uncomfortable symptoms at the end of limbs, which seriously affects patients' quality of life and even leads to the forced interruption of chemotherapy courses, thus affecting the treatment process [1]. Therefore, effective treatment to relieve the discomfort of patients is particularly important. Modern medical research on CIPN is limited, and the specific mechanism of CIPN has not been clarified, and the therapeutic effect is not ideal. On the contrary, Chinese medicine plays a certain advantage in the treatment of CIPN. Chinese medicine believes that numbness and pain of hands and feet are caused by qi and blood stasis and impassability of meridians. Bloodletting therapy is a traditional external treatment method of traditional Chinese medicine. It has the functions of activating blood circulation, removing swelling and relieving pain, clearing heat and detoxifying. Shixuan (EX-UE 11) and Qiduan (EX-UE 12) are both points at the end of the trunk and at the affected part. Bleeding here

directly acts on the diseased part. Blood is punctured, blood stasis and toxin are removed, and fresh blood with rich and delicate substances is supplied in time. Qi and blood run smoothly and fully, promoting the microcirculation of the ends. Extremities end muscles and bones, meridians can be helped to nourish, hand and foot feeling, movement and other physiological functions recover. Good clinical results have been achieved in the treatment of CIPN patients with Shixuan (EX-UE 11) and Qiduan (EX-UE 12) bloodletting therapy.

2. Understanding of CIPN in Western Medicine

CIPN is a common complication after chemotherapy in patients with clinical tumors. It is a series of symptoms and signs of neurological disorders caused by the injury of peripheral nerve function caused by chemical drugs or their metabolites. Its main characteristic is symmetrical polyneuropathy in the distal end, consisting of sensory, motor, and autonomic omeness lesions [2], as shown in Figure 1. According to clinical statistics, the incidence of CIPN is between 11% and 87% [3]. It is also related to the type of chemotherapy drugs, cumulative chemotherapy dose and individual factors, as shown in Table 1. The pathogenesis of CIPN is complex, including tissue and cell structure changes and functional abnormalities. Common mechanisms include changes in ion channels, peripheral sensitization, central sensitization, decreased function of the descending inhibitory system and activation of glial cells, etc. [4], but the specific mechanism of action has not been clarified and needs further study. At present, common drugs used in clinical studies for prevention and treatment of CIPN include mecobalamine, calcium and magnesium mixture, reduced glutathione, B vitamins, duloxetine, etc. Its curative effect is not ideal, and there is no sufficient evidence-based medical evidence to support it. Clinicians can only treat CIPN empirically. In case of severe peripheral neuropathy, the regulation or even interruption of chemotherapy regimen is still the only effective means at present [5].

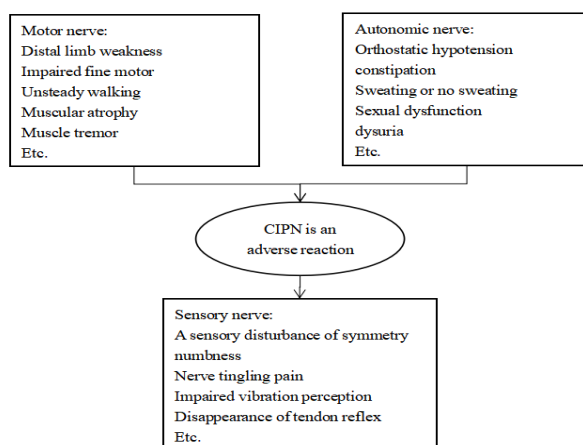


Figure 1: Clinical presentation of CIPN

Table 1: Common chemotherapeutic agents causing CIPN and their incidence

Common chemotherapy drugs in clinic	CIPN incidence
Oxaliplatin	Acute: about 49.3%-84.5%
	Chronic: about 58.0%-80.7%
Cisplatin	About 12.0%-85.0%
Paclitaxel	About 60.0%
Docetaxel	About 15.0%
Vinblastine	About 35.0% - 45.0%

