

Wrist-Ankle Acupuncture in Cancer Pain Management: Current Status and Research Advances

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Abstract: Cancer pain, one of the most prevalent clinical manifestations in cancer patients, severely compromises physical-psychological well-being and quality of life. As a principal external therapeutic modality in traditional Chinese medicine, acupuncture has demonstrated unique efficacy in cancer pain management through mechanisms including meridian dredging, qi-blood regulation, vascular spasm alleviation, and ischemic duration reduction in tumor-compressed tissues. Wrist-ankle acupuncture (WAA), a minimally invasive acupuncture technique, exerts analgesic effects by stimulating specific superficial acupoints to modulate neuroendocrine-immune homeostasis. This review systematically synthesizes current mechanistic insights and clinical evidence regarding WAA's anti-nociceptive properties in cancer pain management, aiming to advance novel therapeutic strategies for optimizing pain control in oncology practice.

1. Introduction

The International Society of Pain defines pain as a painful experience in sensory, emotional, cognitive and social dimensions associated with tissue damage or potential tissue damage [1]. Cancer pain is a pain syndrome caused by factors such as malignant tumors themselves and tumor damage. In clinical practice, it is often chronic and recurrent and is one of the common clinical symptoms of cancer patients [2]. It seriously affects the quality of life(QOL) of patients. Modern medicine holds that the mechanism of cancer pain is related to the release of inflammatory factors in the tumor microenvironment(TME) and the sensitization of neuropathic pain pathways [3]. The three-step therapy for cancer pain currently promoted by the World Health Organization is one of the most fundamental and commonly used medication treatment methods in clinical practice. However, long-term application can easily lead to adverse reactions such as nausea, vomiting and constipation in patients [4]. Long-term or improper use of opioid drugs poses risks of addiction and drug resistance [5]. Therefore, finding effective auxiliary or alternative therapy is the key to solving the problem. In recent years, non-pharmaceutical treatments have played a significant role in the control and management of cancer pain due to their approach of "reducing medication while enhancing efficacy" [6]. Owing to its bidirectional regulatory function, acupuncture serves as a modality in non-pharmacological cancer pain therapy [7]. The wrist-ankle acupuncture(WAA) is a distinctive

acupuncture method based on the cutaneous region theory [8], it has the advantages of fewer acupoints to select, convenient operation and high safety. It demonstrates distinctive clinical value in alleviating cancer pain.

2. Exploration of the Etiology and Pathogenesis of Cancer Pain in Traditional Chinese Medicine

In traditional Chinese medicine(TCM), cancer is classified under categories such as “accumulation and gathering” and “abdominal mass”. Its pathogenesis involves deficient root and excessive branch. The combination of internal and external evil qi factors lead to dysfunction of the zang-fu organs and abnormal functions of qi, blood and fluid. Over time, these factors accumulate and develop into cancerous tumors. Pain is a common accompanying symptom of cancer. Its occurrence mainly lies in the fact that “pain due to obstruction” and “pain due to malnourishment”.

“Pain due to obstruction” belongs to excess pain. The “Suwen: Ju Tong Lun”states: “When cold qi invades the meridians and lingers, lodging in the vessels impedes qi flow, thus triggering sudden pain.” Cancerous tumor blocks the meridians, causing entanglement of qi, blood, phlegm, dampness, heat and stasis, which blocks qi movement and generates cancer pain [9]. “Pain due to malnourishment” belongs to deficiency pain. The “Suwen: Ju Tong Lun”states: “Vessel stagnation leads to blood deficiency, blood deficiency induces pain.” Professor Hua Baojin [10] and Jiang Yilan [11] hold that insufficient vital qi is an internal factor for the onset of cancer pain. Pathogenic factors take advantage of the deficiency to enter the body, accumulate internally to form cancerous tumors, which then cause cancer pain. Cancer patients often develop localized qi and blood circulation due to tumor compression or infiltration, resulting in phlegm and stasis entanglement and endogenous cancer toxin. Professor Zhou Zhongying [12] defines cancer toxin is pathogenic factor that lead to the occurrence and development of tumors on the basis of dysfunction of internal organs and stagnation of qi and blood. Based on the “cancer toxin theory”, Professor Cheng Haibo [13] hold that the location of cancer pain is in the meridians related to the zang-fu organs, where cancer toxin accumulation causes meridian obstruction, phlegm, blood stasis and ultimately manifests as pain.

