

Analysis of the Efficacy of Herbal Rubbing in Patients with Cholestatic Liver Disease with Itchy Skin

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Abstract

Objective: To observe the clinical efficacy of using traditional Chinese medicine for patients with pruritus due to cholestasis liver disease and evaluate its effectiveness in alleviating pruritus symptoms, improving patients' anxiety and sleep conditions, and enhancing their quality of life. **Methods:** From June 2024 to December 2024, 40 patients with pruritus due to cholestasis liver disease admitted to the hospital were selected as the research subjects. The patients were randomly divided into the control group and the traditional Chinese medicine rubbing group. The traditional Chinese medicine decoction was applied for rubbing treatment to patients with pruritus due to cholestasis liver disease as the traditional Chinese medicine rubbing group, and patients using calamine lotion as the control group. The nursing effects before and after treatment were compared between the two groups. **Results:** After intervention, compared with the control group, the traditional Chinese medicine rubbing group showed improvement in therapeutic effect, pruritus severity, anxiety and sleep conditions, and the difference was statistically significant ($P < 0.05$). **Conclusion:** In clinical nursing for patients with pruritus due to cholestasis liver disease, using traditional Chinese medicine rubbing method can improve the therapeutic effect and enhance the quality of life of patients.

Keywords

Traditional Chinese Medicine Rubbing, Cholestasis Liver Disease, Skin Itching

1. Introduction

Cholestasis refers to the state where there are obstacles in the formation, secre-

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tion and excretion of bile, preventing it from smoothly entering the duodenum and the bloodstream under the influence of various factors [1]. Cholestasis-related liver diseases are diseases caused by the accumulation of bile in the liver, resulting in liver tissue damage and dysfunction [2]. They often present with jaundice, pruritus and fatigue, and are commonly seen in primary sclerosing cholangitis, primary biliary cholangitis, liver tumors and other diseases. The incidence of cholestasis ranges from 10% to 55%. Chinese scholars [3] found that the total incidence of cholestasis in 4660 hospitalized patients with chronic liver diseases was 10.26%, and the prevalence of pruritus was 70% to 80%. Pruritus is a common symptom of cholestasis [4]. Although pruritus has no direct impact on the patient's prognosis, it can lead to sleep disorders, poor work ability, and decreased appetite, which seriously reduce the quality of life of patients. For patients with cholestasis and pruritus in foreign countries, the first step is to treat the underlying diseases of the patients, relieve biliary obstruction, and take oral medications such as ursodeoxycholic acid, cholestyramine, rifampicin, naloxone and sertraline [5]. Although these drugs have therapeutic effects, they are mostly metabolized by the liver and kidneys, and patients with cholestasis are mostly those with abnormal liver and gallbladder functions, which will aggravate the liver and kidney function metabolism of the patients. In domestic studies, traditional Chinese medicine fumigation [6] [7], auricular point compression [8], acupuncture [9] and other treatment methods have been applied. However, traditional Chinese medicine fumigation is not convenient to use in wards, and auricular point compression and acupuncture have high technical requirements. Patients' acceptance of treatment, difficulty in mastering and possible side effects still have questions. At present, no one has explored the therapeutic effect of traditional Chinese medicine scrubbing on patients with cholestatic skin pruritus. Traditional Chinese medicine rubbing therapy is a kind of therapy in traditional Chinese medicine external treatment, which can make the medicine pass through the skin from the surface to the interior, and then through the meridians to the viscera to exert the effect of the medicine [10]. It has the functions of unblocking meridians, clearing heat and dampness, activating blood and resolving stasis, and cooling blood and detoxifying. It can remove pollutants on the skin surface and promote the absorption of the medicine by the human body to cause an overall effect, and exert the effect of relieving pruritus. This study adopted the method of applying traditional Chinese medicine externally to treat patients with pruritus due to cholestasis-induced liver disease, and explored its clinical efficacy, in order to provide certain reference solutions for the treatment of patients with pruritus caused by cholestasis in China.

