

## Original Article

# Clinical efficacy of Rose Yurong decoction in patients with lung meridian wind-heat type of rosacea

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**Abstract:** Objective: To explore the clinical effect of Rose Yurong Decoction in patients with wind-heat type of rosacea. Methods: The medical records of 109 patients with lung meridian wind-heat type of rosacea were collected retrospectively. They were divided into group A which received routine western medicine treatment and group B which was given Rose Yurong Decoction in addition to routine western medicine. The clinical efficacy, skin lesions, self-report scores, skin hydration, hemoglobin content and skin elasticity, and occurrence of adverse reactions of the two groups before and after treatment were compared. The recurrence was recorded during follow-up. Results: After 8 weeks of treatment, the papule pustules, telangiectasia, flushing erythema score, total lesion score, self-report score, hemoglobin content and recurrence in group B were lower than those in group A. The total effective rate, skin hydration and skin elasticity in group B were higher than those in group A ( $P < 0.05$ ). Conclusion: Rose Yurong decoction improves the efficacy of western medicine, which is beneficial to the skin health and reduces the recurrence rate of rosacea with high treatment safety.

**Keywords:** Rosacea, Rose Yurong decoction, Chinese herbs, recurrence, lung meridian wind-heat type

## Introduction

Rosacea is a chronic inflammatory diseases with high incidence, which occurs in the sebaceous glands and facial blood vessels, manifesting as transient flushing, papules, telangiectasia, sensitive skin, edema, dryness, and vascular congestion, etc. [1]. Rosacea usually causes a persistent redness in the central part of the face. The small blood vessels on the nose and cheeks are often swollen and visible. There are also a few patients with corneal injury, and periocular inflammation [2, 3]. There are four subtypes of rosacea, namely erythematotelangiectatic rosacea (ETR), which is associated with facial redness, flushing, and visible blood vessels; papulopustular (or acne) rosacea, which is associated with acne-like breakouts and often affects middle-aged women; rhinophyma, which is a rare form associated with thickening of the skin on the nose; and ocular rosacea, in which the symptoms are concentrated in the eye area [4, 5].

Rosacea not only seriously affects the appearance of patients, but also increases their psychological burden [6]. The pathogenesis of rosacea has not yet been fully clarified, and it is difficult to cure [7]. With the continuous improvement of people's health awareness, rosacea has also attracted people's attention in terms of treatment options. In western medicine, external and oral antibiotics are often prescribed. In addition to the clinical effects, western medicine also causes side effects with long-term recurrence rates [8, 9]. According to traditional Chinese medicine (TCM), rosacea is mostly caused by pathological factors such as fire, heat, dampness, stasis, and phlegm, promoting the rise of gallbladder qi to evaporate on the face and with difficult dispersion, which occurs on the surface of the skin and invades the face and nose. As a result, local sebum secretion is so exuberant that it obstructs the pores, thus leading to the onset of rosacea [10, 11]. Studies have shown that rosacea treatment based on syndrome differentiation can

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achieve satisfactory therapeutic efficacy [12]. There are a variety of TCM prescriptions for the clinical treatment of lung meridian wind-heat type of rosacea, including Loquat Qingfei Decoction, Qingfei Chuci Prescription, Decoction of Ephedra, Almond, Licorice and Gypsum, etc., and different prescriptions have various therapeutic effects, so it is necessary to explore an effective prescription for the treatment of this disease.

In order to improve the therapeutic effect of lung meridian wind-heat type of rosacea and reduce side effects, this study added Rose Yurong Decoction to the treatment regimen on basis of the theories explained above and explored the effects.