3. The Traditional Chinese Medicine External Treatment System for Cancer Pain

3.1. The Application of Acupuncture Therapy in Cancer Pain

Cancer is a systemic disease, but the pain often manifests as local symptoms, predominantly following the pathogenesis of deficient root and excessive branch. Wu Shiji, a famous physician of the Qing dynasty, wrote in his “Lilun Pianwen”: “The principle of external treatment is the principle of internal treatment...first seek the root.” Acupuncture is one of the commonly used external treatment methods in TCM. Its therapeutic principles lie in dredging channels, unblocking collaterals, regulating the nourishment-defense phases, and balancing yin-yang. By stimulating specific acupoints, acupuncture achieves bidirectional pain regulation. Acupuncture treats excess patterns by guiding qi along meridians and activating blood to unblock collaterals, while tonifying deficiency patterns by activating meridian qi and strengthening vital qi to consolidate the foundation. It can effectively relieve nociceptive and neuropathic pain. Acupuncture exerts analgesic effects by modulating both peripheral and central nervous systems, suppressing immune-inflammatory responses, thereby alleviating sensitization of peripheral nociceptors and regulating central pain transmission pathways [14]. In clinical research on acupuncture for pain treatment, commonly selected acupoints include Hegu, Zusanli, Neiguan, and Taichong, combined with Ashi points. Stimulation of these acupoints promotes the release of endogenous analgesic substances (including β -endorphins), suppresses pro-inflammatory cytokines such as TNF- α and IL-6, reduces hyperalgesia and alleviates localized pain [15]. A randomized controlled trial demonstrated that acupuncture not

only reduces VAS pain scores in cancer patients but also demonstrates meaningful improvements in cancer-related fatigue and insomnia [16]. Evidence based clinical practice guideline propose that combining acupuncture with opioid analgesics effectively reduce cancer pain intensity. Acupuncture therapy additionally enables opioid dose reduction, thereby alleviating opioid related adverse effects in cancer patients [17]. Cumulative evidence confirms that acupuncture combined with pharmacotherapy significantly alleviates cancer pain, reduces treatment-related adverse effects such as nausea, vomiting, constipation, enhances QOL [18-20]. In addition, auricular acupuncture reduces analgesic consumption and enhances sleep quality in cancer pain management [21].

Building on this foundation, WAA demonstrates distinctive clinical merits in cancer pain management. Current evidence has well-documented its validated analgesic efficacy. It not only provides patients with a new perspective on pain relief, but also holds significant potential for reducing medication side effects and enhancing the QOL of patients.

3.2. Wrist-Ankle Acupuncture Therapy and Theoretical Basis

The “Suwen: Pi Bu Lun” states: “All twelve meridians, collaterals and vessels manifest their states through the skin.” WAA is a subcutaneous shallow needling technique developed by Professor Zhang Xinshu’s team at the Second Military Medical University, based on the theory of twelve cutaneous regions. WAA therapy achieves analgesia by stimulating specific points at the wrist and ankle corresponding to homolateral body regions. Based on pathological locations and clinical manifestations, six longitudinal zones (numbered 1-6) are mapped bilaterally on the distal limbs. Needling these areas regulate meridians, harmonize qi-blood dynamics, and balance yin-yang to produce analgesic effects [22]. Compared with conventional acupuncture, WAA has instantaneous efficacy upon needle insertion characteristic. WAA is relatively superficial and does not involve major blood vessels or organs. It can invigorate the cutaneous regions’ qi and restore yin-yang equilibrium in the body. It features rapid onset, prolonged needle retention, high safety and unrestricted limb mobility during treatment [23]. Therefore, it delivers superior analgesic efficacy with longer-lasting effects. WAA unrestricted daily activities, it achieves higher patient acceptance.