2. Data and Methods

2.1 General Information

Forty patients with cholestatic liver disease and pruritus admitted to the department of hepatobiliary and pancreatic surgery in a Grade A hospital in Jingzhou from June 2024 to December 2024 were selected as the study objects, and the patients

were divided into control group and Chinese medicine rubbing group according to the random number table method, with 20 cases in each group. In the control group, 20 patients, 12 males and 8 females, aged 43 to 77 years. 20 patients were 11 male and 9 female, aged 42 to 73 years. There were no statistical differences in the general data between the two groups, and they were comparable.

2.2. Ranking Criteria

Inclusion criteria: 1) meet the diagnostic criteria for cholestasis [11]; 2) pruritus developed after cholestasis, with secondary skin pruritus; 3) no cognitive impairment, conscious, informed and willing to cooperate with the investigator.

Exclusion criteria: 1) allergies to the drugs used in the test; 2) other skin diseases; 3) patients with acute infection; and 4) severe damage to other organs.

2.3. Study Methods

Before the study began, patients were randomly assigned to two groups. Prior to treatment, participants underwent a comprehensive evaluation of their baseline itching levels, mood, and sleep quality to understand the current methods they were using to relieve itching. During the treatment period, patients were advised to pay attention to their diet and skin care: avoid spicy, irritating, and photosensitive foods such as peppers, onions, and celery; do not scratch when itchy, and it is recommended to use gentle tapping or other methods to alleviate discomfort. Maintain clean and moisturized skin, wear loose and comfortable clothing, and minimize friction and irritation on the skin.

The research team used a self-prepared traditional Chinese medicine decoction for topical application therapy. The composition of the herbal decoction includes: 50 g of *Artemisia capillaris*, 15 g of *Gardenia jasminoides*, 10 g of *Rheum palmatum*, 20 g of *Polygonum cuspidatum*, 30 g of *Sophora flavescens*, 40 g of *Cnidium monnieri*, 30 g of *Dictamnus dasycarpus*, 20 g of *Apricot kernel*, 30 g of *Fructus corni*, and 40 g of *Kochia scoparia*. These herbs have the effects of clearing heat and detoxifying, as well as dispelling wind and relieving itching. The control group used calamine lotion for topical application. Both groups cleaned the affected skin areas before applying the medication, paying attention to gentle and slow rubbing techniques. Since patients often experience increased itching in the afternoon, evening, and early morning [12], this study applied the treatment at these three-time points daily to observe the effectiveness of the care.

After a week of intervention, the observation indexes of pruritus, mood and sleep, observed whether the patients had other adverse reactions, and guided the patients to continue to use drugs after pruritus, so as to avoid skin injury and secondary infection caused by pruritus.

2.4. Evaluation Indicators

2.4.1. Prtch Visual Analogue Score (VAS)

The Visual Analogue Scale (VAS) score is a graphical tool to assess the degree of

itching. Patients mark the degree of itching in the past 24 hours on a continuous line based on their feelings. The most left represents no itching and the most right represents the most severe itching, ranging from 0 to 10 cm. This scoring method enables a more intuitive assessment of itch severity.

2.4.2. Ipruritus Scale (Four-Item Itch Questionnaire, FIIQ)

In this study, four-item pruritus scales were used to evaluate the therapeutic effect of homemade TCM lotion on skin pruritus in patients with cholestasis. FIIQ is a tool specially designed to assess the degree of itch, including four dimensions, including the site of itch distribution, itch severity, itch frequency and the effect of itching on sleep. FIIQ is the sum of four dimensions, ranging from 3 to 19. The higher the score, the more severe the itch. Chinese scholar Xu *et al.* [13] humanized the scale and confirmed that the scale had high internal consistency, with Cronbach's coefficient of 0.811 before and after the treatment, to ensure the accuracy and reliability of the evaluation results.

2.4.3. Laboratory Indicators

Study collected venous blood samples, and before and after the intervention of blood alkaline phosphatase (ALP), glutamyl transaminase (GGT) and direct liver and kidney function indicators, by comparing the changes of these indicators before and after the intervention, in order to comprehensively evaluate the liver and kidney function status of patients and the effect of the intervention measures.

