Plum-blossom Needle Therapy for Chemotherapy-Induced Peripheral Neuropathy of the Left Lower Limb in a Postoperative Colorectal Cancer Patient: A Nursing Care Report

Authors: Zhao Baoya, Zhang Lei, Liu Shuhong

Date: 2023-03-06T00:00:00+00:00

Abstract

This case report observed the therapeutic efficacy of plum blossom needle therapy combined with bloodletting in the treatment of lower limb peripheral neuropathy induced by postoperative chemotherapy in a patient with colorectal cancer, and summarized the associated nursing care experiences. The treatment protocol involved plum blossom needle tapping on leg collaterals, with alternating stimulation of yin and yang collaterals performed twice weekly on Mondays and Thursdays, concurrent with toe bloodletting twice weekly to dredge terminal stasis. Evaluation using the Toronto Clinical Scoring System (TCSS) demonstrated alleviation of lower limb numbness and pain, along with significant improvement in nerve conduction velocity compared to baseline. From a Traditional Chinese Medicine perspective, plum blossom needle therapy contributes to the mitigation of chemotherapy-induced lower limb peripheral neuropathy following colorectal cancer surgery, thereby enhancing patient comfort.

Full Text

Preamble

NursRxiv: Preprint Platform for Nursing Discipline, First Online Release
ISSN: [Not specified]

Peer Review Status: NOT PEER REVIEWED

Title: Plum-Blossom Needle Therapy for Nursing Management of a Patient with Lower Limb Peripheral Neuropathy Caused by Postoperative Chemotherapy for Colorectal Cancer

Affiliation: Department of Oncology, Dongfang Hospital, Beijing University of Chinese Medicine, Beijing, China

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Abstract

This paper reports the efficacy of plum-blossom needle combined with bloodletting therapy in treating lower limb peripheral neuropathy caused by postoperative chemotherapy for colorectal cancer in a single patient, and summarizes the related nursing management strategies. The treatment protocol involved tapping the leg collaterals with a plum-blossom needle, alternating between yin and yang collaterals twice weekly (Mondays and Thursdays), combined with bloodletting at the toe tips twice weekly to dredge peripheral blood stasis. Evaluation using the Toronto Clinical Scoring System (TCSS) demonstrated reduced numbness and pain in the lower limbs, with significant recovery in nerve conduction velocity compared to baseline. From the perspective of Traditional Chinese Medicine (TCM), plum-blossom needle therapy appears effective in alleviating chemotherapy-induced peripheral neuropathy of the lower limbs and improving patient comfort.

Keywords: colorectal cancer; chemotherapy; peripheral neuropathy; plum-blossom needle therapy; Traditional Chinese Medicine nursing

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1. Clinical Case Data

The patient was a 65-year-old male admitted to our department with a diagnosis of "postoperative colon cancer"for treatment with the "oxaliplatin + capecitabine + bevacizumab" regimen. The patient reported significant pain and numbness in the left leg, with limited mobility preventing ambulation, accompanied by poor appetite and restless sleep. TCM diagnosis: Blood impediment (chemotherapy-induced peripheral neuropathy). Syndrome differentiation: Qi stagnation and blood stasis. Treatment principle: Activate blood circulation to remove blood stasis, unblock collaterals to relieve pain. Intervention: Plum-blossom needle tapping on leg collaterals, alternating between yin and yang collaterals twice weekly (Mondays and Thursdays), combined with bloodletting at toe tips twice weekly to dredge peripheral stasis.

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2. Nursing Management

2.1 Plum-Blossom Needle Technique

Key Procedure Points: Expose the treatment area and disinfect with alcohol swabs. The operator holds the needle handle between thumb and forefinger,

positioning the plum-blossom needle perpendicular to the skin of the left lower limb. Tap uniformly from top to bottom, immediately bouncing the needle upward after each tap. Each meridian is tapped continuously 15-20 times, with the intensity adjusted to produce mild pricking or distending pain and slight skin redness or minimal blood oozing. The force should be moderate—excessive force must be avoided. After tapping, use dry cotton swabs to clean the bleeding areas, maintaining cleanliness and dryness to prevent infection at the broken skin sites [Figure 1: see original paper]. Simultaneously, perform light tapping at the tips of the five toes of the left foot until the toe tips show slight redness or minimal bleeding [Figure 2: see original paper].

Frequency and Duration: The left lower limb is tapped at 70-80 times per minute, with 1-2 minutes per meridian, for a total treatment time of 10-15 minutes per session, administered twice weekly on Mondays and Thursdays.

