

Study on the Application of Chinese Herbal Bath in Cancer Fatigue of Chemotherapy Patients with Colorectal Malignancy

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Abstract

Objective: To investigate the efficacy and safety of herbal decoction for managing cancer-related fatigue in chemotherapy patients with colorectal malignancies. **Methods:** From January to December 2024, 120 chemotherapy patients with colorectal malignancies at a tertiary hospital's oncology department were randomly divided into a control group (60 cases) and an observation group (60 cases). The control group received standard chemotherapy care and health education, while the observation group received herbal decoction therapy in addition to standard care. Both groups were compared for pre- and post-intervention changes in cancer-related fatigue scores (Piper Fatigue Scale, PFS), quality of life scores (EORTC QLQ-C30), and adverse reaction occurrence. **Results:** After 4 weeks of intervention, the observation group showed significantly lower total PFS scores and reduced scores across behavioral, emotional, sensory, and cognitive dimensions compared to the control group ($P < 0.01$). The observation group also demonstrated significantly lower scores for fatigue, shortness of breath, lethargy, limb heaviness, and lower back/knee soreness ($P < 0.01$). Additionally, the observation group exhibited significantly higher scores for physical function, role function, emotional function, and social functioning on the EORTC QLQ-C30 scale ($P < 0.01$), while showing significantly lower fatigue symptom scores ($P < 0.01$). No statistically significant difference was observed in adverse reaction incidence between groups ($P > 0.05$). **Conclusion:** Herbal decoction effectively alleviates cancer-related fatigue in chemotherapy patients with colorectal malignancies, improves clinical symptoms through traditional Chinese medicine approaches, enhances quality of life, and demonstrates good safety profiles.

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Keywords

Colorectal Malignant Tumor, Chemotherapy, Cancer Fatigue, Chinese Herbal Bath, Quality of Life, TCM Nursing

1. Introduction

Colorectal cancer ranks as the third most common malignant tumor globally, with both incidence and mortality rates among the highest in malignancies [1]. Approximately 70% of patients require chemotherapy, yet the cytotoxic effects of these drugs often lead to various adverse reactions. Cancer-related fatigue (CRF), occurring in 75% to 96% of cases [2], manifests as persistent, subjective exhaustion disproportionate to physical activity levels that persists despite rest. This condition significantly compromises patients' quality of life, treatment adherence, and prognosis [3].

Current clinical management of chronic fatigue syndrome (CRF) primarily involves central nervous system stimulants and antidepressants, though these medications demonstrate limited efficacy with notable side effects including insomnia and anxiety [4]. Traditional Chinese Medicine (TCM) classifies CRF under the "deficiency syndrome" and "fatigue" categories, identifying chemotherapy drugs as "medication toxins" that disrupt qi-blood balance and yin-yang harmony. This leads to spleen-kidney deficiency, blood qi insufficiency, and meridian blockage, creating a pathological pattern characterized by the interplay of deficiency and stasis [5]. As a cornerstone of TCM external therapies, herbal steam baths achieve therapeutic effects through combined transdermal absorption and thermal stimulation. These methods effectively warm meridians, enhance qi circulation, activate blood flow, and strengthen the body's defenses against pathogens, demonstrating particular efficacy in managing chronic fatigue symptoms [6] [7].

At present, there are few systematic studies on the effect of Chinese herbal soaking on CRF in chemotherapy patients with colorectal cancer. This study adopted Chinese herbal soaking to treat chemotherapy patients with colorectal cancer, and observed its effects on CRF, TCM syndrome and quality of life, so as to provide a basis for providing safe and effective TCM nursing plan for clinical practice.

2. Clinical Data

2.1. General Information

This study recruited 200 chemotherapy patients with colorectal malignancies through convenience sampling in the oncology department of a tertiary hospital in Jingzhou City from January to December 2024. After screening and excluding 80 non-compliant cases, 120 eligible participants were enrolled. Patients were randomly assigned to the observation group (60 cases) and control group (60 cases) using a 1:1 ratio through a random number table method. No statistically signifi-

cant differences were observed between the two groups in terms of gender, age, tumor stage, chemotherapy regimen, or other baseline characteristics ($P > 0.05$; **Table 1**). The study was approved by the hospital's ethics committee (Approval No.: LL2024104), and all participants provided informed consent.

