

ORIGINAL RESEARCH

Effects of Qiye Shen'an Pian Combined with Glutamate and Vitamin B1 on Fatigue State, Immune Function and Quality of Life in Patients with Chronic Fatigue Syndrome

Jun Liu, MM; Junfeng Liao, BM; Fan Lin, MM; Chenyang Nie, MM

ABSTRACT

Objective • To observe the effects of Qiye Shen'an Pian combined with ghrelin and vitamin B1 on the fatigue status, immune function, and quality of life of patients with chronic fatigue syndrome (CFS), focusing specifically on the efficacy of this combination therapy.

Methods • In this prospective study, 106 CFS patients admitted from June 2021 to June 2023 were selected. Using a simple randomisation method, patients were divided into two groups. The conventional group received glutathione and vitamin B1 treatment, while the Qiye Shen'an group received an additional treatment with Qiye Shen'an Pian on top of the standard glutathione and vitamin B1, for a continuous period of 8 weeks. To assess treatment efficacy, we compared immune function-related indexes (such as CD4⁺, CD8⁺, CD4⁺/CD8⁺ ratio, NK cell ratio), free radical metabolism indexes (like lipid peroxide, catalytic enzyme, and superoxide dismutase levels), TCM symptom scores, FS-14 scores, and SPHERE scores between the two groups. Adverse reactions were also recorded and statistically analyzed.

Results • Notable improvements were observed in both groups, with the Qiye Shen'an group showing particularly significant enhancements. Post-treatment immune function indicators revealed a greater decrease in CD8⁺ levels in the Qiye Shen'an group ($P < .05$), along with marked increases in CD4⁺, CD4⁺/CD8⁺ ratio, and NK cell ratio in both groups, more so in the Qiye Shen'an group ($P < .05$). Free radical metabolism

indicators, including lipid peroxide levels, decreased in both groups, with a more significant reduction observed in the Qiye Shen'an group ($P < .05$). The levels of catalytic enzyme and superoxide dismutase increased in both groups, with a notably higher improvement in the Qiye Shen'an group ($P < .05$). In terms of TCM symptom scores, FS-14 scores, and SPHERE scores, both groups showed a reduction after treatment, with a more substantial decrease in the Qiye Shen'an group ($P < .05$).

Conclusion • In this study, we observed that Qiye Shen'an Pian combined with glutathione and vitamin B1, produced significant improvements in immune function and antioxidant capacity in patients with chronic fatigue syndrome (CFS). Specifically, patients' CD4⁺, CD8⁺ levels, and superoxide dismutase (SOD) activity all showed positive changes after treatment. These changes are crucial for enhancing patients' disease resistance and reducing fatigue symptoms. Qiye Shen'an Pian combined with glutamine and vitamin B1 in the treatment of CFS can alleviate the fatigue state of patients, improve the immune function, enhance the antioxidant capacity of the body, and improve somatic and psychological health. These findings underscore the potential of this combination therapy in effectively managing chronic fatigue syndrome, offering a promising direction for future treatment strategies. (*Altern Ther Health Med*. [E-pub ahead of print.])

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INTRODUCTION

Chronic fatigue syndrome (CFS) is a multifaceted condition characterized by persistent and debilitating fatigue. Globally, it affects approximately 17 to 24 million individuals, significantly

impacting their quality of life.¹ The complexity of CFS presents considerable challenges in treatment, with current Western medical approaches often limited to symptomatic relief and generally yielding modest efficacy.² This highlights a pressing need for alternative therapeutic strategies.

From the perspective of Traditional Chinese Medicine (TCM), CFS is conceptualized within the frameworks of "slackness", "fatigue", and "soft laziness". Central to TCM's understanding of CFS is the notion of heart and spleen deficiency, stemming from factors like innate endowment deficiency, dietary imbalances, emotional disturbances, prolonged illness, and overexertion.³ Addressing these imbalances, particularly through approaches that replenish the spleen and nourish the heart, forms the crux of TCM's approach to treating CFS. In this context, Qiye Shen'an Pian, a TCM formulation whose main ingredient is the total saponin extracted from *Panax pseudo-ginseng*, emerges as a relevant intervention. Traditionally used to benefit qi, tranquilize the mind, activate blood circulation, and relieve pain, Qiye Shen'an Pian is particularly effective for symptoms such as palpitation, chest tightness, and insomnia caused by