2.2 Evaluation Criteria and Outcomes

Evaluation Standard: The Toronto Clinical Scoring System (TCSS) was adopted, which comprises three components: neurological symptoms, reflexes, and sensory function examination [11]. The symptom section (6 points total) assesses numbness, pain, tingling sensation, weakness, and gait instability in both upper and lower limbs, with 0 points for normal and 1 point for each abnormal symptom. The reflex section (8 points total) evaluates bilateral ankle and knee reflexes, scoring 0 for normal, 1 for diminished, and 2 for absent reflexes. The sensory function examination (5 points total) includes pain, temperature, touch-pressure, vibration, and position sense in the great toe, scoring 0 for normal and 1 for each abnormal sensation. According to the grading criteria: 0-5 points indicates no peripheral neuropathy, 6-8 points indicates mild neuropathy, 9-11 points indicates moderate neuropathy, and 12-19 points indicates severe neuropathy. Efficacy evaluations were conducted weekly.

Intervention Outcomes: After the first week of treatment, the patient' s TCSS score decreased from the initial 13 points to 10 points, improving from severe to moderate peripheral neuropathy. The patient reported some relief in pain and numbness but still could not ambulate. After the second week, the TCSS score decreased to 7 points, improving from moderate to mild neuropathy, with substantial relief of pain and numbness; the patient could ambulate with assistance. After the fourth week, the score further decreased to 6 points, maintaining the mild neuropathy classification. While not fully recovered, the patient experienced significant symptom reduction, with left lower limb discomfort no longer the primary complaint. The patient could ambulate independently, demonstrating markedly improved quality of life.

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3. Discussion

The development of chemotherapy-induced peripheral neuropathy (CIPN) closely resembles the description of "blood impediment" in the TCM classic *Jin Gui Yao Lue* (Synopsis of the Golden Chamber): "Question: From what does blood impediment disease arise? The master replied: In persons of esteemed status with weak bones and excessive flesh, who sweat from severe fatigue, toss and turn in sleep, and encounter slight wind, thus they develop it" [20]. Therefore, CIPN is categorized under the TCM syndrome of "blood impediment." The etiology involves drug toxicity damaging the collaterals. The pathogenesis involves chemotherapy drugs injuring the collaterals, causing qi collateral blockage and subsequent stagnation, which leads to blood stasis in the collaterals. This obstruction results in impaired qi and blood flow, causing pain from blockage and numbness from malnourishment of the limbs. From the perspective of organ and external pathogenesis, CIPN represents internal organ qi deficiency with functional dysfunction combined with external pathogenic invasion causing blood stasis obstructing the collaterals. Cancer patients suffer from prolonged disease courses that deplete righteous qi, leading to qi and blood deficiency. This deficiency fails to eliminate cancer toxins, resulting in prolonged interaction between toxins and blood stasis that eventually forms peripheral neuropathy. Additionally, most chemotherapy drugs are highly toxic with potent properties that readily damage yang qi, leading to primary yang deficiency. Therefore, CIPN treatment should address the root through qi-supplementing and yang-unblocking methods. Yang damage impairs propulsive force, causing collateral qi stagnation. Since "qi stagnation leads to blood stasis," this ultimately results in collateral vessel obstruction. As "collaterals are treated by unblocking," the primary therapeutic principle should be transforming stasis and unblocking collaterals [21].

Plum-blossom needle, a type of dermal needle, stimulates the skin surface to transmit effects to the collaterals, then to the meridians, and finally to the organs. This stimulates the regulatory functions of the organ systems, harmonizing qi and blood while unblocking vessels and collaterals [22]. Modern neurophysiological research indicates that stimulating the skin over affected muscles can enhance muscle tone and activate local nerves. This activation generates dominant spasm to counteract the affected side, establishing a new balance between flexor and extensor muscle tone, ultimately eliciting various central nervous system regulatory responses such as excitation and inhibition [23].

Through this case study, plum-blossom needle therapy demonstrates efficacy in alleviating lower limb peripheral neuropathy caused by postoperative chemotherapy for colorectal cancer, improving chemotherapy-related symptoms, reducing psychological burden, and enhancing quality of life during cancer treatment. However, further extensive research is required to validate the effectiveness of plum-blossom needle therapy for CIPN and to support its broader clinical application.

Conflict of Interest Statement: The authors declare no conflicts of interest.

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Note: Figure translations are in progress. See original paper for figures.