Table 1. Comparison of general data between two groups of chemotherapeutic patients with colorectal malignancies.

project	Observation group (n = 60)	Control group (n = 60)	statistic	P price
Gender (example)			$\chi^2 = 0.136$	0.712
man	34	32		
woman	26	28		
Age (years, $x \pm s$)	56.8 ± 9.2	57.3 ± 8.7	T = 0.312	0.755
Tumor stage (case)			$\chi^2 = 0.587$	0.746
II designated time	18	16		
III designated time	29	31		
IV designated time	13	13		
Chemotherapy regimens (example)			$\chi^2 = 0.365$	0.833
Capecitabine + oxaliplatin	35	37		
Calcium leucovorin + fluorouracil + oxaliplatin	25	23		
Chemotherapy cycle (number, $x \pm s$)	3.2 ± 1.1	3.1 ± 1.2	T = 0.457	0.648

2.2. Inclusion and Exclusion Criteria

2.2.1. Inclusion Criteria

1) Definitive pathological diagnosis of colorectal cancer; 2) Age ≥ 18 years; 3) No speech, hearing, reading, or writing impairments with good communication skills; 4) Karman's Physical Status Score (KPS) ≥ 60 ; 5) Estimated survival period ≥ 3 months; 6) Voluntary participation in this study; 7) Persistent fatigue or exhaustion that is disproportionate to physical activity; 8) Does not improve with rest; 9) Lasts for ≥ 2 weeks; 10) Brief Fatigue Inventory (BFI) score ≥ 4 .

2.2.2. Exclusion Criteria

1) Patients with severe cardiac, hepatic, or renal insufficiency; 2) Patients with skin ulcers, infections, or sensory impairment of limbs; 3) Patients allergic to the herbal ingredients in this study; 4) Patients participating in other similar studies; 5) Patients with mental disorders or cognitive dysfunction who cannot cooperate with the assessment.

3. Methodology

3.1. Treatment Methods

Both patient groups received standardized chemotherapy for colorectal cancer: Protocol 1) Capecitabine 1000 mg/m², administered orally twice daily from days 1 to 14; Oxaliplatin intravenous infusion on day 1, with each cycle lasting 3 weeks. Protocol 2) Calcium leucovorin intravenous infusion from days 1 to 5; Fluorouracil intravenous infusion on days 1 to 5. Protocol 3) Oxaliplatin 130 mg/m² intravenous infusion on day 1, with each cycle lasting 4 weeks.

3.1.1. Control Group

Routine chemotherapy nursing care included: 1) Health education: Instruction on self-care precautions and CRF management techniques; 2) Dietary guidance: Encouraging high-protein and vitamin-rich diets; 3) Activity guidance: Moderate exercise tailored to physical condition; 4) Psychological counseling: Listening to patients' concerns and alleviating anxiety. The intervention lasted 4 weeks.

3.1.2. Observation Group

The control group was supplemented with a traditional Chinese herbal powder pack. 1) Herbal formula: *Astragalus* 30 g, *Codonopsis* 20 g, *Atractylodes* 15 g, *Poria* 15 g, *Angelica* 15 g, Chuanxiong 15 g, *Spatholobus* Stem 30 g, *Eucommia* 15 g, *Achyranthes* Root 15 g, *Carthamus* Seed 10 g, *Mugwort* Leaf 10 g, Ginger slices 3. 2) Usage: Patients sit with their feet and lower legs (ankle to knee) immersed in 38° - 42° hot water containing the herbal pack, ensuring the liquid level covers the Sanyinjiao acupoint. Soak for 20 - 30 minutes daily starting 24 hours after chemotherapy for four weeks. Closely monitor reactions; discontinue immediately if dizziness, palpitations, or skin irritation occur. Patients maintain foot bath logs recording soaking duration (time, length, response). Responsible nurses verify logs weekly with signatures, calculating completion rate = actual completed sessions/total required sessions × 100%.

3.2. Observation Indicators

3.2.1. Cancer-Related Fatigue Rating

The Piper Fatigue Scale (PFS) was administered at baseline, 2 weeks post-intervention, and 4 weeks post-intervention. This scale evaluates four dimensions: behavioral, emotional, sensory, and cognitive, comprising 22 items. Each item is scored on a 0 - 10 scale (0 for no fatigue to 10 for extreme fatigue). Higher total scores and dimension-specific scores indicate more severe fatigue.

