

Research on Nourishing Yin Moisturizing Eye and Eyes Tea in the Treatment of Liver and Kidney Yin Deficiency and Dry Eye Clinical

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Abstract: To evaluate the clinical efficacy of Nourishing Yin Moisturizing Eye and Eyes Tea in treating moderate mixed dry eye with liver and kidney Yin deficiency, a total of 200 patients diagnosed with dry eye and Yin deficiency of the liver and kidney were selected at our hospital. They were randomly assigned to a control group and an observation group. The control group received treatment with sodium hyaluronate eye drops, while the observation group was treated with Nourishing Yin Moisturizing Eye and Eyes Tea in addition to sodium hyaluronate eye drops. The therapeutic effects were assessed. The total effective rate was 93% in the observation group and 76% in the control group, with a statistically significant difference ($P < 0.05$). It was concluded that the combination of Nourishing Yin Moisturizing Eye and Eyes Tea with sodium hyaluronate eye drops is superior to treatment with sodium hyaluronate eye drops alone for managing dry eye with liver and kidney Yin deficiency.

Keywords: Nourishing yin moisturizing eye and eyes tea; liver and kidney Yin deficiency; dry eye

1. Introduction

Dry eye disease (DED) is a chronic ocular surface condition caused by various factors, which manifests as instability of the tear film or an imbalance in the microenvironment due to abnormal mass, quantity, and dynamics of tears. This can lead to inflammatory reactions, tissue damage, and neurological abnormalities, resulting in a range of eye symptoms and visual dysfunction. Clinical manifestations include discomfort, visual fatigue, photophobia, redness, eye itching, foreign body sensation, burning sensation, and other symptoms. The widespread use of electronic devices, particularly exposure to various short videos in daily life, often leads to excessive eye strain and frequent visual stimulation, contributing significantly to the increased incidence of dry eyes in recent years. Globally, the prevalence of dry eyes ranges from 5.5% to 33.7%, while in China, it ranges from 10% to 33% [2-3].

The prevalence of dry eyes has significantly impacted our academic, professional, and personal lives. Consequently, an increasing number of ophthalmologists and individuals are concerned about effective prevention and treatment methods for this condition. Currently, the pathogenesis of dry eyes remains unclear, and it is believed to result from the combined action of various factors leading to decreased tear film stability, ocular surface inflammation, increased tear permeability, and sensory nerve abnormalities, ultimately culminating in the onset of dry eyes [4]. Western medicine traditionally employs artificial tears to ameliorate ocular surface conditions; however, this approach does not offer a complete cure. Conversely, traditional Chinese medicine has long recognized dry eye as belonging to the category of "deficiency of Yin" and "impairment of body fluids." According to traditional Chinese medicine syndrome differentiation, dry eye, as a multifaceted systemic condition, often responds well to treatment aimed at addressing the main pathogenesis of Yin deficiency. This approach aims to prolong tear film break-up time, enhance tear film stability, and alleviate dry eye symptoms, thereby demonstrating certain therapeutic effects [5]. By integrating traditional Chinese medicine concepts, a hospital-prepared tea drink named "Nourishing yin moisturizing eye and eyes tea" was combined with point application of sodium hyaluronate eye drops, signifying a combination of Chinese and Western medicine for the treatment of moderate mixed dry eye attributed to liver and kidney Yin deficiency. This integrative approach has shown promising clinical efficacy.

2. Clinical data

2.1. Source of cases

Between April 2023 and September 2023, a total of 200 patients diagnosed with moderate mixed dry eye and liver and kidney Yin deficiency were included in the study. This patient cohort comprised 58 males and 142 females aged between 30 and 70, with an average age of 51.8 ± 8.9 . The participants completed the Ocular Surface Disease Index (OSDI) questionnaire and were subsequently randomly assigned to either the control group or the observation group, each consisting of 100 patients. There were no significant differences in gender or age between the two groups ($P > 0.05$).

2.2. Diagnostic criteria

According to the Consensus of Chinese Dry Eye Experts: Examination and Diagnosis (2020) [6] and the International Traditional Chinese Medicine Clinical Practice Guide for Dry Eye by Peng Qinghua et al. (2021-12-14) [7], Western medicine diagnosis indicates moderate mixed dry eye, while traditional Chinese medicine identifies the syndrome as liver and kidney Yin deficiency syndrome.

3. Method

Control group: Both eyes were administered with sodium hyaluronate eye drops, 1-2 drops per eye, three times daily for a total of 28 days.