WAA achieves analgesia by activating defensive qi. The “Lingshu: Cijie Zhenxie” states: “The essential function of needling lies in regulating qi, qi accumulates in the stomach, thereby facilitating the unimpeded flow of nutritive-defense, each traversing its designated pathway.” When nutritive-defense are in dynamic equilibrium, qi-blood flows unimpeded and pathogenic factors cannot invade. Disharmony of nutritive-defense, however, impedes qi-blood circulation, causing meridian blockage which in turn generates pain. Disharmony of nutritive-defense is closely related to immunosuppression in the TME [24]. The anti-tumor effect of immune cells in the TME parallels the anti-pathogenic function of defensive qi [25]. Deficiency of defensive qi diminishes anti-pathogenic capacity and weakens immune cell function, thereby promoting tumor cell proliferation and metastatic spread, which ultimately drives cancer progression. WAA alleviates cancer pain by stimulating cutaneous regions acupoints, unblocking meridians, harmonizing nutritive-defense, achieving yin-yang equilibrium and facilitating unimpeded qi-blood circulation.

4. Advances in the Analgesic Mechanisms of Wrist-Ankle Acupuncture

4.1. Neuroregulatory Mechanism

WAA is simple and easy to perform. This technique exclusively involves needling superficial sensory nerve terminals in the subdermal layer to activate cutaneous mechanoreceptors at the wrist and ankle regions, which is activates the nervous system’s self-regulatory capacity, transmits signals to the central nervous system to engage endogenous analgesic pathways. This approach effectively

inhibits pain signal transmission while modulating the neuroendocrine and immune systems, ultimately achieving analgesic purposes. Current evidence suggests that the analgesic mechanism of WAA may involve neural electrophysiological phenomena and cutaneous bioelectrical activity [26]. By stimulating superficial cutaneous nerve terminals via needling, this technique modulates neuroelectrical conduction to regulate neuropeptides and other substances, regulating the release of neurotransmitters and neuromodulators, influencing nociceptive signal transmission and processing while elevating functional pain thresholds, ultimately achieving antispasmodic and analgesic effects. Moreover, WAA may facilitate the release of endogenous analgesic substances. Research indicates that WAA stimulate neurotransmitter production to suppress hyperalgesia [27,28], promoting neural repair of nerve root injuries in order to relieve pain. Concurrently, it reduces central 5-HT levels to elevate pain thresholds, inhibits β -endorphins release and serum substance P production, thereby blocking nociceptive signal transmission and potentiating analgesic efficacy.

4.2. Immune-inflammatory Regulatory Mechanism

WAA alleviates pain by inhibiting serum inflammatory cytokine levels and systemic inflammatory responses, while improving blood perfusion and resolving tissue spasms. Chemokines directly excite neuronal activity, promoting peripheral and central sensitization, while triggering glial cells to release nociceptive mediators that induce pain [29]. Xia Juan et al. conducted a clinical observation on WAA combined with auricular acupuncture for postoperative pain in hip fracture patients. This finding demonstrated that therapy significantly reduces levels of inflammatory cytokines, nociceptive mediators and chemokines [30]. WAA stimulates specific cutaneous regions to active and fortify meridian qi within the sinew channels. This regulatory action modulates functional activities of corresponding zangfu organs, thereby enhancing immune competence and optimizing neurological functions throughout the organism. This process enhances lymphatic and blood circulation, relieves smooth muscle spasms, optimizes hemodynamics and accelerates metabolism of acidic metabolites alongside the clearance of non-infectious inflammation. In conclusion, during the treatment application of WAA, it can not only significantly modulates inflammatory cytokine profiles but also promotes expression of anti-inflammatory mediators, thereby regulating immune homeostasis and through immune-inflammatory regulatory mechanisms, significantly alleviates patients' pain.

4.3. Psychological and Emotional Regulatory Mechanism

As one of the superficial needling techniques, WAA achieves pain-free procedures for patients through subcutaneous stimulation. It avoids interfering with patients' daily activities, significantly reduces their apprehension and tension toward acupuncture, thus improving treatment compliance. Yu Yimei et al. demonstrated through research that WAA effectively modulates the release of nitric oxide and prostaglandin E2 in humans, thereby alleviating cancer pain by combating anxiety and insomnia. Cancer pain affects patients' psychology and QOL. Through psychological and emotional regulation, WAA not only alleviates physical pain but also improves psychological well-being by effectively modulating depressive and anxious emotional, ultimately enhancing patients' QOL. The dual-regulation effects on physical-psychological dimensions endow WAA with distinct clinic advantages and therapeutic potential in cancer pain.

