

Acupuncture relieves symptoms of side effects of Chemotherapy

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Chemo Therapy induced nausea, vomiting, fatigue, neutropenia/leukopenia and Peripheral Neuropathy (CIPN) (paresthesia , numbness , pain) are the most common side effects of chemotherapy.

Acupuncture as a traditional Chinese therapeutic method has been used as an effective and safe treatment for chemotherapy-induced nausea and vomiting, fatigue, cancer related pain, lymphedema , anxiety, depression, and insomnia . it has also been used for the treatment of neuropathic pain such as postherpetic neuralgia, diabetic peripheral neuropathy and HIV related neuropathy . The beneficial effect of acupuncture on the treatment of CIPN and chemotherapy-induced leukopenia have been increasingly studied in recent years with some research.

Chemotherapy-Induced Peripheral Neuropathy (CIPN) and chemotherapy-induced leukopenia are two of the most common dose limiting adverse events of chemotherapeutic agents and is described as an injury to the peripheral nervous system and marrow suppression after chemotherapy, due to neurotoxic chemotherapeutic agents such as platinum compounds, taxanes, vinca alkaloids, bortezomib, and thalidomide .

Most symptoms of CIPN are sensory and include numbness, tingling, and pain with typical distal symptoms occurring symmetrically in a glove-and-stocking distribution. Motor and autonomic neuropathies occur less frequently.

The mechanism of CIPN has not been totally discovered. Usually, neurotoxic drugs can induce an axonal poly neuropathy in different ways, such as by damaging microtubules, interfering with microtubule-related axonal transport, causing a disability of the mitochondria, making changes in the release of pain mediators such as growth factors, cytokines, and ion channels, and also with cytotoxic effects on DNA.

Although chemotherapy-induced nausea, vomiting, and neutropenia have been treated with the improvements in cancer supportive care, the treatment of Chemotherapy-induced peripheral neuropathy CIPN still remains a challenge. CIPN has two significant aspects, one being that it can affect the quality of life of cancer survivors, and second that it can also lead to dose reduction, early termination to less effective agents, or even discontinuation of treatment .

Several pharmacological agents such as tricyclic antidepressant (TCA), selective serotonin norepinephrine reuptake inhibitors (SSNRI), pregabalin, and gabapentin are recommended as the first-line of treatment for CIPN. However, at present, no ideal therapeutic agents are available for the prevention or even treatment of CIPN .

Some studies revealed that acupuncture can effectively relieve CIPN pain. Recently one multi-centre clinical trial has demonstrated that after several weeks of treatment and follow-up, the acupuncture group showed a greater reduction in the Numerical Rating Scale of symptoms of CIPN than the vit B1 and gabapentin group. In a randomized pilot trial of 40 breast cancer survivors with CIPN, an 18 sessions of acupuncture over 8 weeks acupuncture intervention (vs. usual care) led to a statistically and clinically significant improvement in subjective sensory symptoms including neuropathic pain and paresthesia.

Acupuncture can increase the circulation of blood in the extremities, which causes more circulation of blood to the vasa nervorum and related capillary beds nourishing the neurons and may contribute to nerve repair with measurable improvement of axons or myelin sheaths. In addition, the analgesic effect of acupuncture has been shown in animal studies, and the symptomatic effect of acupuncture may be due to the stimulation of nerves that innervate muscles, thus leading to a release of neurotransmitters such as endorphin and enkephalin, which regulate the function of the spinal cord, midbrain, and hypothalamo-hypophyseal pathways.

Moreover, some studies have further explored the molecular biological mechanism of acupuncture combined with moxibustion for relieving chemotherapy-induced leukopenia. Acupuncture-moxibustion prompt the proliferation and maturation of marrow hematopoietic cells, which favour the recovery of haematopoiesis function and reduce myelosuppression from chemotherapeutic agents. Similarly, acupuncture combined with moxibustion increases DNA synthesis and enhances DNA repair capacity. Therefore, leukocyte levels in the peripheral blood were elevated slowly but steadily under the influence of the protective effects on bone marrow cells by acupuncture-moxibustion stimulation.

Acupuncture may alleviate the treatment-related symptoms of chemotherapy and often significantly improves the quality of life in the management of patients with cancer.

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