Observation group: In addition to the treatment administered to the control group, the participants in this group also received nourishing yin moisturizing eye and eyes tea multiple times a day for 28 days. The hospital preparation "Nourishing yin moisturizing eye and eyes tea" was composed of the following ingredients: 4g Dwarf Lilyturf Tuber, 4g Lycium Chinensis, 3g Radix Astragali Preparata, 3g Reed Rhizome, 2g Chrysanthemum, and 2g Folium Mori.

Observed indicators: (1) Subjective indicators: whether there is eye dryness, discomfort, fatigue, foreign body sensation, burning sensation, redness, eye itching, vision fluctuation, etc., please refer to the Quantity table of Eye surface diseases (OSDI) for details. (2) Objective indicators: ① Basic tear fluid secretion test: once every 7 days, The normal secretion was $> 10\text{mm} / 5\text{min}$, Reduced was 6 to 10 $\text{mm} / 5\text{min}$, Lack is $< 5\text{mm} / 5\text{min}$; ② Time of tear film rupture: once every 7 days, Normal for $> 10\text{s}$, Mild ranged from 10s to 8s, Moderate values ranged from 7s to 5s, Severe severity is $< 5\text{s}$; ③ Fluorescent staining of the angular conjunctiva: once every 7 days, 0-3 per quadrant, Total of 0 to 12 points, No point of corneal staining is 0; 1 to 30 dots are 1 point; 2 points for > 30 dots but not fused; Point color fusion, filaments and ulcers are 3 points.

Statistical methods: (1) data processing and analysis by statistical software SPSS26.0; (2) measurement data: expressed by mean \pm standard deviation ($\bar{X} \pm S$), by t-test; (3) count data: expressed by rate (%), by χ^2 Test; (4) $P < 0.05$ indicates a significant difference.

4. Results

Efficacy judgment criteria: According to the Efficacy Criteria for the Diagnosis of Ophthalmic Diseases in Traditional Chinese Medicine [8]:

(1) Cure: Complete disappearance of symptoms such as eye dryness and discomfort, with Schirmer test and tear secretion test results $> 10\text{mm}/5\text{min}$, tear film rupture time $> 10\text{s}$, and a fluorescent staining score of the corneal conjunctiva of 0. (2) Improvement: Reduction in eye symptoms, although mild discomfort may still persist. Additionally, there is an increase in tear production, prolonged tear film rupture time, and a lower score for corneal conjunctival fluorescent staining. (3) Failure: No significant improvement in eye symptoms, no increase in tear production, no prolongation of tear film rupture time, and no decrease in the score for corneal conjunctival fluorescent staining. (4) Effective rate = cure rate + improvement rate.

The comparison of the clinical treatment effect between the two groups is shown in Table 1.

The indicators of the two groups before and after treatment are shown in Table 2.

Table 1 Comparison of clinical treatment effects in the two groups

group	n	cure	Get better	of no avail	effective percentage	Prob
observation group	100	33	60	7	93	P<0.05
control group	100	10	66	24	76	P>0.05

P<0.05

Table 2 Comparison of the indicators before and after treatment in both groups

group	treat	OSDI score (score)	Tear secretion test (mm)	breakup time of tear film (s)	Fluorescent staining of angular conjunctiva (fraction)	Prob
observation group	pretherapy	35.9±4.6	4.5±0.3	6.2±0.8	1.7±0.5	P>0.05
	post-treatment	9.5±5.1	10.8±2.5	12.7±3.3	0.7±0.5	P<0.05
control group	pretherapy	35.7±4.4	4.9±0.3	6.1±0.7	1.6±0.5	P>0.05
	post-treatment	13.5±7.7	7.4±1.6	9.7±2.4	0.9±0.7	P<0.05

P<0.05

Conclusion: (1) the effective rate of the observation group was 93%, significantly higher than that of the control group, and the difference was statistically significant ($P < 0.05$). (2) Before the treatment, the two groups were compared in the disease quantity chart (OSDI), tear secretion test, tear film rupture time, and conjunctival fluorescein staining score without significant difference ($P > 0.05$); after the treatment, the two groups were compared in the disease index chart (OSDI), tear secretion test, tear film rupture time, and angular conjunctival staining score were better than before the treatment, and the observation group was better than the control group, the difference had statistical significance ($P < 0.05$).