### Materials and methods

#### Data

The clinical data of 109 patients with lung meridian wind-heat type of rosacea in our hospital were collected retrospectively and divided into two groups based on the treatment method. Group A (n=54) received Doxycycline Hyclate Enteric-Coated Capsules combined with hydroxychloroquine tablets. Group B (n=55) were treated with Rose Yurong Decoction in addition to treatment similar to group A. (1) Inclusion criteria: patients who signed the informed consent; patients without contraindications for medication; patients with wind-heat in the lung meridian; those who did not receive tretinoin preparation, estrogen or glucocorticoids within the past 2 months or antibiotics within 1 month before enrollment; or patients without kidney, liver, immune system and cardiovascular system diseases. This study was approved by the medical ethics committee of Hangzhou Fuyang Hospital of Traditional Chinese Medicine. (2) Exclusion criteria: patients who received other treatment options during the observation period; patients with the presence of seborrheic dermatitis, psoriasis, acne vulgaris, and actinic diseases; patients with history of alcohol dependence; and patients with poor compliance.

#### Methods

Group A was given b.i.d. hydroxychloroquine sulfate tablets (H19990263, Shanghai Zhongxi Pharmaceutical Co., Ltd., 0.1 g×14 tablets) and

q.d. Enteric-coated capsules (Yongxin Pharmaceutical Industry (Kunshan) Co., Ltd. H200-30627, 0.1 g \* 10 capsules) at 30 min after meals for 8 weeks. Patients were instructed to wash their face with warm water every night and use a moisturizing cream (Kunming Bethany Biological Technology Co., Ltd 50 g) for 8 weeks.

Group B received the same treatment as group A and was additionally treated with Rose Yurong decoction. The prescription consisted of Licorice 5 g, Chinese yam 20 g, Coix seed 20 g, rice bean 15 g, Albizia flower 3 g, Poria 15 g, Rehmannia glutinosa 10 g, red peony root 10 g, rose buds 3 g, Light-yellow Sophora root 12 g, Scutellaria baicalensis 10 g, honeysuckle 15 g, Chinese trumpet creeper 3 g, densefruit pittany root-bark 15 g, loquat leaf 10 g, and white mulberry root-bark 10 g. For patients with yellowish complexion and frequent tiredness, white peony root and Codonopsis pilosula were added into the prescription. For those with heavy menstrual bleeding, celosia and sophora japonica were added. For those with black period blood clots and hypomenorrhea, motherwort, angelica or salvia was added. For patients with depression or with irritable moods, Chinese Thoroughwort root and radix gentianae were added. For patients with reduced appetite and loose stools, atractylodes were added. The above decoction was cooked with water for oral administration in the morning and evening, 30 min after meal for 8 weeks.

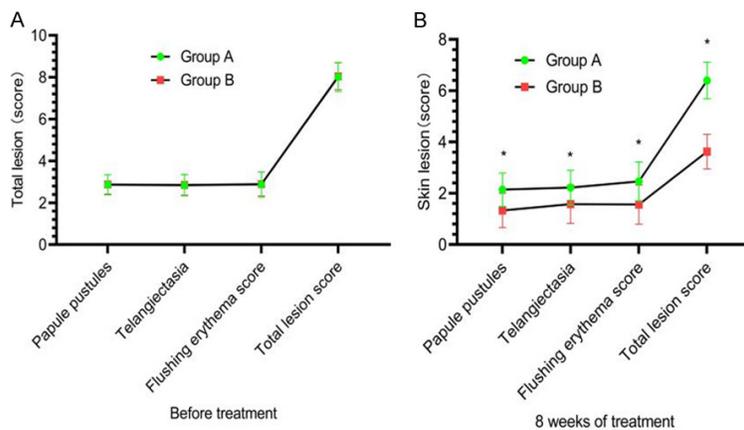
#### Outcome measurements

(1) Skin lesion scoring: Before treatment and after 8 weeks of treatment, the severity of skin lesion, including papule pustules, telangiectasia, and flushing, was scored. Zero indicates no skin lesions and 1, 2, 3 represents mild, moderate and severe lesions, respectively. The total points are the sum of lesion scoring [13]. (2) Self-report score: Before treatment and after 8 weeks of treatment, patients scored their discomfort in terms of eye discomfort, tingling, itching, dryness, burning sensation. Zero and 1 indicate no discomfort and the presence of one symptom. The total score is the sum of score of every symptom [14]. (3) Efficacy evaluation: The total score was the sum of the self-report score and skin lesion score. Efficacy index = (total score before treatment-total score after treat-