3. Understanding of CIPN in Chinese Medicine

CIPN is a modern medical name, but there is no corresponding name in ancient literature. According to the diagnostic principle of "the outside tries to guess the inside" and "the constant balance changes", combining the symptoms and signs of CIPN, it is classified under the categories of "numbness" and "arthralgia" in Chinese medicine. Shen Jinao thought: "Hemp, qi deficiency is the root, wind phlegm is the symptom; Wood, dead blood stagnant in the inside, and outside with wind cold, Yang qi deficiency, can not exercise." "Su Wen" records: "blood clotting on the skin is arthralgia." In Jing Yue Quan Shu, Zhang Jiebin discussed that the total pathogenesis of arthralgia is "blood gas is closed by evil and cannot pass through". Traditional Chinese medicine believes that the evil of chemotherapy drugs, injury to the body Yang qi, resulting in spleen and kidney Yang deficiency, warm gasification weakness, hair for paralysis. In addition, the malignant tumor is originally caused by "yang deficiency and yin excess", deficiency of yang qi, decline of the function of bringing forth new ideas through the old, and the local combination of tangible evil such as dross, phlegm and blood stasis [6]. At this time, toxic chemotherapy drugs are used to remove evil spirits. Although it can remove toxic and attack evil spirits, its killing qi can greatly injure qi, damage zang fu organs, contusion meridians and collaterals, resulting in qi and blood disharmony [7]. Hands and feet are the ends of human limbs, where Yin and Yang meridians meet. The blood vessels are small, and the flow of Qi and blood is relatively slow. It is easy for Qi and blood and evil poison to stop and gather here. Blood stasis and poison stagnate, and Qi and blood flow more slowly, thus forming a vicious circle. As the blood does not go away for a long time and the new blood does not produce, it is difficult for fine nutrients to support the local muscles, bones and meridians, and the normal physiological functions of the hands and feet such as sensory and movement disorders, resulting in the pathological and uncomfortable symptoms such as numbness, pain and aggravation of cold, as shown in Figure 2.

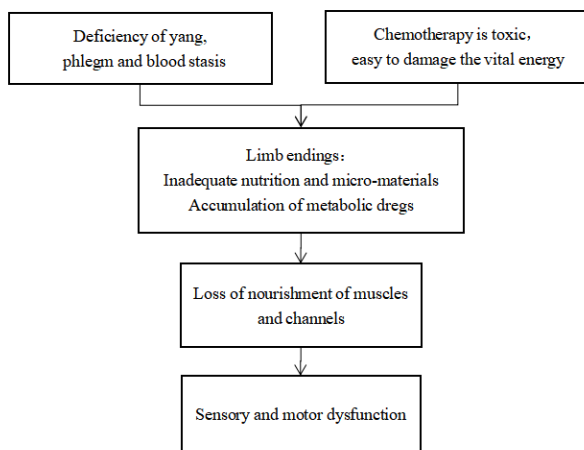


Figure 2: Pathogenesis of CIPN

4. The mechanism of Shixuan (EX-UE 11) and Qiduan (EX-UE 12) bloodletting therapy

Bloodletting therapy, also known as pricking blood therapy, is a widely used method in the treatment of diseases in traditional Chinese medicine. According to different conditions, different parts of the body are selected to puncture the surface of the body and bloodletting is used to achieve the purpose of treating diseases. For example, it is recorded in the "Pulse Method" that "Bi (bian) is used to activate the pulse". Bloodletting therapy has played a very extensive role since ancient times.

Liu Ligong et al. made a statistical analysis on pricking blood therapy in ancient literature and found that there were 242 symptoms involved in pricking blood therapy, which were common in sore carbuncles, swelling pain, etc. [8]. In modern times, it has been applied to many diseases, such as women and children, both at home and abroad [9], as shown in Figure 3. On its mechanism, the Huangdi Neijing says, "Those who remove the old ones will produce evil blood" People are an organic whole, any disease can cause local obstruction of qi and blood flow, local nutrients are not sufficient, dregs accumulate in this, coupled with the accumulation of evil qi, local qi and blood will be more congested. Therefore, through bloodletting, the local accumulated dregs can be directly removed from the body, the evil qi is driven out of the body, the positive qi goes up, the meridian qi and blood run smoothly, the whole body organs, tendons and veins are nourished, thus playing a hair to move the whole body, in order to achieve the role of pushing out the new, regulating qi and blood, and harmonizing yin and yang. Modern medicine believes that bloodletting therapy can reduce the level of inflammation and restore the immune balance of the body. It can increase local blood flow, adjust tube wall elasticity, improve local microcirculation and increase oxygen supply. It can stimulate the coagulation system and anticoagulation system of the patient. Wei Danlei et al. [10] found that acupuncture of collaterals and blood purging could significantly reduce the contents of inflammatory factors IL-6, IL-18 and TNF- α in serum of hyperlipidemia rats. It shows that pricking collaterals and purging blood can obviously reduce inflammation. Wu Jun et al. [11] compared the changes of microcirculation in 33 patients with abnormal microcirculation before and after pricking therapy and found that red blood cell aggregation, flow velocity, blood color and exudation in microcirculation were improved after pricking therapy. Qing Yao et al. [12] studied the influence of acupuncture cupping bloodletting therapy on the coagulation system in the acute exacerbation of chronic obstructive pulmonary disease (AECOPD), and the results showed that the therapy could improve the coagulation and anticoagulation function of patients with AECOPD, as well as the therapeutic effect of AECOPD.