cardiac qi deficiency and stagnation of cardiac blood.⁴ Its potential in treating CFS symptoms, therefore, warrants exploration. The study at hand aims to evaluate the efficacy of Qiye Shen'an Pian, in combination with glutathione and vitamin B1, in treating CFS. This combination is hypothesized to offer synergistic effects, targeting not just the symptoms but also the underlying causes of CFS, potentially improving immune function, antioxidant capacity, and overall quality of life.⁵ Our findings could significantly contribute to alternative treatment strategies for CFS, offering new perspectives and approaches in clinical practice, thereby enhancing patient outcomes and quality of life.⁶

MATERIALS AND METHODS

General information

Prospectively selected 106 CFS patients were admitted from June 2021 to June 2023, 75 males and 31 females, with a minimum age of 20 years a maximum age of 60 years, and a mean age of (32.58±7.14) years, as the study subjects. The above patients were divided into two groups using a simple randomisation method. To ensure unbiased participant selection and grouping, patients were divided into the conventional and Qiye Shen'an groups using a computer-generated randomization process. This process was conducted using the RAND function in Microsoft Excel, ensuring a random and unbiased allocation of participants into each study group. Informed consent was obtained from all participants before the commencement of the study. Additionally, to avoid any conflict of interest and to maintain the integrity of the study, we disclose that there were no external funding sources or financial conflicts influencing the study's outcomes. The baseline characteristics of the two groups, including age, gender, disease duration, and comorbidities, were found to be comparable. Any significant differences observed were statistically adjusted in the analysis to ensure that these did not bias the study outcomes.

In the conventional group, 53 cases were treated with glutathione and vitamin B1, 35 males and 18 females, aged from 20 to 60 years old, with an average age of (33.05±6.59) years, with a disease duration of 7 to 45 months, with an average duration of (27.14±5.96) months; among them, 4 cases were accompanied by type 2 diabetes mellitus, 7 cases were accompanied by hyperlipidaemia, and 3 cases were accompanied by hypertension. In the group of 53 cases treated with Qiye Shen'an Pian in combination with glutathione and vitamin B1, there were 40 males and 13 females, aged from 20 to 60 years old, with an average age of 32.14±7.89 years old, and the disease duration ranged from 7 to 45 months, with an average duration of 26.58±6.04 months; among them, two cases were accompanied by type 2 diabetes, six cases were accompanied by hyperlipidaemia, and five cases were accompanied by hypertension. The general information of the two groups was compared between the groups and found to be comparable ($P > .05$).

Inclusion criteria: (1) Western medicine meets the CFS criteria established by the US Centers for Disease Control,⁶

Chinese medicine meets the criteria of "deficiency and fatigue" in the Guiding Principles for Clinical Research of New Chinese Medicines,⁷ and the dialectical typing is a deficiency of the heart and spleen: (1) Primary symptoms: tiredness and fatigue, poor appetite, palpitation, fatigue, and laziness; (2) secondary symptoms: stuffy or loose stools in the epigastric region, dizziness, yellowish face, pale lips, and tongue; (3) Tongue and pulse: pale and fat tongue, thin white moss, and weak pulse; (2) age 18-60 years old; (3) not receiving relevant pharmacological interventions within 4 weeks; (4) signing a written agreement on their own.

Exclusion criteria: (1) pregnant or lactating patients; (2) fatigue caused by other primary diseases; (3) combined with malignant tumors; (4) accompanied by serious diseases of various tissues and organs of the body; (5) allergies; (6) inability to actively cooperate with the physician, which affects the efficacy of treatment.

Methods

The conventional group was given glutamine tablets (Guangdong Hengjian Pharmaceutical Co., Ltd., specification: 10 mg) and vitamin B1 tablets (Shanxi Fenhe Pharmaceutical Co., Ltd., specification: 10 mg) for treatment, oral glutamine tablets 10-30mg/times, 3 times/d. Oral vitamin B1 tablets 10 mg/times, 3 times/d.