5. Clinical Observation of Wrist-Ankle Acupuncture in Treating Cancer Pain

5.1. Clinical Observation of Wrist-Ankle Acupuncture Guided by Pattern Differentiation

Acupuncture can harmonizing qi and blood, dredging meridians and collaterals. Analgesic

mechanisms based on WAA [31], current research on WAA primarily concentrates on therapy applications for various pain-related disorders, such as chronic joint pain, neuropathic pain, postoperative pain and so on. This therapy is frequently integrated with pharmacological interventions and auricular acupuncture, further underscoring its significant clinical value in pain management. Thus, research on WAA for cancer pain management demonstrates both scientific rationale and clinical feasibility. According to current research [32], in the clinical syndrome of cancer pain, the commonly witnessed types include qi stagnation and blood stasis pattern, qi and blood deficiency pattern, etc. As a subcutaneous superficial needling technique, WAA adheres to the therapeutic principle from Lingshu: Guanzhen: “Puncturing has depths and shallows, each suited to specific conditions”. It achieves analgesia by leveraging cutaneous regions-meridians and collaterals-zangfu organs relationship to implement treating the same disease with different methods.

By stimulating designated acupoints at the wrist and ankle regions, WAA modulates qi-blood dynamics. Advanced cancer patients are prone to tumor infiltration into peripheral neural structures, causing nerve compression or traction, which subsequently triggers neuropathic pain. A study on WAA for pain management in qi stagnation and blood stasis pattern indicates that WAA adheres to the therapeutic principle of “treating lower-body disorders with lower points”, selecting the Lower 1, Lower 2 and Lower 3 acupoints on the ankle, mainly treating liver, spleen and kidney meridians, effectively reducing pain intensity and duration while simultaneously improving patients’ negative emotions [33]. Advanced cancer patients are prone to develop bone metastases, manifesting as bone cancer pain including low back pain, hip pain and even pain with numbness radiating to the lower limbs. Research indicates that based on the patients’ low back pain symptoms, selecting the Lower 4, Lower 5 and Lower 6 acupoints on the ankle can effectively alleviate pain and avoid adverse medication reactions [34]. Advanced cancer patients prolonged cancer toxins lead to spleen failing to transport and insufficiency of kidney essence, ultimately impairing the generation of qi and blood. WAA points are located on the wrists and ankles, positioned relatively close to the five transport acupoints. Stimulating these acupoints promotes the circulation of qi-blood. Clinical research by Zhao Zhuang et al. demonstrated that treating chronic cancer pain according to the acupoint selection principle of “treating upper-body disorders with upper points, lower-body disorders with lower points, left-side disorders with left points, right-side disorders with right points, and ambiguous regions with the Upper 1 zone” significantly improves patients’ pain and enhances their QOL [35]. The “Shengji Zonglu” states: “Blood serves as the nutritive, while qi functions as the defensive. When qi and blood circulate freely, the muscles will suffer no disorders of impaired sensation.” WAA can stimulate the nourishment qi and defense qi. When defense qi becomes robust, it protects and warms the body, thereby preventing toxic pathogens from invading and causing further exacerbation pain.

5.2. Clinical Observation on Wrist-Ankle Acupuncture Therapy for Alleviating Cancer Pain

The combined application of WAA and analgesic medications demonstrates superior efficacy in alleviating cancer pain, reduces patients’ dependence on painkillers, and minimizes disruption to daily living. This approach provides a novel therapeutic strategy for cancer pain management and merits further exploration of its clinical application value in pain treatment.