2.4.4. Self-Rating Anxiety Scale (SAS)

The subjective feelings of patients' anxiety and their changes during the treatment process were evaluated by using the Self-Rating Anxiety Scale [14]. The scale consists of 20 items and adopts a 4-point rating method. The total score ranges from 0 to 100. SAS scores below 50 indicate no anxiety, 50 - 59 represent mild anxiety, 60 - 69 moderate anxiety, and scores above 69 indicate severe anxiety. The higher the score, the more severe the anxiety. In this study, evaluations were conducted before and after the treatment once each to observe the changes in patients' anxiety symptoms.

2.4.5. Pittsburgh Sleep Quality Index (PSQI)

The Pittsburgh Sleep Quality Index (PSQI) was used to assess the sleep quality of the patients. It is mainly used to evaluate the sleep quality of the tested individuals in the past month. This scale consists of 18 items and 7 factors. Each item is scored on a scale of 0 to 3, with a total score ranging from 0 to 21. The higher the score, the worse the sleep quality. A total score of ≤ 7 indicates good sleep quality, while a score of > 7 indicates poor sleep quality.

2.5. Statistical Methods

Data were analyzed by SPSS, described by mean and standard deviation, and compared by t-test, frequency and percentage, and χ^2 test. Statistical significance was

expressed as $P < 0.05$.

3. Results

3.1. Comparison of VAS Scores and FIIQ Scores between the Two Groups

The VAS and FIIQ scores of the two groups decreased after the intervention, showing a statistically significant difference ($P < 0.05$), indicating that Chinese medicine rubbing group may be more effective in treating pruritus in cholestatic liver disease, as detailed in **Table 1**.

Table 1. Comparison of VAS and FIIQ scores before and after intervention in two groups of patients ($\bar{x} \pm s$, points).

Metric	Time	Control group	Chinese medicine rubbing group	t	P
VAS	Before the intervention	6.85 ± 1.18	6.75 ± 1.25	0.260	0.796
	After the intervention	4.95 ± 1.40	3.95 ± 0.89	2.706	<0.05
	D-value		1.00 ± 1.52	2.939	0.008
FIIQ	Before the intervention	13.55 ± 1.99	13.7 ± 2.20	0.226	0.822
	After the intervention	7.30 ± 1.56	5.65 ± 1.31	3.625	<0.001
	D-value		1.65 ± 2.31	3.208	0.005

3.2. Comparison of Alkaline Phosphatase (ALP), Glutamyl Transaminase (GGT), and Direct Bilirubin (DBIL) Scores before and after Intervention

The baseline levels of ALP, GGT, and DBIL in the two groups were similar, with no statistically significant difference ($P > 0.05$). After intervention, there was a decrease in ALP, GGT, and DBIL scores, and the scores in the herbal medicine rub group were lower than those in the control group, with a statistically significant difference ($P < 0.05$). This suggests that the herbal medicine rub method may more effectively reduce these biochemical indicators, thereby improving liver function. See **Table 2** for details.

3.3. Comparison of Self-Assessment Anxiety Scale (SAS) and Pittsburgh Sleep Quality Index (PSQI) Scores in the Two Groups

Before the intervention, both groups had similar psychological states and sleep quality, with no statistically significant differences in SAS and PSQI scores ($P > 0.05$). After the intervention, both groups showed a decrease in SAS and PSQI scores, but the Chinese medicine rubbing group scored lower than the control group, with a statistically significant difference ($P < 0.05$). The herbal rubbing method not only effectively alleviates skin itching symptoms but also reduces patients' anxiety levels and improves sleep quality, as detailed in **Table 3**.

Table 2. Comparison of ALP, GGT and DBIL scores before and after intervention in two groups of patients ($\bar{x} \pm s$, points).

Metric	Time	Control group	Chinese medicine rubbing group	t	P
ALP (U/L)	Before the intervention	164.05 ± 23.56	166.8 ± 22.35	0.379	0.707
	After the intervention	93.90 ± 16.89	84.20 ± 12.48	2.065	0.046
	D-value		9.70 ± 20.99	2.066	0.053
GGT (U/L)	Before the intervention	101.05 ± 26.13	101.95 ± 30.76	0.100	0.921
	After the intervention	76.15 ± 13.13	67.25 ± 11.14	2.312	0.026
	D-value		8.90 ± 16.65	2.391	0.027
DBIL (umol/L)	Before the intervention	11.84 ± 3.62	11.54 ± 2.92	0.288	0.775
	After the intervention	9.55 ± 1.85	8.37 ± 1.43	2.249	0.030
	D-value		1.18 ± 2.25	2.348	0.030

