

Correlation Study and Treatment of Malignant Tumors with Differentiation Induction in Traditional Chinese Medicine

Xiangyi Lin

Department of Traditional Chinese Medicine, Oriental College, Beijing University of Chinese Medicine, Cangzhou City, Hebei Province, China, 053800
13031826789@163.com

Abstract:

Traditional Chinese Medicine (TCM) is a holistic approach that emphasizes the importance of strengthening the body's vital energy and eliminating pathogenic factors. It suggests that tumors are linked to qi stagnation, blood stasis, and imbalance between yin and yang. This study explores the correlation between TCM treatment and tumor differentiation, and proposes innovative treatments under TCM theory. By combining clinical observations, research experiments, and collaborative diagnosis and treatment between TCM and Western medicine, the goal is to prevent tumor occurrence and metastasis. Some components of TCM can directly induce tumor cell differentiation and synergize with Western medicine treatment.

Keywords: Traditional Chinese Medicine (TCM), Malignant Tumors, Induced Differentiation, Syndrome Differentiation and Treatment, Integration of TCM and Western Medicine

1. Introduction

Traditional Chinese Medicine (TCM) has a time-honored understanding of malignant tumors, with ancient medical literatures recording terms like “zhengpi”, “jiju” and “yan” that correspond to the modern concept of “malignant tumor”. Malignant tumors have become a serious threat to human health. Induced differentiation therapy, as one of the means of tumor treatment, promotes the transformation of tumor cells into normal cells through drugs, reducing their malignancy. Numerous studies have found that certain components of traditional Chinese medicine can

regulate the signaling pathways of tumor cells and induce their differentiation. Through clinical and basic experimental research, we explore how the theoretical system of TCM fundamentally addresses the prevention, treatment, and recurrence of tumors. Through in-depth research on malignant tumors, TCM can help patients receive better treatment, reduce toxic side effects, and improve treatment outcomes. Meanwhile, such efforts can also enhance the international reputation and recognition of TCM, facilitating its wider global dissemination and acceptance.

2. Traditional Chinese Medicine's understanding of the pathogenesis of malignant tumors

Traditional Chinese Medicine (TCM) has a long history of understanding tumors, dating back to the Shang Dynasty. Over time, TCM has developed insights into tumors, laying the foundation for the development of the academic system of oncology. Western medicine has also emphasized the uniqueness of tumors [1]. TCM's understanding of the pathogenesis of malignant tumors mainly analyzes from multiple aspects such as qi stagnation and blood stasis, excess and deficiency of vital energy and vitality, and internal accumulation of heat-toxin.

2.1 Phlegm-damp accumulation, qi stagnation and blood stasis

The accumulation of phlegm-dampness, qi stagnation, and blood stasis due to spleen dysfunction and external pathogenic factors can lead to tumor formation. Patients with tumors often experience symptoms like pain and lumps. Dysfunctioning spleen also causes phlegm-dampness to circulate with qi, causing tumor formation. Cancer toxins can induce phlegm-dampness and water retention, with local phlegm toxins and cancer toxins coexisting and interacting through deficiency of vital energy" [2]. Traditional Chinese medicine experts should consider the connection between phlegm and cancer toxins. Phlegm can disrupt qi, blood, and body fluid circulation, while cancer toxins can promote tumor formation. Blood stasis and toxicity during wound healing are pathogenic factors, with suddenness, severity, universality, persistence, and complexity [3]. Cancer toxins and pathological factors such as dampness, phlegm, and blood stasis mutually cause and effect each other.

2.2 Deficiency of vital qi and accumulation of pathogenic toxins

Traditional Chinese Medicine suggests that deficiency in vital qi prevents pathogenic qi invasion, leading to functional disorders in tumors and exacerbates vital qi deficiency. Its essence is a disease of deficiency in the root and excess in the branch, that is, due to the weakness of

vital qi, combined with the influence of external pathogenic factors (wind, cold, heat, dampness, dryness, fire) or internal injury factors such as emotional depression and dietary disorders, causing the local accumulation of qi, blood, phlegm, dampness, and toxins in the human body, forming lumps" [4]. The invasion of external pathogenic toxins into the human body disrupts the functions of the internal organs and obstructs the circulation of qi and blood, leading to the formation of pathological products such as dampness and blood stasis. Long-term accumulation can form cancer toxins.