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**Table 1.** Comparison of baseline data [(%)]/(±)

Data	Group A (n=54)	Group B (n=55)	t/X <sup>2</sup>	P
Gender (Cases)	Male	12 (21.82)	0.184	0.668
	Female	44 (81.48)	43 (78.18)	
Age (year)	38.15 (1.09)	38.19 (1.12)	0.189	0.851
Course of disease (years)	5.12 (1.08)	5.28 (1.02)	0.795	0.428
Education level (Cases)				
Below elementary school	12 (22.22)	10 (18.18)	0.258	0.018
Junior high school	22 (40.74)	21 (38.18)		
High school	12 (22.22)	15 (27.27)		
College	8 (14.81)	9 (16.36)		



**Figure 1.** Comparison of skin lesion scores. Skin lesion scores showed no significant differences between the two groups before treatment ( $P>0.05$ ) and differed significantly after 8 weeks of treatment ( $P<0.05$ ). Note: \* indicates comparison with group A,  $P<0.05$ .

ment)/total score before treatment  $\times 100\%$ . An efficacy index of  $>90\%$ ,  $50\%-89\%$ ,  $20\%-49\%$ , and  $<20\%$  were rated as cured, marked response, response, and no response, respectively. Total effective rate = cured + marked response + response [15]. (4) Skin hydration, hemoglobin content and skin elasticity, before and after treatment, were measured using the CK34-MPA9 skin tester which contains probes for different types of skin [16]. (5) The occurrence of adverse reactions such as diarrhea, abdominal pain and anorexia were recorded. (6) The recurrence rate: Patients in the two groups were followed up for 3 months after the course of treatment, and the recurrence rate was compared between the two groups.

## Statistical methods

Data were analyzed by SPSS 22.0. Measurement data were expressed as Mean  $\pm$  Standard

Deviation (mean  $\pm$  SD) and compared by t test when conforming to the normal distribution; otherwise, Mann-Whitney U test was used. Count data were expressed as [n (%)] and compared by  $\chi^2$  test.  $P<0.05$  indicated a statistical significance.

## Results

### Comparison of baseline data

It was found that there was no significant difference in gender, age, education level, and course of disease between the two groups ( $P>0.05$ ) (Table 1).

### Comparison of skin lesion scores

There was no significant difference in skin lesion scores including papule pustules, telangiectasia, flushing erythema score and total lesion scores between the two groups before treatment ( $P>0.05$ ). After 8 weeks of treatment, papule pustules, telangiectasia, flushing erythema

score and total lesion score in group B were significantly lower than those in group A ( $P<0.05$ ) (Figure 1).

### Comparison of self-report scores

There was no significant difference in self-report scores between the two groups before treatment ( $P>0.05$ ). Group B showed lower scores than group A after 8 weeks of treatment ( $P<0.05$ ) (Table 2).

### Comparison of clinical efficacy

There were 12 cases of cured, 19 cases of marked response, 10 cases of response, and 13 cases of no response in group A, with the total effective rate of 75.93%. There were 21 cases of cured, 20 cases of marked response, 12 cases of response, and 2 cases of no response in group B, with the total effective

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**Table 2.** Comparison of self-report scores