Table 3. Comparison of SAS and PSQI scores in the two groups ($\bar{x} \pm s$, score)

Metric	Time	Control group	Chinese medicine rubbing group	t	P
SAS	Before the intervention	62.56 ± 5.74	62.19 ± 6.12	0.200	0.843
	After the intervention	52.81 ± 3.69	50.56 ± 3.18	2.065	0.046
	D-value		2.25 ± 3.71	2.714	0.014
PSQI	Before the intervention	15.5 ± 1.57	15.2 ± 1.76	0.567	0.574
	After the intervention	8.5 ± 1.91	7.4 ± 1.39	2.085	0.044
	D-value		1.10 ± 1.80	2.728	0.013

4. Discussion

Skin itching is a common symptom affecting the quality of life in patients with cholestasis, significantly impacting their comfort and postoperative recovery. The main triggers include bile salt accumulation, increased levels of endogenous opioids, histamine release, and serotonin imbalance [15]. Herbal topical application has shown some effectiveness in treating cholestasis-related skin itching. Studies have demonstrated that herbal topical application can directly act on the skin surface, allowing medicinal components to penetrate into subcutaneous tissues, thereby achieving therapeutic effects. Additionally, herbal topical application can be tailored according to the specific symptoms and constitution of the patient, offering more flexibility compared to applying calamine lotion. Herbal topical application can also be combined with other traditional Chinese external treatments such as cupping [16], moxibustion [17], and acupoint massage [18] to further enhance treatment outcomes. Patients generally tolerate herbal topical application well, experiencing fewer irritative reactions, making it easier for them to accept and cooperate

with the treatment. The use of traditional Chinese medicine to treat cholestasis-related skin itching is still in the exploratory stage. Researchers like Zhang *et al.* [19] used a self-formulated formula for promoting bile secretion and relieving itching for cold compresses in patients with itching. A control group received calamine lotion for comparison. After treatment, the observed group showed higher overall efficacy rates than the control group, with lower scores for itching, anxiety, fatigue, and sleep compared to the control group, effectively proving that traditional Chinese medicine can improve symptoms in patients with cholestasis-related skin itching. Currently, the use of traditional Chinese medicine for treating cholestatic patients is less common. This study observed the effects of applying traditional Chinese medicine on cholestatic patients. The results showed that this method can significantly improve itching, reduce anxiety levels, and enhance sleep quality. These findings are similar to those reported by Li *et al.* [20], who used a heat-clearing, dampness-resolving, and itch-relieving formula externally. It can improve both the quality of life and treatment outcomes for patients.

In the theoretical system of TCM, each drug has a unique efficacy and mechanism of action [21]. According to the compatibility principle of jun, minister and zuo, the reasonable combination of various drugs can give full play to their comprehensive curative effect. The therapeutic effect is achieved by preparing these drugs into a liquid preparation or powder form and applying them directly to the lesion site. The drugs used in this study, including wormwood, gardenia, rhubarb, tiger staff and almond, can promote gallbladder, relieve pain and promote blood circulation and remove blood stasis. Bitter ginseng, snake bed, white moss skin, big maple skin, earth skin and other skin seeds have the effect of clearing heat and dampness, dispelling wind and relieving itching, and can be used to treat skin itching. These drugs work together, which can effectively relieve the skin itching symptoms caused by cholestatic liver disease by clearing heat and dampness, removing wind and relieving itching, promoting blood circulation and removing blood stasis.

5. Conclusion

To sum up, traditional Chinese medicine rubbing method is suitable for clinical promotion due to its low technical difficulty, low nursing risk and short time. The use of traditional Chinese medicine rubbing method has certain effects on skin pruritus in patients with cholestasis, alleviating patients' pruritus and improving skin damage. However, this study included a small number of people and lasted for a short period of time, thus affecting the representativeness of the evaluation of treatment effect. Subsequently, the sample size should be increased, continuous care should be carried out for patients, and the therapeutic effect should be further verified.

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Conflicts of Interest

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

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