

Analysis of the Effect and Value of Combined Chinese and Western Medicine in the Treatment of Uremic Pruritus

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Abstract: *Objective:* To analyze the effect of combined Chinese and Western medicine therapy in patients with uremic pruritus. *Methods:* 80 cases were randomly selected from uremic pruritus patients from January 2022 to October 2023, and were divided into Group A (40 cases, pure Western medicine therapy) and Group B (40 cases, combined Chinese and Western medicine therapy) by the numerical envelope method to compare the treatment effects of the two groups. *Results:* The levels of clinical symptom scores (itching degree, itching area, dry skin, secondary lesions) and test indexes (high-sensitivity C-reactive protein, tumor necrosis factor- α , interleukin-6, 5-hydroxytryptamine, blood phosphorus, parathyroid hormone) in Group B were lower than those in Group A after treatment ($P < 0.05$). *Conclusion:* Uremic pruritus patients can rapidly improve their clinical symptoms by using combined Chinese and Western medicine therapy.

Keywords: Combined Chinese and Western medicine therapy; Pruritus; Clinical symptoms

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1. Introduction

Pruritus is a common skin complication in patients with uremia, with many and varied triggering causes, both endogenous and exogenous. Uremia is the main endogenous cause, in addition to other common endogenous causes such as skin morphology changes, such as skin keratinization, erythroplasia, ichthyosis, etc.; common exogenous causes are temperature and humidity, the use of strong alkaline bathing products, direct contact with chemicals, and improper diet, etc. ^[1]. The main factors triggering pruritus in uremic patients are the massive secretion of histamine, amines such as 5-hydroxytryptamine (5-HT), protein polypeptides such as vasopressin, and inflammatory factors such as interleukin-6 (IL-6) by tissue cells ^[2]. Itching is a complex sensation transmitted through multiple neural pathways in the human body. The receptors for itching sensations are densely distributed on the unmyelinated free nerve endings in the dermal papillae and on the skin surface. These receptors specifically bind to pruritogens, substances that cause itching. Anti-itch factors stimulate the receptors to generate nerve impulses, which are ultimately conducted to the signal-receiving nerve cells in the cerebral cortex, thereby inducing the sensation of itching ^[3]. Pruritus causes patients to scratch the affected local skin

violently, resulting in scratches, scabs, hyperpigmentation, etc., and even inducing eczema-like lesions, mossy lesions, inflammation, etc. [4]. At present, the commonly used drugs for the treatment of uremic pruritus patients include antihistamine drugs such as loratadine tablets, which can antagonize peripheral histamine H receptors after oral administration, and can effectively improve the clinical symptoms of patients. In addition, patients with uremic pruritus can be treated with topical tacrolimus ointment, which belongs to the immunomodulators with small molecular weight, and after applying in the itchy area, it can reduce the activity of T cells, which has a good effect of improving the local skin immunity and inflammation [5]. However, clinical practice has confirmed that the use of Western medicine therapy alone in uremic pruritus patients can improve itching symptoms to a certain extent, but the overall efficacy does not meet expectations [6]. In Chinese medicine, itchy skin is included in “itchy wind,” and it is believed that the main factor triggering this disease is the invasion of external pathogenic factors (blood deficiency, blood heat, wind, etc.) into the skin locally, and the basic principle of treatment is to nourish the blood, dispel the wind, and stop the itch. This study analyzes the effect of combined Chinese and Western medicine therapy in patients with uremic pruritus.

2. Information and methods

2.1. General information

80 cases were randomly selected from uremic pruritus patients from January 2022 to October 2023 and grouped by numerical envelope method into Group A and Group B. Group A (40 cases): aged 35–82 (58.62 ± 5.23) years, weight 45.53–87.92 (65.49 ± 6.71) kg, duration of disease 1–20 (7.86 ± 1.23) months, and male to female ratio 26:14; Group B (40 cases): aged 38–85 (58.92 ± 5.43) years, body weight 45.68–87.56 (64.89 ± 6.53) kg, duration of the disease 2–18 (7.62 ± 1.31) months, and male to female ratio 24:16. The general information of the two groups was comparable ($P > 0.05$).