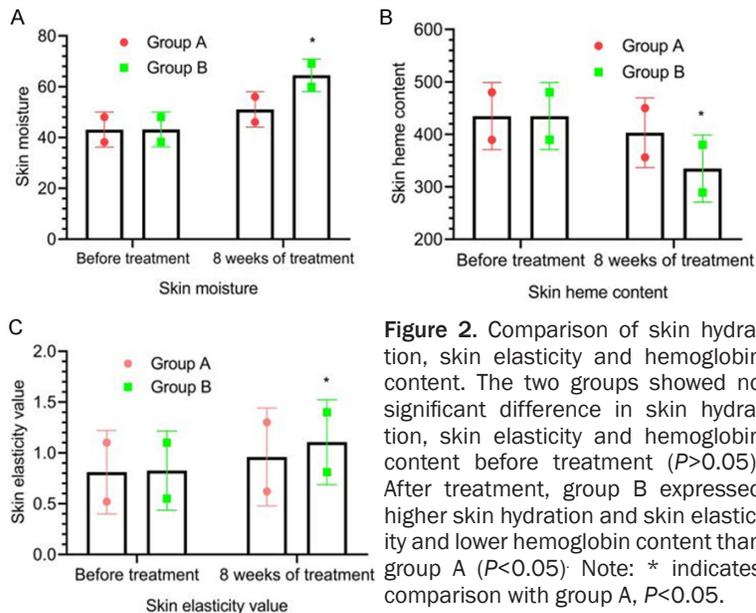
Group	Before treatment	After 8 weeks of treatment
Group A (n=54)	2.95±1.05	1.96±0.85
Group B (n=55)	2.99±1.02*	1.02±0.18*
<i>t</i>	0.202	8.021
<i>P</i>	0.841	0.000

Note: \*indicates comparison with group A,  $P < 0.05$ .

**Table 3.** Comparison of the clinical efficacy

Group	Number of cases	Cured	Marked response	Response	No response	Total effective rate (%)
Group A	54	12	19	10	13	75.93
Group B	55	21	20	12	2	96.36
$\chi^2$						6.632
<i>P</i>						0.001

Note: \*indicates comparison with group A,  $P < 0.05$ .



rate of 96.36%. The total effective rate of group B was higher than that of group A ( $P < 0.05$ ) (Table 3).

### Comparison of skin hydration, skin elasticity and hemoglobin content

There was no significant difference in skin hydration, skin elasticity and hemoglobin content between the two groups before treatment ( $P > 0.05$ ). After treatment, group B expressed higher skin hydration, skin elasticity and hemo-

globin content than group A ( $P < 0.05$ ) (Figure 2).

### Comparison of the occurrence of adverse reactions

The incidence of adverse reactions in group B (12.73%) was not significantly different from that in group A (11.11%) ( $P > 0.05$ ) (Table 4).

### Comparison of the recurrence rate between two groups

Patients in the two groups were followed up for 3 months after the treatment. There were no lost cases during the follow-up period. The recurrence rate of group B was 3.64%, which was lower than that of 29.63% in group A ( $P < 0.05$ ) (Table 5).

## Discussion

Rosacea is a chronic skin disease with high incidence rates. Western medicine generally believes that the disease may be caused by Demodex folliculitis, Helicobacter pylori, endocrine disorders, hot and cold stimulation, alcoholism, and mental and genetic factors [17-19]. Clinical studies suggested that the pathogenesis may include impaired skin barrier function, neuro-immune interactions, abnormal neurovascular regulatory functions, multiple mi-

crobial infections, genetic mechanisms, etc. [20, 21]. Isotretinoin, macrolides, tetracyclines, and metronidazole are the first-line medications in the treatment of rosacea, which can reduce the inflammatory response. However, long-term administration of these drugs can easily cause side effects and delay the recovery process [22].

TCM believed that the skin is controlled by the lung network, so heat in the lungs will affect the quality of the skin. Too much alcohol or rich and

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**Table 4.** Comparison of the occurrence of adverse reactions

Group	Number of cases	Diarrhea	Stomach ache	Anorexia	Total incidence
Group A	54	2 (3.70)	3 (5.56)	1 (1.85)	6 (11.11)
Group B	55	1 (1.82)	2 (3.64)	4 (7.27)	7 (12.73)
$\chi^2$					0.068
<i>P</i>					0.795

**Table 5.** Comparison of the recurrence rate between two groups

Group	Number of cases	Recurrence rate
Group A	54	16 (29.63)
Group B	55	2 (3.64)*
$\chi^2$		13.353
<i>P</i>		0.000