In the Qiye Shen'an group, Qiye Shen'an Pian (Yunnan Weihe Pharmaceutical Co., Ltd., specification: 0.5 g/tablet) was combined with Glutathione and Vitamin B1, the western medicine treatment was the same as that of the control group, and Qiye Shen'an Pian was taken orally 3-5 times/times, 3 times/d. The two groups were treated continuously for 8 weeks. Prior to conducting this study, we obtained ethical approval from relevant agencies to ensure that the study complied with ethical guidelines and appropriate guidelines. This step is critical to ensure the ethics of the study and the safety of participants. A systematic procedure was in place for monitoring and documenting any adverse events during the study. These events were recorded and analyzed to assess any correlation with the treatments. Necessary measures were taken to address these events promptly, ensuring the safety and wellbeing of the participants. In the methods section, we also describe in detail the study design, sample selection criteria, and statistical methods used to ensure the accuracy and reliability of the study results.

Observation indexes and testing methods

5 ml of peripheral venous blood in fasting state was drawn from both groups before treatment and after 8 weeks of treatment, and one blood specimen was centrifuged and processed at 3000 r/min, 10 min. The serum was taken and divided into two EP tubes. For the ELISA and flow cytometry tests, blood samples were stored at -80°C until analysis. The ELISA for lipid peroxide (LPO) and catalase (CAT) was conducted under standardized conditions, following the manufacturer's protocol. The flow cytometry analysis for NK cell ratio, CD8⁺, and CD4⁺ was performed using a standardized

Table 1. Comparison of immune function related indexes between the two groups ($\pm$ s)

Group	n	CD4 ⁺		CD8 ⁺		CD4 ⁺ /CD8 ⁺		NK cell ratio(%)	
		Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Regular Group	53	32.52 $\pm$ 3.46	37.15 $\pm$ 4.01 ^a	31.52 $\pm$ 3.02	27.44 $\pm$ 2.85 ^a	1.03 $\pm$ 0.25	1.35 $\pm$ 0.29 ^a	13.85 $\pm$ 2.95	15.88 $\pm$ 3.11 ^a
Qiyue Shen'an Group	53	31.98 $\pm$ 3.57	42.51 $\pm$ 4.25 ^a	32.01 $\pm$ 2.89	23.77 $\pm$ 2.64 ^a	0.99 $\pm$ 0.27	1.74 $\pm$ 0.36 ^a	13.79 $\pm$ 3.06	19.41 $\pm$ 2.87 ^a
<i>t</i>		0.791	6.678	0.853	6.877	0.791	6.805	0.103	6.073
<i>P</i> value		.431	.000	.395	.000	.431	.000	.918	.000

^aCompared with pre-treatment, $P < .05$.**Table 2.** Comparison of free radical metabolism indicators between two groups [($\pm$ s), U/mL]

Group	n	CAT		SOD		LPO	
		Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Regular Group	53	42.05 $\pm$ 12.78	51.69 $\pm$ 13.69 ^a	77.85 $\pm$ 10.58	86.65 $\pm$ 12.07 ^a	7.32 $\pm$ 1.25	6.25 $\pm$ 1.04 ^a
Qiyue Shen'an Group	53	41.54 $\pm$ 11.69	58.74 $\pm$ 10.58 ^a	78.43 $\pm$ 9.87	93.47 $\pm$ 11.54 ^a	7.26 $\pm$ 1.33	5.46 $\pm$ 0.97 ^a
<i>t</i>		0.214	2.966	0.292	2.973	0.239	4.044
<i>P</i> value		.831	.004	.771	.004	.811	.000

^aCompared with pre-treatment, $P < .05$.

protocol to ensure consistency and reliability of the results. The xanthine oxidase assay was used to detect superoxide dismutase (SOD). The kits were the products of Nanjing Jianjian Bioengineering Institute, and the instrument was a Thermo Fisher MK3 enzyme labeler. One serum specimen was used to detect NK cell ratio, CD8⁺, CD4⁺ by FACS Calibur type flow cytometer of BD Company, USA, and calculate CD4⁺/CD8⁺.

TCM evidence points reference to the "Guiding Principles for Clinical Research of New Chinese Medicines"⁷ to develop, divided into two parts of the main symptoms and secondary symptoms, the first part of the first part of the body fatigue and weakness, poor appetite, palpitations, laziness, and four items, the score range of 0-6 points, the higher the score corresponds to the symptoms of the more serious. The second part is about 4 items: stuffiness or loose stools in the epigastric region, dizziness, yellowish color of the face, and pale color of the lips and tongue, with a score range of 0-3, and the higher score corresponds to the more severe symptom.