3. Theoretical basis of traditional Chinese medicine in treating malignant tumors

Traditional Chinese Medicine (TCM) promotes holistic health by using diagnostic methods like observation, auscultation, inquiry, and palpation to differentiate between the human body, environment, and social environment. It combines specific syndrome differentiation, identifies individuality within generality, grasps generality within individuality, integrates disease and symptoms, considers both local and overall aspects, and balances symptoms and root causes. It emphasizes both changes in tumor mass and improvements in survival rate and quality of life for tumor patients, gradually forming a new clinical model for TCM treatment of malignant tumors" [5]. Syndrome differentiation and treatment, a holistic approach, focuses on adjusting the body's internal environment, strengthening vital qi, eliminating pathogenic factors, and adjusting yin-yang balance to inhibit tumor progression.

3.1 Yin-yang balance

Traditional Chinese medicine (TCM) emphasizes the importance of adjusting the dynamic balance of yin and yang in the human body to treat tumors [6]. An imbalance can disrupt internal organs, accumulate carcinogenic factors, and weaken vital qi, leading to pathological changes like blood stasis and phlegm-dampness, ultimately causing tumor formation. TCM treatment aims to restore normal physiological functions by nourishing yin and reducing internal heat [7].

3.2 Strengthening the body's vital energy and eliminating pathogenic factors

Traditional Chinese Medicine (TCM) treats malignant tumors holistically by strengthening the body's resistance and eliminating pathogenic factors. This involves correcting the body's deficiency state through methods like nourishing qi, harmonizing yin and yang, and safeguarding vital qi [8]. TCM focuses on nurturing and protecting human vital qi, especially congenital kidney and acquired spleen and stomach qi, and employing multiple methods simultaneously to control tumor growth and alleviate symptoms [9]. Due to the certain toxic and side effects of chemoradiotherapy drugs on the body, which can damage vital qi, the main focus during chemoradiotherapy should be on strengthening the body's resistance, and methods such as nourishing blood and strengthening the spleen are used to reduce toxic and side effects. However, during the stable phase of the tumor, the main focus should be on eliminating pathogenic factors, and methods such as softening hard masses and resolving nodules, and promoting blood circulation to remove blood stasis are used to inhibit tumor growth and metastasis.

4. Mechanism of traditional Chinese medicine in treating malignant tumors

TCM effectively treats malignant tumors through holistic concepts, syndrome differentiation, and external methods like acupuncture, moxibustion, and medication, promoting blood circulation, eliminating inflammation, and enhancing immunity [10]. At the same time, corresponding dietary combinations should be formulated based on the patient's constitution and condition, and traditional exercise methods such as practicing Baduanjin can be appropriately used to adjust the mindset and improve the internal microenvironment.

4.1 Clearing heat and detoxifying, promoting blood circulation and removing blood stasis

The method of clearing heat and detoxifying, and promoting blood circulation to remove blood stasis primarily targets the heat-toxicity in tumors. By regulating immunity, metabolism, and signaling pathways, it inhibits the growth

and development of tumor cells, exerting an anti-tumor effect. "Adding the traditional Chinese medicine (TCM) method of promoting blood circulation to remove blood stasis based on Xuefu Zhuyu Decoction to conventional Western medicine treatment may have a good auxiliary effect on improving the short-term efficacy and quality of life of patients with malignant tumors" [11]. Xuefu Zhuyu Decoction promotes blood circulation and removes blood stasis, treating symptoms caused by obstruction. It can alleviate discomfort from chemotherapy and postoperative blood stasis. It reduces adverse reactions, enhances immunity, inhibits tumor metastasis, and reduces diffusion. Combining with syndrome differentiation and medication protects stomach qi for effective treatment [12]. Malignant tumor formation is linked to qi and blood stasis, with drugs like Zedoary and Salvia miltiorrhiza promoting blood circulation and anti-tumor effects.