5. Discussion

Currently, the treatment of dry eye mainly focuses on stabilizing tear film, repairing the microenvironment of the ocular surface, maintaining ocular surface moisture, and providing anti-inflammatory symptomatic relief. However, these methods often lead to short-term improvement in eye discomfort symptoms but are associated with short duration of efficacy, high drug dependence, and long-term medication which may affect tear film stability. Moreover, these approaches have limited effectiveness for patients with systemic symptoms and signs^[9]. In clinical practice, artificial tears such as sodium hyaluronate eye drops, polyvinyl alcohol eye drops, and carboxymethyl cellulose sodium eye drops are commonly used to alleviate dry eye symptoms. However, these treatments do not address the underlying factors of dry eyes and only provide temporary relief without addressing the root cause, resulting in suboptimal treatment outcomes^[10-11]. Traditional Chinese medicine (TCM) classifies dry eye disease into the category of "white and astringent disease, god water will be dry, dry and faint flower", which is a common ocular surface disease. According to "Plain Questions · Xuanming five Qi chapters", it is mentioned that the liver forms tears, and deficiency in liver Yin blood can lead to decreased tear secretion and dry eyes, thus requiring nourishment of Yin and blood to moisten the liver. Similarly, "Miraculous Pivot · Wu long jinye Bie" states that the viscera of the body fluid seep into the eye, and kidney essence deficiency due to kidney Qi deficiency affects its ability to nourish the eyes. In summary, TCM believes that liver and kidney Yin deficiency is the most common cause of dry eyes, accounting for 44.39% of cases, and the disease is based on "Yin deficiency"^[12]. The deficiency of liver and kidney Yin fluid is considered the fundamental pathogenesis of the disease and the material basis of its progression. Therefore, the principle of treatment involves nourishing the liver and kidney, replenishing Yin, moistening dryness, nourishing blood, and clearing the eyes. TCM has a long history of treating dry eye, and the integration of traditional Chinese and Western medicine for dry eye treatment has unique advantages and few side effects^[13]. Studies by Xie Yanyan et al.^[14], Zhang Juan et al.^[15], and Wu Ziwen et al.^[16] have demonstrated the significant relief of eye discomfort in patients with liver and kidney Yin deficiency dry eyes through acupuncture treatment and the combination of acupuncture with chrysanthemum yellow decoction plus and subtraction. Additionally, the combination of Erxian Tang ultrasonic atomization with 10% sodium hyaluronate eye drops has been found to effectively relieve symptoms of eye dryness and discomfort in patients with liver and kidney Yin deficiency syndrome. Integrated treatment of traditional Chinese and Western medicine can

fundamentally improve dry eye symptoms, relieve pain, and enhance the quality of life. In this clinical observation, the combined use of nourishing yin moisturizing eye and eyes tea, alongside sodium hyaluronate eye drops, aimed to treat liver Yin blood deficiency, ensure sufficient kidney essence, and promote the glory of Yin fluid in the eyes, resulting in moist luster and clear vision. The hospital preparation "Nourishing yin moisturizing eye and eyes tea" [17], containing Dwarf Lilyturf Tuber and *Lycium chinensis* as the main ingredients, aims to moisturize the lungs, nourish the liver and kidneys, benefit the stomach, and nourish Yin to improve dry eyesight. *Radix Astragali preparata* and *Reed Rhizome* serve to tonify Qi, nourish the middle, clear the lungs, and remove dampness, while *chrysanthemum* and *folium mori* work to clear the liver and improve eyesight. This herbal combination is designed to treat various ocular diseases. The results of this observation revealed that the effective rate of the observation group was 93%, significantly higher than that of the control group at 76%. Furthermore, the OSDI scores decreased, tear secretion test increased, tear film rupture time increased, and corneal fluorescence staining decreased, with the observation group demonstrating significantly better outcomes. Both treatment regimens were effective in treating moderate mixed dry eye syndrome with liver and kidney Yin deficiency, but the combination of nourishing yin moisturizing eye and eyes tea with sodium hyaluronate eye drops outperformed sodium hyaluronate eye drops alone.

The combined treatment of nourishing yin moisturizing eye and eyes tea, in conjunction with sodium hyaluronate eye drops, has shown remarkable effectiveness in patients with moderate mixed dry eyes characterized by liver and kidney Yin deficiency. The integrated approach of Chinese and Western medicine has demonstrated superior efficacy compared to Western medicine alone. This highlights the mutual benefits of integration, achieving better results with less effort. Additionally, it reduces the dependence on eye drops, shortens administration time, and mitigates potential eye surface damage caused by prolonged use of eye drops. Moreover, this combination treatment emphasizes the multi-target regulatory effects of Traditional Chinese Medicine (TCM), significantly improving dry eye symptoms and enhancing visual quality. Ultimately, it ensures a high quality of study, work, and life for patients. These outcomes underscore the advantages of integrated Chinese and Western medicine in ophthalmology and merit further promotion.

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