Fatigue Scale-14 (FS-14) score⁸: a total of 14 items, consisting of 8 physical fatigue scores and brain fatigue scores. The sum of all items is the total fatigue, out of a total score of 14, the higher the score, the more fatigue.

Somatic and Mental Health Reporting Scale (SPHERE) score⁹: 34 items in the questionnaire, a single "yes" is counted as 1 point, "no" is counted as 0 points, the sum of all the item scores for the total score, a full score of 34 points, the closer the score is to 34, the worse the patient's potential physical and psychological condition is.

The occurrence of adverse reactions such as stomach discomfort, dry mouth, breast swelling, abdominal pain, and dizziness were recorded in both groups.

Statistical analysis

The data were processed by Statistic Package for Social Science (SPSS) 19.0 (SPSS Inc., Chicago, IL, USA), with specific tests including ANOVA and regression analysis to assess the significance of the findings. Additionally, methods such as stratification and multivariable adjustments were

employed to control for potential confounding variables. And the measurement indexes (such as free radical metabolism indexes, FS-14 scores, SPHERE scores, etc.) that had been proved to be normally distributed and satisfied the chi-square were expressed as ($\pm$ s) and compared with *t* tests and those that involved counting information (such as the type of comorbid diseases and gender) were described by *n* (%) and compared with the χ^2 -tests, and $P < .05$ indicated that there was statistical significance.

RESULTS

Comparison of immune function-related indexes between the two groups

Before treatment, no statistical difference was seen in the immune function-related indexes of the two groups ($P > .05$). After treatment, CD8⁺ decreased in the two groups and was lower in the Qiyue Shen'an group than the conventional group ($P < .05$); CD4⁺, CD4⁺/CD8⁺, and NK cell ratio increased in the two groups and was higher in the Qiyue Shen'an group than the conventional group ($P < .05$). See Table 1.

Comparison of free radical metabolic indexes between the two groups

Before treatment, no statistical difference was seen between the free radical metabolic indexes of the two groups ($P > .05$). After treatment, LPO decreased in the two groups, and it was lower in the Qiyue Shen'an group than the conventional group ($P < .05$); CAT and SOD increased in the two groups, and it was higher in the Qiyue Shen'an group than the traditional group ($P < .05$). See Table 2.

Comparison of Chinese medicine symptom points between the two groups

Before treatment, no statistical difference was seen between the TCM symptom scores of the two groups ($P > .05$). After treatment, the scores of 4 primary symptoms (tiredness, fatigue, poor appetite, palpitation, and laziness) and 4 secondary symptoms (stuffy or loose stools in the epigastric region, dizziness, yellowish color of the face, and pale color of the lips and tongue) of the two groups were

Table 3. Comparison of Traditional Chinese Medicine Syndrome Scores between Two Groups [(±), points]

Group	n	Tiredness		Fatigue		Poor appetite		Palpitation and laziness	
		Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Regular Group	53	4.38±0.84	2.31±0.63 ^a	3.99±0.76	2.14±0.42 ^a	4.12±0.68	2.28±0.36 ^a	3.87±0.66	1.97±0.48 ^a
Qiyue Shen'an Group	53	4.44±0.81	1.44±0.35 ^a	4.05±0.69	1.37±0.36 ^a	4.20±0.61	1.42±0.25 ^a	3.79±0.75	1.24±0.26 ^a
<i>t</i>		0.374	8.788	0.426	10.134	0.638	14.285	0.581	9.735
<i>P</i> value		.709	.000	.671	.000	.525	.000	.563	.000
Group	n	Dullness or loose stools		Dizzy		Yellowish of the face		Pale lips	
		Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Regular Group	53	2.33±0.26	1.46±0.33 ^a	2.05±0.28	1.41±0.21 ^a	2.33±0.25	1.52±0.21 ^a	1.78±0.23	1.02±0.21 ^a
Qiyue Shen'an Group	53	2.24±0.31	0.74±0.21 ^a	1.97±0.32	0.68±0.25 ^a	2.31±0.36	1.01±0.22 ^a	1.82±0.27	0.76±0.20 ^a
<i>t</i>		1.619	13.401	1.370	16.277	0.332	12.208	0.821	6.527
<i>P</i> value		.108	.000	.174	.000	.740	.000	.414	.000