A study on WAA for neuropathic pain has shown that by comparing clinical efficacy, serum inflammatory markers and other indicators between the analgesic medication group and the WAA combined with analgesic medication group, the results suggest that WAA combined with analgesic medication effectively reduces patients’ pain scores, improves sleep quality and negative emotional states, and suppresses systemic inflammatory factors [36]. Cancer patients with chronic pain are prone to developing adverse psychological responses such as sleep disturbance and negative emotional states. Consequently, improving sleep quality and regulating emotional states contribute to reducing

psychological perception of pain and enhancing QOL. A clinical study on WAA combined with three-step analgesic ladder therapy for lung cancer pain has shown that WAA targets Upper 1, Upper 2, Lower 1 to stimulate cutaneous regions. This activates qi of cutaneous meridian pathways, enhances movement of qi-blood and ultimately achieves analgesic effects [37]. Moreover, evidence from multiple clinical studies demonstrate that WAA combined with three-step analgesic ladder therapy for cancer pain can enhance overall analgesic efficacy [28,38-39]. Comparative observation of therapeutic metrics between the analgesic medication group and the WAA combined with analgesic medication group demonstrated that WAA combined with analgesic medication group effectively reduces SP levels, suppresses systemic inflammatory factors and mitigates inflammatory responses. WAA therapy modulates neuroendocrine activity and promotes endogenous analgesic substance release, associated with analgesic medications, improving patient QOL and demonstrating a favorable safety profile. Multiple meta-analyses stratified cancer pain patients into control arms (analgesic medication) and experimental arms (analgesic medication combined with WAA) based on therapeutic measures [40-42]. Results demonstrate that WAA can effectively reduce medication-related adverse effects such as nausea, vomiting, dizziness and constipation, accelerate analgesic onset, prolong pain relief duration and substantially decrease breakthrough pain episodes. The efficacy of WAA for cancer pain is assessed using validated scales including the Numerical Rating Scale (NRS) and Symptom Checklist-90 (SCL-90). The result confirms its well-established clinical efficacy in demonstrating both safety and effectiveness in pain mitigation and QOL improvement. Beyond the clinical therapeutic of WAA combined with analgesic medication for cancer pain management, substantial research exists on integrative TCM approaches for treating cancer pain. In a study investigating bone metastasis pain, Hu Mengyun et al. application of Huaji Zhenyong plaster combined with WAA demonstrates reliable efficacy in managing bone metastasis pain. Aligned with WAA principles, this study implemented region-specific needling for upper body pain is addressed by needling ipsilateral wrist zones, while lower body pain requires ipsilateral ankle zone stimulation. This study selects Neiguan and Sanyinjiao to eliminate outcome bias from variable needling locations. Results indicate that WAA combined with topical herbal applications prolongs analgesic duration and enhances QOL [43]. An RCT on combined WAA and auricular acupuncture for cancer pain demonstrated that both modalities effectively alleviate cancer-related pain through distinct therapeutic mechanisms. Their combination accelerates pain relief, prolongs analgesic duration and significantly reduces analgesic medication requirements [44]. Ma Jing et al. selected WAA in bilateral Upper 1 and Upper 2 or bilateral Lower 1 and Lower 2 regions combined with auricular acupoint to treat postoperative pain in patients with gastrointestinal tumors. The result indicated that this combination therapy significantly promoted the release of serum 5-HT, inhibited the activity of SP and alleviated pain [45]. Furthermore, the clinical study by Cao Hongli et al. on the application of WAA combined with auricular seed-pressing for treating liver cancer pain further confirmed that WAA combined with different external therapies in TCM can alleviate cancer pain and improve patients' anxiety and depression states [46]. Long-term follow-up data suggest that WAA demonstrates favorable safety in treating cancer pain, with good tolerance and high compliance. It can effectively improve patient's QOL and reduce negative emotional states.

6. Conclusion

While the mechanisms underlying cancer pain are not yet fully elucidated, the clinical management of cancer pain has established a relatively standardized procedural framework. The close integration of modern medicine with TCM has led to the widespread application of integrated Chinese-Western medicine in cancer pain treatment, securing its important position within standardized cancer pain management. As an innovative approach in traditional Chinese external therapies, WAA with its

advantages of simplicity, safety and economy is readily accepted and recognized by patients in clinical practice. Existing clinical practice and research demonstrate its favorable analgesic efficacy in cancer pain, offering new perspectives for cancer pain treatment research and enriching the theoretical understanding. However, comprehensive and systematic research into the mechanisms of action of WAA remains lacking. Therefore, delving deeper into fundamental theories while simultaneously validating and expanding clinical practice, and conducting multi-faceted investigations into the analgesic effects of WAA is essential. This will enable it to play a more significant role in the clinical management of cancer pain. Such efforts hold substantial value and significance for advancing cancer pain treatment technologies and provide novel diagnostic and therapeutic strategies for enhancing the QOL of cancer pain patients.