Inclusion criteria: A comprehensive understanding of the content of the study and consent to participate in the study; clinical data to meet the clinical needs; able to cooperate with the completion of all examinations and assessments.

Exclusion criteria: Combined with organic diseases of major organs, schizophrenia, cognitive dysfunction, severe infections, and so on.

2.2. Methods

2.2.1. Group A

Group A was given Western medical therapy. The frequency of hemodialysis was 2–3 times/week, hemoperfusion combined with hemodialysis once in a fortnight, and water-electrolyte and acid-base balance treatments were given to correct anemia and control diet. Oral loratadine tablets (Xi'an Janssen Pharmaceutical Co., Ltd, State Pharmaceutical License: H20070030, specification: 10 mg*6s) (10 mg/times, 1 time/d); oral pregabalin [Qilu Pharmaceutical (Hainan) Co., Ltd, State Pharmaceutical License: H20203040, specification: 75 mg × 8 capsules × 4 boards] (75 mg/times, 2 times/d); oral vitamin C tablets (Huazhong Pharmaceutical Co., Ltd, State Pharmaceutical License: H42020614, specification: 0.1g*100s) (0.1 g/dose, 1 time/d); tacrolimus ointment [Sinopharma, State Pharmaceutical License: J20140148, specification: 0.1% (10 g:10 ml)] (2 times/d). Treatment was done for 1 month.

2.2.2. Group B

Group B was treated with Wushe Zhiyang Pills (Guangzhou Baiyunshan Zhongyi Pharmaceutical Co., Ltd, State Pharmaceutical Standard: Z44020044, specification: 30 g/bottle) on the basis of Group A, 2.5 g/times

orally, 3 times/d. Traditional Chinese medicine external cleansing formula: 30 g (*Bassia scoparia*, *Sophora flavescens*, *Angelica sinensis*, *Spatholobus suberectus*), 15 g (*Xanthium sibiricum*, *Portulaca oleracea*, *Dictamnus dasycarpus*). It was taken one dose per day. 2000 mL of water was added and brought to a boil. Once the water temperature was comfortably warm, it was used to wash the areas of itchy skin. Treatment was done for 1 month.

2.3. Observation indicators

2.3.1. Clinical symptoms score after treatment

Our self-made scale evaluated the patients' clinical symptoms from the aspects of itching degree, itching area, skin dryness, secondary skin lesions, etc. The maximum score of 4 points for each item indicated that the clinical symptoms are very serious.

2.3.2. Test indicators

2 ml of fasting venous blood was collected, centrifuged, and processed; automated blood biochemical analyzer was used to detect high-sensitivity C-reactive protein (hs-CRP); enzyme-linked immunosorbent assay was used to detect tumor necrosis factor-alpha (TNF- α) and interleukin-6 (IL-6); high-performance liquid chromatography-ultraviolet detection method was used to detect 5-HT.

2.4. Statistical analysis

SPSS25.0 software was used to process the data, mean \pm standard deviation (SD) and % expressed the measurement and count data, respectively, using *t* value and χ^2 test; *P* < 0.05 was statistically significant.

3. Results

3.1. Comparison of clinical symptom scores after treatment

The clinical symptom scores of Group B were lower than those of Group A (*P* < 0.05), as shown in **Table 1**.

Table 1. Clinical symptom scores after comparative treatment [mean \pm SD (points)]

Groups	<i>n</i>	Degree of itching	Itchy area	Dry skin	Secondary lesions
Group B	40	1.15 \pm 0.38	1.24 \pm 0.35	1.21 \pm 0.37	1.19 \pm 0.36
Group A	40	1.86 \pm 0.53	1.94 \pm 0.58	1.93 \pm 0.56	1.81 \pm 0.56
<i>t</i>	-	6.885	6.535	6.784	5.890
<i>P</i>	-	0.000	0.000	0.000	0.000

3.2. Comparison of post-treatment test indexes

The post-treatment test indexes of Group B were lower than those of Group A (*P* < 0.05), as presented in **Table 2**.