3.2.2. TCM Syndrome Scoring

The scoring criteria were established in accordance with the "Guidelines for Clinical Research of New Traditional Chinese Medicine Drugs (Trial)", evaluating four primary symptoms (fatigue, shortness of breath, reluctance to speak, and heavy limbs) and secondary symptoms (pale complexion, loss of appetite) using a 0 - 6 point scale: 0 points for none, 2 points for mild, 4 points for moderate, and

6 points for severe. Higher total scores indicate more severe symptoms. Assessments were conducted before intervention initiation and after 4 weeks of treatment.

3.2.3. Quality of Life Assessment

The European Organization for Cancer Research and Treatment Core Questionnaire for Quality of Life (EORTC QLQ-C30, version 3.0) was administered before intervention and after 4 weeks of treatment. This questionnaire evaluates five functional dimensions (physical, occupational, emotional, cognitive, and social), nine symptom dimensions, and one overall health status dimension. Higher scores in functional dimensions indicate better quality of life, while higher scores in symptom dimensions reflect more severe symptoms.

3.2.4. Safety Indicators

Adverse reactions during the intervention, including skin allergy, dizziness, palpitation, etc., were recorded and evaluated in accordance with the “Quality Management Standard for Drug Clinical Trials”.

3.3. Statistical Methods

Statistical analysis was performed using SPSS25.0 software. Quantitative data were expressed as $x \pm s$. Intra-group comparisons employed paired t-tests, while inter-group comparisons utilized independent samples t-tests. Repeated measures data were analyzed through repeated measures ANOVA. Categorical data were presented as frequency percentages (%), with comparisons conducted using χ^2 tests. Statistical significance was defined as $P < 0.05$.

4. Results

4.1. Ejection Status of Two Groups of Patients

The observation group experienced 1 case of mid-travel transfer and loss to follow-up, while the control group had 2 cases of voluntary withdrawal. Ultimately, 117 cases completed the study (59 in the observation group vs. 58 in the control group), with a dropout rate of 2.5%. For the 3 withdrawn patients: the lost-to-follow-up cases were treated as treatment failure, while the voluntarily withdrawn cases adopted the last observation carry-over method. Sensitivity analysis demonstrated that the results from the Intensive Treatment Set (ITT, $n = 120$) were consistent with those from the Per-Protocol Set (PPS, $n = 117$) ($P > 0.05$), indicating robustness of the findings.

4.2. Comparison of PFS Scores before and after Intervention Between the Two Groups

Before intervention, there was no statistically significant difference between the two groups in PFS total score and each dimension score ($P > 0.05$) (Table 2).

After intervention, the total PFS score and each dimension score of the two

groups were significantly lower than that before intervention ($P < 0.01$), and the observation group was significantly lower than that of the control group ($P < 0.01$) (Table 3 and Table 4).

Table 2. Comparison of PFS scores before intervention in two groups of chemotherapeutic patients with colorectal malignancies (score, $x \pm s$).

Group	Number of examples	Behavioral dimension	Emotional dimension	The sensory dimension	Cognitive dimension	Total points
Observation group	59	6.82 ± 1.53	6.54 ± 1.47	7.03 ± 1.62	5.91 ± 1.38	26.30 ± 5.24
Control group	58	6.75 ± 1.49	6.61 ± 1.52	6.98 ± 1.57	5.87 ± 1.42	26.21 ± 5.18
t price		0.241	0.236	0.162	0.154	0.093
Pprice		0.809	0.814	0.871	0.878	0.926

Table 3. Comparison of PFS scores (score, $x \pm s$) between the two groups of chemotherapeutic patients with colorectal malignancies after 2 weeks of intervention.

group	Number of examples	Behavioral dimension	Emotional dimension	The sensory dimension	Cognitive dimension	Total points
observation group	59	4.25 ± 1.26	4.01 ± 1.18	4.53 ± 1.32	3.87 ± 1.05	16.66 ± 4.15
control group	58	5.68 ± 1.34	5.42 ± 1.25	5.97 ± 1.41	4.93 ± 1.17	22.00 ± 4.63
t price		5.472	5.638	5.361	4.892	5.873
Pprice		<0.001	<0.001	<0.001	<0.001	<0.001

Table 4. Comparison of PFS scores (score, $x \pm s$) between the two groups of chemotherapeutic patients with colorectal malignancies after 4 weeks of intervention.