References

- [1] Raja, Srinivasa N et al. *The revised International Association for the Study of Pain definition of pain: concepts, challenges, and compromises*[J]. *Pain*, 2020,161(9):1976-1982.
- [2] JI Jinfeng, GE Xiaoxia, et al. *Intradermal needling combined with heat-sensitive moxibustion for moderate to severe cancer pain*[J]. *Chinese Acupuncture & Moxibustion*, 2021,41(7):725-729.
- [3] Sun Yan, Han Jisheng, Qin Shukui, et al. *Standard diagnosis and treatment of cancer pain(version 2018)*[J]. *Chinese Clinical Oncology*, 2018,23(10):937-944.
- [4] ZHOU Yuxing, FU Wensheng. *Research Progress of Traditional Chinese Medicine in the Treatment of Cancer Pain Based on Syndrome Differentiation*[J]. *Chinese Medicine Modern Distance Education of China*, 2024,22(8):179-182.
- [5] GUO Weijie, JI Yuanyuan. *Effect of External Application of Traditional Chinese Medicine Combined with Acupuncture on Cancer Pain in Patients with Lung Cancer Undergoing Chemotherapy*[J]. *Clinical Journal of Traditional Chinese Medicine*, 2024,36(3):575-578.
- [6] YU Jiawen, WANG Jin, et al. *Treatment and Management of Chronic Cancer-related Pain in Adults*[J]. *Medical Journal of Peking Union Medical College Hospital*, 2024,15(4):764-770.
- [7] Deng Gary. *Integrative Medicine Therapies for Pain Management in Cancer Patients*[J]. *Cancer journal (Sudbury, Mass.)*, 2019, 25(5):343-348.
- [8] WEI Zhen, GAO Xinyu, et al. *Progress in Clinical Application of Wrist Ankle Acupuncture in the Treatment of Chronic Pain*[J]. *Fujian Journal of Traditional Chinese Medicine*, 2023,54(12):69-72.
- [9] WANG Yuru, LIU Zhaidong. *Research progress in Chinese medicine treatment of cancer pain*[J]. *China Medical Herald*, 2022,19(31):49-52.
- [10] LI Dongtao, ZHENG Guangda, et al. *HUA Baojin's experience in treating cancer pain from blood stasis and toxin*[J]. *China Journal of Traditional Chinese Medicine and Pharmacy*, 2024,39(8):4149-4152.
- [11] XU Weihong, Li Sisi, et al. *JIANG Yilan's Experience in Treating Cancer Pain from the Perspective of "Pathogenesis rooted in spleen-earth deficiency with stasis-toxin accumulation"*[J]. *Guiding Journal of Traditional Chinese Medicine and Pharmacy*, 2024,30(4):169-172.
- [12] CHENG Haibo, LI Liu, et al. *System Construction for the Syndrome Differentiation and Treatment of Cancer Toxin*[J]. *Journal of Nanjing University of Traditional Chinese Medicine*, 2022,38(7):559-564.
- [13] CHENG Haibo, WU Mianhua. *Discussion on the TCM theory of cancerous pain*[J]. *China Journal of Traditional Chinese Medicine and Pharmacy*, 2008,23(1):50-52.
- [14] WU Jianli, QIN Jianfeng, et al. *Research progress on analgesic mechanism of acupuncture for cancer pain*[J]. *Acupuncture Research*, 2024,49(11):1220-1225.
- [15] WU Jianli, CHENG Caihong, et al. *Acupuncture for Cancer Pain: Current Research Landscape and Future Directions*[J]. *Journal of Emergency in Traditional Chinese Medicine*, 2024,33(8):1492-1495+1500.
- [16] Kang SY, Bang SK, et al. *Treatment of electrical wrist stimulation reduces chemotherapy-induced neuropathy and ultrasound vocalization via modulation of spinal NR2B phosphorylation*[J]. *Brain Res Bull*. 2020,162:237-244.
- [17] Epstein Andrew S, Liou Kevin T, Romero Sally A D, et al. *Acupuncture vs Massage for Pain in Patients Living With Advanced Cancer: The IMPACT Randomized Clinical Trial*[J]. *JAMA network open*, 2023, 6(11):e2342482.
- [18] MAO J J, LIOU K T, et al. *Effectiveness of Electroacupuncture or Auricular Acupuncture vs Usual Care for Chronic Musculoskeletal Pain Among Cancer Survivors*[J]. *JAMA Oncology*, 2021,7(5):1-8.
- [19] BAO T, ZHI W I, et al. *Electro-acupuncture versus battle field auricular acupuncture in breast cancer survivors with chronic musculoskeletal pain: subgroup analysis of a randomized clinical trial*[J]. *Breast Cancer Research and Treatment*, 2023,202(2):287-295.
- [20] ZHANG Q, YUAN Y, et al. *Efficacy and safety of acupuncture-point stimulation combined with opioids for the treatment of moderate to severe cancer pain: a network meta-analysis of randomized controlled trials*[J]. *Frontiers in*