^aCompared with pre-treatment, *P* < .05.**Table 4.** Comparison of FS-14 scores and SPHERE scores between two groups[(±), points]

Group	n	FS-14 score		SPHERE score	
		Before treatment	After treatment	Before treatment	After treatment
Regular Group	53	10.14±1.52	6.75±1.02 ^a	18.98±3.14	14.14±2.85 ^a
Qiyue Shen'an Group	53	9.98±1.47	4.29±0.77 ^a	20.12±2.97	6.85±2.11 ^a
<i>t</i>		0.551	14.013	1.920	14.966
<i>P</i> value		.583	.000	.058	.000

^aCompared with pre-treatment, *P* < .05.

reduced, and it was even lower in the Qiyue Shen'an group compared with that of the conventional group (*P* < .05). See Table 3.

Comparison of FS-14 score and SPHERE score between two groups

Before treatment, no statistical difference was seen between the FS-14 score and the SPHERE score of the two groups (*P* > .05). After treatment, FS-14 scores and SPHERE scores decreased in both groups and were lower in the Qiyue Shen'an group than in the conventional group (*P* < .05). See Table 4.

Safety

Two cases of stomach discomfort, one case each of dry mouth and breast swelling, occurred in the conventional group. Four cases of gastric discomfort, one case each of abdominal pain and dizziness, occurred in the Qiyue Shen'an group. Comparison of adverse reactions between the two groups showed no statistical difference (*P* > .05).

DISCUSSION

CFS is a disease officially named by the Centers for Disease Control in 1988, with clinical complaints of fatigue and severe incapacity. Its pathogenesis is complex, and existing studies have suggested that it may be related to viral infections, immune dysfunction, endocrine disorders, genetics, and psychosocial factors.¹⁰ Glutathione can act on the autonomic nervous system and endocrine center, and has pharmacological effects such as regulating autonomic function, correcting endocrine disorders, sedation, and antioxidant effects.¹¹ Vitamin B1 can maintain the balance of oxidative metabolism in the brain, improve glucose metabolism, participate in maintaining the normal function of the nervous system, and regulate the function of the gastrointestinal tract.¹² In Western medicine, glutamine combined with vitamin B1 is often used to treat CFS, but the overall efficacy is not satisfactory. While

our findings align with the current understanding of CFS and its complex pathogenesis, a comparative analysis with other studies reveals both similarities and discrepancies. For instance, our observations on the efficacy of glutathione and vitamin B1 mirror some previous studies but also present unique insights, particularly in the combination with Qiyue Shen'an Pian.

The person who suffers from deficiency is mostly due to innate insufficiency and loss of nourishment in later life, which makes the heart and spleen weak and causes disease.⁸ Qiyue Shen'an Pian is extracted from the traditional Chinese medicine *Panax pseudoginseng*, which is good for benefiting qi, strengthening the spleen, nourishing the heart, and calming the mind. *Poria cocos* strengthens the spleen and seeps away dampness, nourishes the heart and calms the mind; Qiyue Shen'an Pian is extracted from the traditional Chinese medicine *Panax ginseng*, the main body of which is 20(S)-protopanax ginseng diol-type saponin, which is a natural drug that can enhance the derivation of nerve fibers regulated by nerve growth factor, and contribute to the survival of nerve cells in the cerebral cortex, and can repair or change the structure of cell membranes. It can repair or change the structure of the cell membrane, thus changing the cell properties and strengthen the cell role. The treatment of neurasthenia of this drug does not simply inhibit the excitation of the nervous system but through the nutritional regulation of the central nerve cells, the excitation of the center, inhibition of bidirectional regulation, and play a role in the excitation, inhibition of the system to achieve a balance in the activities of excitation and inhibition, at the same time, Qiyue Shen'an Pian has an analgesic, sedative and hypnotic effect.¹³ The mechanisms by which glutathione, vitamin B1, and Qiyue Shen'an Pian components act on CFS are notable. Their combined action addresses the multifaceted pathology of CFS, including immune dysfunction and oxidative stress, offering a more comprehensive treatment approach. This synergy is particularly relevant in managing the diverse symptoms of CFS. Our study's findings have significant clinical implications. This novel treatment approach could be integrated into existing CFS management strategies, potentially offering enhanced benefits to patients who have not responded adequately to conventional treatments. Specifically, patients with pronounced oxidative stress and immune dysfunction might benefit the most from this treatment.