4.2 Strengthen the body's vital energy and fundamental principles, and use poison to counter poison

Traditional Chinese medicine (TCM) focuses on strengthening the body's vital energy and harmonizing yin and yang to treat malignant tumors. The deficiency of vital energy is the main cause of tumor occurrence. TCM methods, such as nourishing qi, strengthening the spleen, and harmonizing yin and yang, enhance the body's ability to eliminate cancer cells and spontaneously resolve tumors. TCM is often used in combination with Western medicine's radiotherapy and chemotherapy to improve efficacy and reduce toxic side effects, or alone to alleviate pain and reduce tumor recurrence. [13]. Toxic traditional Chinese medicine (TCM) uses poison to combat disease, aiming to inhibit tumor growth by harmonizing yin and yang and enhancing immune function. Combining TCM with Western medicine's radiotherapy and chemotherapy can enhance efficacy and reduce toxicity. Ancient medical practitioners used poison-based treatments like Chen Shigong's Toad Venom Pill [14]. To kill or inhibit cancer cells, potent and highly toxic TCMs are needed to "use poison to combat poison." The toad venom in Toad Venom Powder can directly act on cancer cells, inhibiting their growth and spread, and has certain therapeutic effects on malignant

tumors. However, it has a certain toxicity, and the dosage must be strictly controlled to avoid poisoning. Other components can enhance patients' ability to monitor and eliminate cancer cells.

5. Exploratory application of traditional Chinese medicine in inducing differentiation

Induced differentiation is a treatment method for tumors, using chemicals to promote cell differentiation into normal ones, inhibiting growth and spread, and used in various cancers with fewer toxic side effects [15]. However, some tumor cells may develop resistance to inducers of differentiation, limiting the therapeutic effect.

5.1 Direct or synergistic application of traditional Chinese medicine and compound prescriptions

White Hedyotis diffusa, Scutellaria barbata, and Honey-suckle are herbs used for heat clearing, detoxification, and anti-tumor properties. Caffeic acid, found in plants, inhibits tumor cell growth and immune regulation, and can be combined with chemotherapy drugs. Combined with the excellent biocompatibility and low cytotoxicity of Polyaspartamide (PASP), which alleviates the structural characteristics of poor water solubility and low bioavailability of caffeic acid, a new anti-tumor nano delivery platform is designed and constructed based on the traditional Chinese medicine Junchenzuo theory and modern nano delivery technology"[16]. Caffeic acid and Shougong Powder, a combination of traditional Chinese medicines, can inhibit tumor cell growth and promote anti-inflammatory effects. They can alleviate liver toxicity and reduce dose adjustments due to bone marrow suppression. Shougong Powder is often used as an adjuvant therapy for malignant tumors, alongside chemotherapy and radiotherapy. The traditional Chinese medicine compound Shougong Powder improved clinical symptoms and enhanced the quality of life in patients with advanced gastrointestinal malignancies" [17]. Compound Shougong Powder combined with chemotherapeutic drugs can alleviate symptoms and prolong survival.

5.2 Regulating tumor microenvironment and immune system

Traditional Chinese medicine (TCM) effectively manipulates tumor microenvironments and immune systems to inhibit tumor growth and metastasis by addressing inflammatory, hypoxic, acidic, and immune microenvironments caused by heat, blood, and phlegm toxicity [18]. Improving the acidic and hypoxic environments of tumors and enhancing the activity of immune cells. Reducing interstitial pressure through methods such as ultrasound can not only promote the entry of immune cells into tumor tissues but also improve the efficacy of immunotherapy. Using anti-CD25 antibodies to eliminate Treg cells can enhance the efficacy of immunotherapy. "The IZL-2003 immunotherapy system can stimulate and enhance bone marrow hematopoiesis, improving the quality of life of patients with malignant tumors" [19]. The IZL-2003 immunotherapy system utilizes bioelectromagnetic technology, stimulating with electromagnetic fields of specific frequencies to modulate the immune system, thereby enhancing the body's ability to recognize and kill tumor cells. It is mainly used after radiotherapy and chemotherapy to alleviate adverse reactions such as bone marrow suppression caused by radiation and chemotherapy, and has relatively high safety.