Oncology, 2023,13:1166580.

[21] YANG M, BASER R E, et al. Effect of acupuncture versus usual care on sleep quality in cancer survivors with chronic pain: Secondary analysis of a randomized clinical trial[J]. *Cancer*, 2023,129(13):2084-2094.

[22] Ge L, Wang Q, et al. Acupuncture for cancer pain: an evidence-based clinical practice guideline[J]. *Chin Med*. 2022,17(1):8.

[23] LING Changquan, et al. *Wrist-Ankle Acupuncture*[M]. Shanghai:Shanghai Scientific & Technical Publishers, 2017:7.

[24] LIAO Dingjun, CHEN Xuezhong, et al. Targeting Tumor Microenvironment via Ying-Wei System Regulation: Novel Therapeutic Strategy for Cancer-Induced Pain Syndrome Differentiation[J]. *Global Traditional Chinese Medicine*, 2025,18(3):510-514.

[25] LI Jing, ZHAO LiangChen, et al. Correlation of Defensive Qi of Traditional Chinese Medicine with Immune Regulation and Oncogenesis[J]. *Journal of Oncology in Chinese Medicine*, 2019,1(02):18-22.

[26] ZHANG Chunpeng, ZHOU Qinghui. Study on the Mechanisms of Wrist-ankle Acupuncture Analgesia[J]. *Journal of Liaoning University of Traditional Chinese Medicine*, 2018,20(02):74-76.

[27] WU Sheng, SONG Yiqing, et al. Effects of Bushen Quyu Acupuncture Combined with Acupoint Injection on Levels of 5-HT, PGE2 and ET-1 in Treating Severe Cancer Pain due to Lung Cancer Bone Metastases[J]. *Journal of Clinical Acupuncture and Moxibustion*, 2020, 36(11): 5-9.

[28] WANG Lingling, LIN Xuedong, et al. Efficacy Observation of Wrist-ankle Acupuncture Combined with Opioids for Primary Liver Cancer-related Pain[J]. *Shanghai Journal of Acupuncture and Moxibustion*, 2021,40(11):1336-1340.

[29] LIU Xingxing, SHANG Xiukui, et al. New Mechanism of Acupuncture Analgesia in Terms of Chemokines Regulating Pain[J]. *Journal of Clinical Acupuncture and Moxibustion*, 2021,37(10):1-6.

[30] XIA Juan, HUANG Ping. Effects of wrist-ankle acupuncture combined with thumbtack needle at auricular points on pain and functional recovery after hip arthroplasty in elderly hip fracture patients[J]. *Shanghai Journal of Acupuncture and Moxibustion*, 2023,42(01):50-55.

[31] HUANG Lele, ZHOU Qinghui, et al. Visual analysis of research progress of wrist and ankle acupuncture based on VOSviewer and CiteSpace[J]. *China Medical Herald*, 2023,20(29):8-14.