Note: \*indicates comparison with group A,  $P < 0.05$ .

spicy foods creates excess heat in the stomach network, which can end up on the face as rosacea. Emotion also shows itself on the face. Stress and anxiety can flare up the fire energy of the heart, which governs the spirit, causing rosacea. Treatment options for rosacea focus on soothing and calming the spirit, clearing the heat, and eliminating any circulation blockages through acupuncture, herbal therapy, and lifestyle and dietary changes [23, 24]. In TCM, it was classified as heat and liver-qi stagnation type, blood-stasis and phlegm-coagulating type, type spleen, spleen-stomach damp-heat type, lung meridian wind-heat type [25]. In this study, patients with lung meridian wind-heat type of rosacea were selected as the study subjects, presenting as erythema telangiectasia. By analyzing the correlation between rosacea and viscera meridians, we know that rosacea arises from the lungs and stomach, and caused by heat in the lungs and stomach [26]. Therefore, in this study, patients with rosacea were treated with Rose Yurong decoction on basis of the above explained theories. The results showed that group B had higher treatment efficacy and self-report scores as well as lower skin lesion scores and recurrence rate than those in group A, and the skin conditions in group B were better than that in group A ( $P < 0.05$ ), indicating that Rose Yurong decoction is beneficial to reduce the severity of skin lesion, improve skin conditions, and reduce the rate of recurrence with high safety. From the point of view of TCM, Rose Yurong decoction

has the functions of activating blood circulation, moisturizing skin, cooling blood, detoxifying, and clearing away wind and heat. *Rehmannia glutinosa* can nourish the spleen and stomach, clearing away heat and promoting salivation; Chinese yam, Coix seed and Poria have the functions of replenishing the lungs, nourishing

the spleen and stomach, strengthening the spleen and eliminating dampness; rice bean and red Peony root suppress hyperactive liver, activate blood circulation and remove blood stasis; Light-yellow Sophora root, *Scutellaria baicalensis*, and Densefruit Pittany root-bark can dispel wind and arrest inching, kill insects and detoxifies, and clears away heat and dampness; Honeysuckle and albizia flower can alleviate mental depression; Chinese trumpet creeper and rose buds can moisturize the skin and relieve depression; Loquat leaves and white mulberry root-bark can induce diuresis for removing edema and purging lung fever; Licorice has the function of reconciling the prescription, and has the effect of supplementing qi and nourishing the body [27]. The combination of the above Chinese herbs could further improve the clinical efficacy. Modern pharmacological studies have shown that *Scutellaria baicalensis* contains baicalein, which is a xanthine oxidase inhibitor and can inhibit the oxygen free radicals produced during ischemia-reperfusion; Densefruit Pittany root-bark contains sesquiterpenes, limonin, steroids and flavonoids, which has hemostatic, antibacterial, antioxidant, anti-allergic and anti-inflammatory effects; Chinese trumpet creeper contains anthocyanins, triterpenes, phenylpropanol and flavonoids, which can improve blood circulation and inhibit the formation of thrombosis [28]; Rose buds show obvious antioxidant effects, and the loquat leaves contain flavonoids, which have antioxidant and anti-inflammatory effects; White mulberry root-bark contains active anti-inflammatory substances, including sanggenone O and sanggenone G, which exert anti-inflammatory, analgesic, and antioxidant effects [29]. It can be seen that the active ingredients of Chinese medicine in Rose Yurong Decoction have the effects of improving blood circulation, enhancing immunity and anti-oxidation, increasing oxygen and nutrient supply to the skin, reducing coloration, and finally improv-

ing facial skin lesions and symptoms of rosacea [30].

In conclusion, Rose Yurong decoction could effectively improve rosacea and reduce the recurrence rate with high safety.

Although certain conclusions have been drawn, this study also has the limitation of using a small sample size, which requires further studies on the basis of a larger sample size and longer follow-up period.

### Disclosure of conflict of interest

None.

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