Group	Number of examples	Behavioral dimension	Emotional dimension	The sensory dimension	Cognitive dimension	Total points
Observation group	59	2.87 ± 0.95	2.63 ± 0.87	3.05 ± 1.02	2.51 ± 0.78	11.06 ± 3.24
Control group	58	4.92 ± 1.21	4.67 ± 1.13	5.13 ± 1.28	4.25 ± 1.03	18.97 ± 4.36
t price		9.564	10.237	9.125	9.872	10.653
Pprice		<0.001	<0.001	<0.001	<0.001	<0.001

4.3. Comparison of TCM Syndrome Scores before and after Intervention between the Two Groups

Before intervention, the total syndrome score and main symptom score of the two groups showed no significant difference ($P > 0.05$) (Table 5).

After 4 weeks of intervention, the total syndrome score and the score of each main symptom in both groups were significantly lower than that before intervention ($P < 0.01$), and the observation group was significantly lower than that in the control group ($P < 0.01$) (Table 6).

Table 5. Comparison of TCM syndrome scores before intervention in chemotherapy patients with colorectal malignancies (score, $x \pm s$).

Group	Number of examples	Exhausted	Short of breath and slow to talk	The limbs are heavy	soreness and weakness of waist and knees	Total points
Observation group	59	5.21 ± 1.32	4.87 ± 1.25	4.63 ± 1.18	4.92 ± 1.27	19.63 ± 4.25
Control group	58	5.17 ± 1.29	4.93 ± 1.31	4.58 ± 1.22	4.87 ± 1.32	19.55 ± 4.31
t price		0.156	0.231	0.204	0.208	0.096
P price		0.876	0.818	0.838	0.835	0.923

Table 6. Comparison of TCM syndrome scores (points, $x \pm s$) between the two groups of chemotherapeutic patients with colorectal malignancies after 4 weeks of intervention.

Group	Number of examples	Exhausted	Short of breath and slow to talk	The limbs are heavy	soreness and weakness of waist and knees	Total points
Observation group	59	2.13 ± 0.87	1.92 ± 0.75	1.85 ± 0.72	2.01 ± 0.81	7.91 ± 2.36
Control group	58	3.87 ± 1.05	3.62 ± 0.98	3.51 ± 0.92	3.75 ± 1.03	14.75 ± 3.62
t price		9.237	9.862	9.541	9.015	11.253
P price		<0.001	<0.001	<0.001	<0.001	<0.001

4.4. Comparison of EORTC QLQ-C30 Scores before and after Intervention in Two Groups of Patients

Before intervention, the comparison of functional dimensions and fatigue symptom scores of EORTC QLQ-C30 in the two groups showed no statistically significant difference ($P > 0.05$) (Table 7).

Table 7. Comparison of EORTC QLQ-C30 scores of two groups of chemotherapeutic patients with colorectal malignancies before intervention (score, $x \pm s$).

Group	Number of examples	somatic function	Role function	Emotional function	Social function	Symptoms of fatigue
Observation group	59	52.36 ± 8.72	48.62 ± 9.15	50.17 ± 8.93	51.25 ± 9.06	65.32 ± 10.24
Control group	58	51.97 ± 8.65	49.03 ± 8.97	49.82 ± 9.05	50.87 ± 8.93	64.87 ± 10.18
t price		0.248	0.236	0.192	0.215	0.227
P price		0.805	0.814	0.848	0.830	0.821

Table 8. Comparison of EORTC QLQ-C30 scores after intervention in chemotherapy patients with colorectal malignancies (score, $x \pm s$).

Group	Number of examples	somatic function	Role function	Emotional function	Social function	Symptoms of fatigue
Observation group	59	68.53 ± 9.26	65.17 ± 8.73	67.25 ± 9.01	66.32 ± 8.85	38.26 ± 8.57
Control group	58	58.21 ± 8.93	54.36 ± 8.52	56.18 ± 8.76	55.73 ± 8.62	52.63 ± 9.24
t price		5.632	6.127	5.983	6.052	7.836
P price		<0.001	<0.001	<0.001	<0.001	<0.001

After 4 weeks of intervention, the scores of somatic function, role function, emotional function and social function in the observation group were significantly increased compared with that before intervention ($P < 0.01$), and the score of fatigue symptom was significantly reduced ($P < 0.01$), and all indicators were significantly better than that in the control group ($P < 0.01$) (Table 8).