[32] TAO Fangze, ZHOU Xiaomin, et al. The Study of Syndrome Differentiation Regularity of Cancer Pain Which Based on Data Mining[J]. *Journal of Zhejiang Chinese Medical University*, 2018,42(08):662-671.

[33] GAO Yaru, GUO Yanli, et al. Effect of wrist ankle acupuncture combined with ginger moxibustion in governor vessel on patients with primary dysmenorrhea syndrome with Qi stagnation and blood stasis[J]. *Journal of Modern Medicine & Health*, 2025,41(02):385-389.

[34] GUO Shasha. Application Effect of Wrist-ankle Acupuncture in Patients with Lumbago of Qi-stagnation and Blood Stasis Syndrome[J]. *Journal of Liaoning University of Traditional Chinese Medicine*, 2023,25(05):215-217.

[35] ZHAO Zhuang, CHENG Yuying, et al. Clinical research on wrist-ankle acupuncture in the treatment of chronic cancer pain based on skin theory[J]. *China Medicine And Pharmacy*, 2022,12(18):136-138+160.

[36] LIU Weiqun, WEI Zhen, et al. Clinical observation on wrist-ankle acupuncture in treatment of postherpetic neuralgia and its influence on inflammatory factors[J]. *Chinese Journal of Pain Medicine*, 2024,30(10):750-756.

[37] Dong Fangfang, Lu wei, et al. Impact of wrist-ankle acupuncture combined with the three-step analgesic ladder on the degree of cancer pain and quality of life in patients with advanced lung cancer undergoing chemotherapy[J]. *Chronic Pathematology Journal*, 2024,25(10):1462-1466.

[38] XU Liping, QUAN Meiling, et al. Wrist-Ankle Acupuncture Combined with Three-Step Analgesic Ladder for HCC Refractory Pain: 30-Patient Case Series[J]. *Chinese Journal of Integrated Traditional and Western Medicine on Liver Diseases*, 2022, 32(9): 844-845.

[39] ZHANG Tao, HU Zhanrui, et al. Effect of Wrist ankle Acupuncture on Reducing the Number of Cancer Outbreak Pain and Improving the Levels of Pain Mediators and Inflammatory Factors[J]. *Popular Science & Technology*, 2021, 23(10): 113-116.

[40] YU Mingzhu, ZHAO Danna, et al. Efficacy of Wrist-ankle Acupuncture Intervention in Postoperative Pain: A Meta-analysis and Grade Evaluation[J]. *MILITARY NURSING*, 2024, 41(5): 101-106+114.

[41] Chu Xin, Jiang Yunlan, et al. Effectiveness and Safety of Wrist-ankle Acupuncture in Treatment of Cancer Pain: A Meta Analysis[J]. *Journal of Chengdu University of Traditional Chinese Medicine*, 2023,46(05):74-80.

[42] PAN M, LAN Y, et al. Wrist-ankle acupuncture has a positive effect on chronic pain: a systematic review and meta-analysis[J]. *Acupuncture and Herbal Medicine*, 2023, 3(1): 7-19.

[43] HU Mengyun, FU Yang, et al. Clinical observation of Huaji Zhentong Ointment combined with wrist-ankle acupuncture for treating refractory bone metastasis pain[J]. *China Journal of Traditional Chinese Medicine and Pharmacy*, 2021, 36(10): 6253-6256.

[44] XU L P, YANG S L, et al. Effect of wrist-ankle acupuncture therapy combined with auricular acupuncture on cancer pain: A four-parallel arm randomized controlled trial[J]. *Complementary Therapies in Clinical Practice*, 2020, 39: 101170.

[45] Ma Jing, Shang Wenjuan. *The effect of wrist-ankle acupuncture combined with ear acupoint pressing on postoperative pain and gastrointestinal function in elderly patients with gastrointestinal cancer*[J]. *Geriatrics & Health Care*, 2023,29(05):910-915.

[46] CAO Hongli, PENG Tingyun, et al. *Efficacy of Wrist-Ankle Acupuncture Combined with Auricular Point Pressing Beans in the Treatment of Liver Cancer Pain and its Effect on Psychological Status and Serum Pain Mediator*[J]. *Progress in Modern Biomedicine*, 2024,24(03):553-556.