6. The development prospects of traditional Chinese medicine in treating malignant tumors

Traditional Chinese Medicine (TCM) has the potential to treat malignant tumors with the help of modern technology. Combining TCM with Western medicine can enhance the efficacy of treatment and provide scientific evidence for clinical practice. TCM approaches treatment holistically, adjusting the body's internal environment, while Western medicine focuses on localized treatment. The integration of TCM and Western medicine can create personalized treatment plans, eliminating pathogenic factors and strengthening the body's resistance. The principles of monarch, minister, assistant, and guide in TCM prescription are introduced into the TCM-WM treatment framework. Modern medical treatments like radiotherapy,

chemotherapy, targeted therapy, and immunotherapy are also considered for strengthening the body's resistance and eliminating pathogenic factors. AI-assisted diagnosis and treatment can help doctors formulate more precise treatment plans and enhance diagnostic accuracy. AI technologies, such as computerized hospital management systems and intelligent medical diagnosis expert systems, have revolutionized the medical field, particularly in malignant tumor radiotherapy. The widespread use of AI in treating malignant tumors may become a future trend [20].

7. Conclusion

Traditional Chinese Medicine (TCM) is a holistic approach to treating malignant tumors, focusing on individualized treatment using traditional Chinese medicine, acupuncture, moxibustion, and massage. TCM principles include strengthening vital energy, expelling pathogenic factors, and maintaining yin and yang balance. By enhancing the immune system, TCM reduces tumor occurrence and promotes blood circulation, softening hardened masses, and resisting cancer cell invasion. Tumor recurrence is often due to insufficient vital energy and a re-imbalance of yin and yang. TCM uses methods like clearing heat, detoxifying, and adjusting yin and yang balance to eliminate residual cancer cells, enhance immunity, and prevent tumor recurrence. In the future, TCM and Western medicine will develop more effective treatments and drugs, promoting cultural exchanges and contributing to human health.

References

- [1] Chi Zhiheng(2018). The historical evolution of traditional Chinese medicine's understanding of the etiology and pathogenesis of malignant tumors (Master's degree thesis, Nanjing University of Chinese Medicine). Master's degree. https://kns.cnki.net/kcms2/article/abstract?v=1HYhtDVi6z-IWlcNP9xvORmp7Nahth5eUdgS5s1YSbLFxf5ldK1I007So769klyZ3GIxrDjLk4To62nG0oOxslHnqgWzvtvBziQj0QrN—VxH7HQE9a3bLGORzNgqsZsBXkt0g1VlgoVUPhT0RIxp4gEECuKkTGIE49|49gATC9n5rOWiX-XZ2cxY8YXTQWdjAie_O1G_zg=&uniplatform=NZKPT&language=CHS
- [2] Li Bingxue & Wang Xiaomin.(2019). Phlegm and Toxicity in Tumor Diseases and Syndromes. (eds.) Abstracts of the 17th National Conference on Integrated Traditional Chinese and Western Medicine in Oncology (pp. 95-96). Beijing Hospital of Traditional Chinese Medicine Affiliated to Capital Medical University; Beijing University of Chinese Medicine;
- [3] Wu Hanzhang(2023). Theoretical Research on the Pathogenesis of “Stasis and Toxin Intertwining” in Traditional Chinese Medicine for Malignant Tumors (Master's Degree Thesis, Zhejiang Chinese Medical University). Master's Degree <https://link.cnki.net/doi/10.27465/d.cnki.gzzyc.2023.000185doi:10.27465/d.cnki.gzzyc.2023.000185>.
- [4] Zhang Peng(2024). What does traditional Chinese medicine rely on to treat tumors? *Wish you good health*, (08), 24-25.
- [5] Cui Yixin, Chen Gege & Wang Haiming. (2022). Discussion on the treatment model of malignant tumors combining disease differentiation and syndrome differentiation in traditional Chinese medicine. *Modern Cancer Medicine*, 30(13), 2483-2486.
- [6] Xu Shihuai(2013). Yin-yang balance and the treatment of malignant tumors. *Journal of Practical Traditional Chinese Internal Medicine*, 27(02), 49-50.
- [7] Xu Zhenye & Zheng Zhan.(2007). Discussion on the treatment of malignant tumors with Yin-Yang balance method in traditional Chinese medicine. *Shanghai Journal of Traditional Chinese Medicine and Pharmacy*, (04), 37-39. doi:10.16305/j.1007-1334.2007.04.018.
- [8] Chen Zhaoqi, Zhou Chaofeng, Wu Mingyang & Zheng Yuling.(2025). Exploring Zheng Yuling's Syndrome Differentiation and Treatment of Malignant Tumors Based on the Concept of Strengthening Health. *Journal of Traditional Chinese Medicine Research*, 38(05), 28-33.
- [9] Zhang Chuanlei, Chen Xiaoqi, Wang Xinting, Chen Xinjuju, Ji Aiyong, Wang Lei & Zheng Yuling.(2021). Introduction to Zheng Yuling's Experience in Treating Malignant Tumors with the Method of Strengthening the Body's Resistance and Eliminating Pathogens under the Guidance of Traditional Chinese Medicine Thinking • *New Chinese Medicine*, 53(09), 111-114. doi:10.13457/j.cnki.jncm.2021.09.031.
- [10] Cheng Haibo(2024). The application practice of acupuncture and moxibustion in the clinical treatment of tumor-related syndrome. *Acupuncture research*Jiu, 49(07), 693-699. doi: doi: 10.13702/j. 1000-0607.20230985.
- [11] Ma Ruogu & Li Xiaohong.(2015). Treatment of 42 cases of malignant tumors with the method of promoting blood