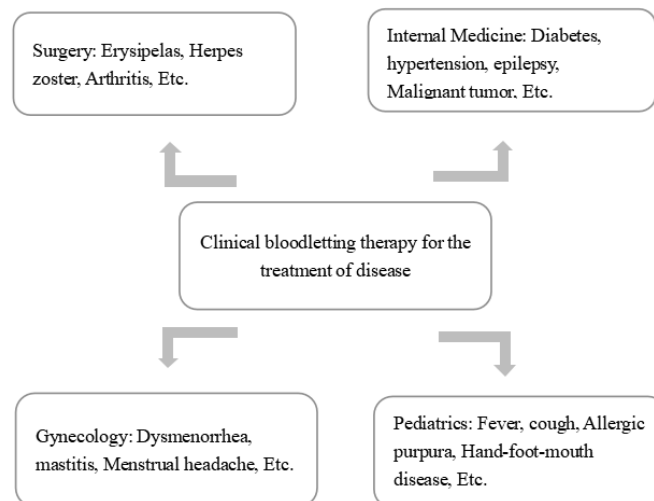


Figure 3: Clinical application of CIPN

Shixuan (EX-UE 11) is a strange point outside the meridian, it was first recorded in the Dacheng of Acupuncture: "Shi xuan: ten points, ten fingers on the head, one point to remove the claw nail, each finger one point, two fingers a total of ten points, so the name of shi xuan". Shixuan (EX-UE 11) is located at the end of the fingers of both hands, which is the intersection of the three Yin and three Yang meridians of the hand. Acupuncture bloodletting has the effects of awakening the spirit

and opening the orificum, harmonizing the zang fu organs, and communicating Yin and Yang. Modern anatomy found that Shixuan (EX-UE 11) is locally distributed by the intrinsic arterial and venous network and sensory nerves on the palm side of the finger, and puncturing and releasing blood can directly remove local blood and toxins from the body. At the same time, stimulation of this point can promote the contraction of the heart, accelerate the terminal blood circulation, so that nutritious fresh blood nourishes cells, muscles, tendons and nerves, thus improving local numbness, pain and other uncomfortable symptoms [13].

Qiduan (EX-UE 12) is also a strange point outside of the meridian, and is also known as the foot shi xuan said. It comes from the "Prepared Emergency Thousand Gold Medicine Formula": "its foot ten toes end, called qi duan." "Qi" is the vitality of the body; The "Duan" is the top of the toe, the qi duan has the meaning of the beginning of the vitality. Qiduan (EX-UE 12) is also the intersection of Yin and Yang meridians, the pricking and bloodletting can directly eliminate the blood stasis and toxin accumulated in the local area, thus rapidly relieving the foot discomfort symptoms. It has the effect of relaxing tendons and clearing collaterals, relieving pain and calming. From the local anatomy of the Qiduan (EX-UE 12), it is scattered with the plantar nerve, the lateral nerve, the proper nerve and the arteriovenous nerve with the same name. The treatment can directly act on local nerves and blood vessels activate receptors, enhance excitability, and the nerve center gives corresponding instructions, so as to relieve discomfort symptoms.

5. The Application of Shixuan (EX-UE 11) and Qiduan (EX-UE 12) bloodletting therapy in CIPN

"The reason for external governance is the reason for internal governance" Liyue Pianwen wrote. In traditional Chinese medicine, the principles of external governance are the same as those of internal governance, but the methods used are different. As one of the external therapies, bloodletting therapy is widely used in clinic because of its obvious efficacy, low cost, simple operation, no gastrointestinal reaction, hepatorenal toxicity and other side effects. See Figure 4.