In this study, we found that after treatment, the TCM symptom score, SPHERE score, and FS-14 score decreased in

both groups and were lower in the Qiye Shen'an group than in the conventional group. The improvements observed in TCM symptom score, SPHERE score, and FS-14 score in the Qiye Shen'an group signify a notable enhancement in patients' quality of life and functional capacity. These improvements highlight the potential of this treatment regimen in addressing the debilitating symptoms of CFS, offering hope for improved patient outcomes. This result suggests that Qiye Shen'an Pian combined with ginseng and vitamin B1, can better alleviate patients' fatigue state and improve somatic and psychological health in the treatment of CFS. This is due to the fact that ginseng saponins 1-52 contained in ginseng in Qiye Shen'an Pian have pharmacological effects such as lowering blood pressure, regulating lipids, lowering glucose, promoting sleep, anti-fatigue, and antioxidant, etc. Among them, ginseng saponins 3, 4, 8, and 12 have the same structure with ginsenosides Rb1, Rb3, Rb, and Rf2, which can regulate the immune function by promoting the production of NK cells in the spleen and increasing the number of T lymphocytes to alleviate the degree of fatigue.¹⁴ The polysaccharides and saponins contained in Astragalus have pharmacological effects such as enhancing immunity, anti-fatigue, antioxidant, and anti-inflammatory, and can improve sleep quality and mental status.¹⁵ Longan meat is rich in niacin, vitamins, phospholipids, sugars, and proteins, which can promote the regeneration of haemoglobin, improve concentration and enhance mood.¹⁶ Tanshinone contained in *Salvia miltiorrhiza* can scavenge oxygen free radicals and enhance cellular activity; tanshinone can reduce fatigue by lowering the level of homocysteine in the body and improving cardiovascular blood perfusion.¹⁷

Abnormal immune function and oxidative stress damage are important mechanisms causing CFS, so this study tries to explore the therapeutic mechanism of Qiye Shen'an Pian on CFS from the laboratory testing of immune cells and free radical metabolism indexes. The level of T-lymphocyte subpopulation is an important indicator reflecting the cellular immune function of the organism. CD4⁺ T-lymphocytes are helper function cells involved in the organism's defense barrier; CD8⁺ T-lymphocytes can inhibit immune cell activity. Reduced CD4⁺/CD8⁺ suggests that the body's immunity is reduced.¹⁸ NK cells are the core cells of the body's immune system, and a decrease in their level can affect the activation state of the immune system and cause immune system dysfunction.¹⁹ LPO and CAT are important indicators reflecting the degree of the body's oxidative stress response, and SOD reflects the body's own antioxidant capacity.²⁰ In this study, we found that after treatment, the CD8⁺ was lower in both groups and lower in the Qiye Shen'an group than in the conventional group; the CD4⁺, CD4⁺/CD8⁺, and NK cell ratios were elevated in both groups and higher in the Qiye Shen'an group than in the conventional group. This result suggests that the treatment of CFS with Qiye Shen'an Pian combined with ghrelin and vitamin B1 can improve the immune function and the antioxidant capacity of the body, which is an important mechanism to alleviate the fatigue state of the patients. The

saponin-like components contained in ginseng in Qiye Shen'an Pian can enhance NK cell activity and regulate the ratio of T cell subpopulations, thus increasing the body's immune function, as well as scavenging oxygen free radicals, regulating cholesterol metabolism, and decreasing the degree of damage caused by oxidative stress in the body.²¹

In this study, it was also found that two cases of stomach discomfort, one case each of dry mouth and breast swelling, occurred in the conventional group. Four cases of gastric discomfort, one case each of abdominal pain and dizziness, occurred in the Qiye Shen'an group. The incidence of adverse reactions was similar in both groups. This result suggests that the addition of Qiye Shen'an Pian did not significantly increase the risk of adverse reactions and has a good safety profile. The treatment's impact on immune function and oxidative stress is a pivotal aspect of our study. The changes in T-lymphocyte subpopulations, NK cell ratios, and oxidative stress markers have significant clinical implications, suggesting a restoration of immune balance and reduction in oxidative stress in CFS patients.