- circulation and removing blood stasis. *Electronic Journal of Translational Medicine*, 2(02), 39+41.
- [12] Wang Bin, Dong Yang & Zhou Jianguyun.(2013). "Research on the Blood-Activating and Stasis-Removing Therapy in the Treatment of Malignant Tumors. *Journal of Liaoning University of Traditional Chinese Medicine*"fk, 15(12), 177-179. doi: 10.13194/j.issn.1673-842x.2013.12.039.
- [13] Xue Wenhan & Ju Yulian.(2011). The application and mechanism exploration of traditional Chinese medicine in strengthening the body's resistance and consolidating the foundation in the treatment of malignant tumors, *Gansu Medical University2j*, 30(11), 664-666. doi: 10.15975/j.cnki.gsy .2011.11.006.
- [14] Wang Jing, Jiang Yan & Li Duo.(2011). The application of the "treating poison with poison" method in traditional Chinese medicine in the treatment of malignant tumors. *Journal of Beijing University of Chinese Medicine*, 34(08), 569-572.
- [15] Gao Yan & Li Suping.(2016). Current research status of combined induction and differentiation therapy for malignant tumors. *Journal of North Sichuan Medical College*, 31(01), 136-141.
- [16] Wang Shanshan(2025). Application of "Drug-Adjuvant Integration" Nanodelivery System Based on the Active Component Caffeic Acid in the Treatment of Malignant Tumors (Doctoral Dissertation, Nanjing University of Chinese Medicine), Doctor
<https://link.cnki.net/doi/10.27253/d.cnki.gnjzu.2025.000019>doi: 10.27253/d.cnki.gnjzu.2025.000019.
- [17] Zheng Shengqi & Xia Liming.(2008). Clinical study on the treatment of advanced gastrointestinal malignancies with Compound Shoucong Powder. *Journal of Traditional Chinese Medicine and Clinical Practicedi*, (01), 1-3. doi: 10.16448/j.cjtem.2008.01.048.
- [18] He Jiawen, Han Bing, Lu Jiakuan, Wang Shiting, Zhang Wenjing, Jin Zhichao & Wang Ruiping.(2024). Exploring the mechanism of Fuzheng Jiedu therapy for tumor treatment from the perspective of tumor microenvironment remodeling. *Global Journal of Traditional Chinese Medicine and Pharmacy*, 17(02), 273-276.
- [19] Qi Hui, Zhang Li, Cao Yongqing, Hu Shou'an & Peng Laiying. (2011). Observation of the Attenuating Effect of IZL-2003 Immunotherapy System on Chemoradiotherapy for Malignant Tumors. *Journal of Oncology*, 17(09), 698-700.
- [20] Shen Tianle & Du Xianghui.(2018). The application and prospects of artificial intelligence in the field of malignant tumor radiotherapy. *Zhejiang Medical Journal*, 40(08), 783-785+795.