4.5. Comparison of Safety between the Two Groups

In the observation group, there was 1 case of mild skin itching (the drug was not stopped, and it was relieved after reducing the water temperature), and the incidence of adverse reactions was 1.7%; in the control group, there was no adverse reaction, and the comparison of the incidence of adverse reactions between the two groups showed no statistically significant difference ($\chi^2 = 0.336$, $P = 0.562$).

5. Discussion

The clinical response (CRF) in colorectal cancer patients undergoing chemotherapy is the result of multiple factors. Chemotherapy drugs directly impair bone marrow hematopoietic function, leading to anemia and decreased immune function, while also triggering neuroendocrine disorders and chronic inflammatory responses, resulting in persistent fatigue [8] [9]. Current clinical interventions for CRF primarily focus on symptomatic support with limited efficacy. Traditional Chinese medicine (TCM), however, demonstrates unique advantages in CRF management through holistic regulation. Professor Chen Jun's team published "Exploring the Pharmacodynamic Basis and Potential Molecular Mechanisms of Topical Application of Pungent-Heat Herbal Volatile Oils Based on Network Pharmacology," which analyzed 20 pungent herbal volatile oils using stepwise discrimination methods. The study revealed that heat-inducing volatile oils (containing high concentrations of sesquiterpenes) exhibit significantly stronger transdermal penetration effects compared to cold-natured oils like mint. Moreover, sesquiterpene components can form a "stratum corneum storage effect" that prolongs drug release duration. This "hot-natured efficacy" principle aligns closely with the selection of heat-inducing herbs such as *mugwort* and ginger in TCM formulas, providing chemical and pharmacodynamic evidence for the therapeutic approach of warming and unblocking meridians [10].

This study posits that chemotherapy-induced "medication toxicity" in colorectal cancer patients leads to insufficient qi-blood production and impaired circulation. The herbal formula combines *Astragalus*, *Codonopsis*, *Atractylodes*, and *Poria* to strengthen spleen function, *Eucommia* and *Achyranthes* root to tonify kidneys and lumbar strength, while *Angelica*, *Ligusticum*, *Spatholobus* Root, and *Carthamus* promote blood circulation and resolve stasis. *Mugwort* and ginger further warm and unblock meridians. This comprehensive approach achieves dual enhancement of spleen-kidney function and harmonizes qi-blood balance, aligning with the pathophysiological characteristics of CRF (Chronic Fatigue Syndrome).

Traditional Chinese herbal foot baths exert their effects through the following mechanisms: 1) Transdermal absorption: *Astragalus* polysaccharides in *Astragalus membranaceus* enhance immune function and inhibit inflammatory factor release [11]; Curcuma oil in *Angelica sinensis* improves microcirculation and promotes hematopoietic function [12]; *Eucommia* glycosides in *Eucommia ulmoides* exhibit anti-fatigue and endocrine-regulating effects [13]. 2) Thermogenic stimulation: Medicinal solutions at around 40°C dilate local blood vessels, improve circulation and lymphatic drainage, accelerate metabolic waste elimination, while stimulating acupoints on the sole (e.g., Yongquan and Taixi) to regulate visceral functions via meridian pathways [13]. 3) Neurohumoral regulation: The therapeutic comfort during foot baths alleviates anxiety, stimulates neuropeptide release such as endorphins, and reduces perceived fatigue [14].

The study results demonstrated that after 4 weeks of intervention, the observed group showed significantly lower overall progression-free survival (PFS) scores and subscale ratings compared to the control group ($P < 0.01$), indicating that herbal infusion therapy can improve chronic fatigue syndrome (CRF) through behavioral, emotional, sensory, and cognitive dimensions. The observed group exhibited a marked reduction in TCM syndrome scores ($P < 0.01$), significant improvements in quality-of-life function scores, and a notable decrease in fatigue symptom scores ($P < 0.01$), suggesting that herbal infusion therapy may indirectly enhance patients' quality of life by alleviating fatigue. Safety analysis revealed no significant difference in adverse reaction rates between groups, confirming the therapy's good safety profile.