This study demonstrates the significant effect of Qiye Shen'an Pian combined with glutathione and vitamin B1 in the treatment of chronic fatigue syndrome (CFS), providing new insights into alternative treatments for CFS. This discovery not only has a potentially significant impact on improving the quality of life of CFS patients but may also prompt clinicians to reconsider current treatment strategies, especially the application of combined traditional Chinese medicine treatments. Future studies should consider larger multicenter trials to validate these preliminary results and explore how different populations respond to this treatment. In addition, long-term follow-up studies are necessary to assess the lasting effects and potential side effects of treatment. At the same time, more in-depth research on the specific mechanism of action of Qiye Shen'an Pian combined with glutathione and vitamin B1 in the treatment of CFS will help us understand its therapeutic effect more comprehensively. Overall, the results of this study not only enrich our understanding of CFS treatments but also provide new directions for future clinical practice and research.

When discussing the results of this study, it is important to acknowledge several key limitations. First, in terms of sample size, although this study included 106 patients with chronic fatigue syndrome (CFS), which is sufficient for preliminary analysis, it may not be sufficient for broader conclusions. A larger sample size would help increase the generalizability and statistical power of the study results. Secondly, regarding the duration of the follow-up period, the treatment in this study lasted 8 weeks. This time period may not allow full assessment of the long-term effects and potential side effects of Qiye Shen'an Pian's combined glutathione and vitamin B1 treatment. Therefore, a longer follow-up is needed to understand the long-term safety and effectiveness of the treatment more fully. In addition, although grouping by simple randomization helped reduce selection bias, experimenter and participant bias may exist

due to the inability to implement a double-blind design. This study also did not detail the specific measures used to control for or assess these potential biases. Finally, although the study results indicate that Qiye Shen'an Pian combined with glutathione and vitamin B1 significantly improved the symptoms of CFS patients, the applicability of these findings may be limited by the specific characteristics of the study sample, such as geographic location, ethnicity background, and other factors. Therefore, these results may not be fully applicable to all patients with CFS. In future studies, considering these limitations and taking steps to address them will be important steps to improve the quality and reliability of the research. Acknowledging the limitations, future research directions include larger multicenter trials and long-term studies to validate and expand upon our findings. Such studies could offer more definitive insights into the long-term efficacy and safety of this treatment approach. The absence of a double-blind design in our study may introduce potential biases. Future studies should consider employing a double-blind, placebo-controlled design to minimize these biases and strengthen the validity of the findings. While our findings offer promising insights, their applicability to diverse demographic groups with CFS needs further exploration. Future studies should aim to include a broader range of participants to enhance the generalizability of the results.

In conclusion, the treatment of CFS with Qiye Shen'an Pian combined with ghrelin and vitamin B1 can alleviate patients' fatigue, improve immune function, enhance the body's antioxidant capacity, and improve somatic and psychological health. Our study presents a potentially impactful treatment strategy for CFS management, combining traditional and modern therapeutic approaches. The significant improvements observed in various clinical parameters highlight the potential of this combined treatment in enhancing the quality of life for patients suffering from CFS.

ETHICAL COMPLIANCE

This study was approved by the ethics committee of the General Hospital of Southern Theater Command of the Chinese People's Liberation Army. Signed written informed consent were obtained from the patients and/or guardians.

CONFLICT OF INTEREST

The authors have no potential conflicts of interest to report relevant to this article.

AUTHOR CONTRIBUTIONS

Jun Liu, Junfeng Liao, and Chenyang Nie designed the study and performed the experiments; Jun Liu, Junfeng Liao and Fan Lin collected the data, Chenyang Nie and Fan Lin analyzed the data, Jun Liu, Junfeng Liao, and Chenyang Nie prepared the manuscript. All authors read and approved the final manuscript. Jun Liu and Junfeng Liao contributed equally to this work.

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