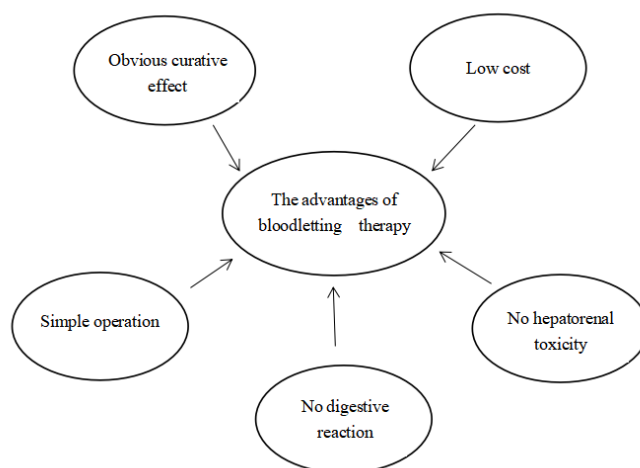


Figure 4: Advantages of bloodletting therapy

Yang Zhixin et al. [14] observed the comparison of peripheral neuritis in 28 patients with CIPN before and after treatment, and found that the treatment group using the methods of Shixuan (EX-UE 11) and Qiduan (EX-UE 12) blood-letting combined with thunder-fire moxibustion (bilateral Xiexi point, bilateral Yangxi point), its therapeutic efficacy was significantly better than that of the control group which only took oral methylcobalamin tablets in relieving numbness, hypesthesia and

abnormal sensation of the extremities and other uncomfortable symptoms, and the efficiency of its treatment group reached 92.86%, with rapid onset and excellent efficacy. Huang Ying et al. [15] randomly divided 56 patients with malignant tumors who developed CIPN after using chemotherapy regimen containing oxaliplatin into two groups, with 28 patients in each group. The control group was given basic treatment (chemotherapy+ oral mecobalamin tablets). On the basis of the treatment of the control group, the treatment group was treated with acupuncture and bloodletting at Shixuan (EX-UE 11), Qiduan (EX-UE 12) and twelve jing-well points, once every two days, twice in total, and one course of treatment in 14 days, a total of one course of treatment. The results showed that the total effective rate of the treatment group was 67.85%, and that of the control group was 35.71%. The effect of bloodletting therapy on patients with CIPN caused by oxaliplatin was better than that of using mecobalamin tablets alone. The bloodletting therapy could relieve the relevant symptoms of patients with CIPN. Cheng Xiangkun et al. [16] found that multiple blisters, blackness, conscious distension, and itching on hands caused by "Shixuan (EX-UE 11) " stabbing blood in the treatment of breast cancer after chemotherapy had significant effects, the abnormality that appeared in the palm of the hand disappeared completely..

6. Summary

CIPN is a common adverse reaction after chemotherapy. Clinically, the mechanism of action of CIPN in modern medicine is not clear, and the therapeutic effect is not ideal. Traditional Chinese medicine mainly focuses on warming Yang and regulating collateral, promoting blood circulation and removing blood stasis, and tonifying qi and blood. However, the drug concentration that can reach the end of the extremities by oral Chinese medicine is low, and its efficacy is not good because of the obvious gastrointestinal reaction after chemotherapy. Bloodletting therapy has a wide range of clinical effects, such as clearing heat and detoxifying, promoting blood circulation and removing blood stasis, reducing swelling and relieving pain. Patients with CIPN show local discomfort symptoms such as numbness and pain of hands and feet. Therefore, local Shixuan (EX-UE 11) and Qiduan (EX-UE 12) are used to let blood to promote blood circulation, remove blood stasis and relieve pain, and detoxify, remove saprophyxia and produce new health. The clinical effect is significant. The treatment of CIPN with Shixuan (EX-UE 11) and Qiduan (EX-UE 12) bloodletting deserves further promotion, so as to benefit more patients with CIPN, reduce their discomfort symptoms and improve their life treatment. However, the author believes that there are still some shortcomings in this therapy: 1. Whether the therapy is suitable for all CIPN patients and whether there is a predominant type of evidence; 2. The literature on this therapy for CIPN is very limited, and the clinical application is mostly combined with other therapies (oral Chinese medicine, Chinese herbal infusion, acupuncture, etc.) to treat the disease, and the use alone is very rare; 3. This therapy is used in the treatment of emergencies, and limb numbness caused by stroke and diabetes is common. The literature on the treatment of CIPN is limited, and the specific mechanism of action of this therapy needs to be further studied and explored.

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