Limitations of this study: 1) The small sample size and single-center design may introduce bias; 2) No pharmacological component analysis or in-depth exploration of the mechanism of action; 3) Short follow-up duration necessitates further observation of long-term efficacy. Future studies could adopt a multicenter, large-sample approach, utilize modern molecular biology techniques to elucidate the mechanism, and optimize washing protocols (including drug concentration, temperature, and duration) to enhance therapeutic outcomes.

6. Conclusion

Chinese herbal bath can effectively relieve cancer fatigue in patients with colorectal malignant tumor chemotherapy, improve the clinical symptoms of spleen and kidney deficiency and blood stasis, improve quality of life, and has good safety, which is worth clinical application.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- [1] Sung, H., Ferlay, J., Siegel, R.L., Laversanne, M., Soerjomataram, I., Jemal, A., *et al.* (2021) Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mor-

- tality Worldwide for 36 Cancers in 185 Countries. *CA: A Cancer Journal for Clinicians*, **71**, 209-249. <https://doi.org/10.3322/caac.21660>
- [2] Stone, P., Aapro, M., Bohuslavizki, K.H., *et al.* (2017) Cancer-Related Fatigue: ESMO Clinical Practice Guidelines for Diagnosis and Management. *Annals of Oncology*, **28**, iv119-iv130.
- [3] Cancer Care Committee of Chinese Nursing Association (2021) Practice Guidelines for Cancerian Fatigue Care (2021 Edition). *Journal of Chinese Nursing*, **56**, 1481-1487.
- [4] Higgins, T., Richardson, A., Greig, C., *et al.* (2017) Pharmacological Interventions for Cancer-Related Fatigue in Adults. *Cochrane Database of Systematic Reviews*, No. 11, CD009402.
- [5] Zhou, D. (2011) Oncology of Traditional Chinese Medicine. China Press of Traditional Chinese Medicine, 326-328.
- [6] Wang, Y., Li, Y. and Zhang, J. (2020) Effect of Herbal Infusion Combined with Acupressure on Improving Fatigue in Liver Cancer Patients after Interventional Therapy. *Journal of Chinese and Western Medicine*, **40**, 566-569.
- [7] Zhang, L., Liu, J. and Wang, Y. (2021) The Effect of Huangqi Danggui Decoction Soaking and Washing on Fatigue and Quality of Life in Elderly Diabetic Patients with Peripheral Neuropathy. *Journal of Chinese Experimental Formulas*, **27**, 143-148.
- [8] Chinese Anti-Cancer Association Colorectal Cancer Committee and Colorectal Oncology Group of Chinese Medical Association Oncology Branch (2020) Diagnosis and Treatment Guidelines for Colorectal Cancer in China (2020 Edition). *Journal of Chinese Journal of Gastrointestinal Surgery*, **2**, 521-540.
- [9] Zheng, X. (2002) Clinical Research Guidelines for New Traditional Chinese Medicine Drugs (Trial). China Medical Science and Technology Press, 356-358.
- [10] Chen, J., He, T., Yan, N. and Duan, J. (2024) The "Heat Tolerant Effect" Principle and Mechanism of Transdermal Olfactory Enhancement by Chinese Herbal Volatile Oils Based on Pharmacological Characteristics. *Journal of Chinese Materia Medica*, **55**, 7144-7154.
- [11] Zhang, Y., Li, W. and Wang, Q. (2018) Advances in Pharmacological Effects of Ferulic Acid. *Journal of Drug Evaluation Research*, **41**, 912-917.
- [12] Chen, M., Yang, M. and Zhu, W. (2019) Research Progress on Chemical Composition and Pharmacological Effects of *Eucommia Ulmoides*. *Chinese Journal of Traditional Chinese Medicine*, **44**, 2492-2502.
- [13] Liu, M. and Wang, F. (2016) Traditional Chinese Medicine Health Preservation and Rehabilitation. China Press of Traditional Chinese Medicine, 156-158.
- [14] Wang, L., Yang, M. and Zhou, L. (2022) Effects of Chinese Herbal Infusion on Cancer Fatigue and Sleep Quality in Breast Cancer Chemotherapy Patients. *Journal of Integrated Traditional Chinese and Western Medicine*, **42**, 316-319.