Table 2. Comparison of post-treatment test indexes (mean \pm SD)

Groups	<i>n</i>	hs-CRP (mg/L)	TNF- α (ng/L)	IL-6 (ng/L)	5-HT (μ g/L)	Serum phosphorus (mmol/L)	Parathyroid hormone (pg/ml)
Group B	40	11.64 \pm 1.53	4.75 \pm 0.67	14.86 \pm 1.68	395.48 \pm 40.37	82.26 \pm 7.84	61.48 \pm 5.12
Group A	40	14.25 \pm 2.14	5.69 \pm 0.81	18.54 \pm 2.57	461.53 \pm 43.95	82.94 \pm 7.72	68.75 \pm 5.67
<i>t</i>	-	6.274	5.655	7.580	6.999	0.390	6.018
<i>P</i>	-	0.000	0.000	0.000	0.000	0.697	0.000

4. Discussion

Pruritus is a common symptom that can occur in any person at any time, and the elderly are more prone to pruritus due to the progressive decline of body functions^[7,8]. Clinically, it is classified into six categories according to the causes of itching: neurological itching, psychiatric itching, itching due to skin and systemic diseases, and itching due to multifactorial and unknown factors. If the presence of a primary lesion causing pruritus can be determined by relevant examinations, it may be due to diseases such as uremia, and if the cause of itching cannot be determined, it may be idiopathic itching, which is also known as senile skin pruritus^[9,10]. As the specific cause of uremic pruritus cannot be clearly articulated in the clinic at present, some scholars believe that it is due to dry skin, plasma histamine levels, mast cells, hyperthyroidism, inflammation, immune abnormalities, etc.^[11]. Patients with uremic pruritus commonly suffer from varying degrees of sleep disorders due to itchy skin, thus leading to anxiety, depression, and other adverse emotions^[12]. Patients with uremic pruritus taking Western medicines can temporarily improve itching symptoms, but not only is it easy to recur after stopping the medication, but with the prolongation of the medication time, it is also prone to adverse reactions such as dry mouth, drowsiness, etc., which reduces the quality of life of the patients. Although it is possible to increase the number of dialysis and hemofiltration to improve the itching symptoms, the treatment cost is higher. Traditional Chinese Medicine (TCM) has a long history of treating skin diseases. By differentiating the eight principles of yin and yang, sequentially exploring the six channels, defensive qi, nutrient blood, and the Sanjiao, TCM applies syndrome differentiation and treatment. This approach not only effectively improves clinical symptoms but also reduces the risk of adverse reactions.^[13] The use of a combination of traditional Chinese and Western medicine in patients with uremic pruritus improves the efficacy and safety of the treatment regimen.

The results of this paper showed that the clinical symptom scores (itching degree, itching area, skin dryness, secondary skin lesions) and test indicators (hs-CRP, TNF- α , IL-6, 5-HT) levels of Group B were lower than those of Group A after treatment ($P < 0.05$), confirming the feasibility and effectiveness of the combination of Chinese and Western medicines for uremic pruritus patients. The main Chinese herbs used in the manufacture of Wushe Zhiyang Pills are Wushe and Fangfeng, etc. Chinese medicine believes that the invasion of wind and other pathogenic factors is the main cause of uremic pruritus, and that effective measures to dispel wind can improve the symptoms of itching. Wushe has the effects of dispelling wind and relieving itching, clearing collaterals, and stopping spasms, and modern pharmacology has confirmed that its main components, such as amino acids and fatty acids, have the effects of anti-inflammatory, sedative, and analgesic and regulating immunity; Fangfeng has the effects of dispelling wind and eliminating dampness, modern pharmacology has confirmed that its main components of volatile oil, chromogenic ketone, etc., with antipyretic, analgesic, anti-inflammatory, antibacterial, and other effects, Wushe and Fangfeng are commonly used in traditional Chinese medicine to relieve itching. The adjuvants in Wushe Zhiyang Pills, Danggui and red ginseng, align with the traditional Chinese medicine principle of “treating wind by first treating the blood, as wind dissipates when blood flows properly.” Danggui nourishes and invigorates the blood, with modern pharmacology confirming its main components, such as volatile oils and flavonoids, have analgesic, anti-inflammatory, immune-boosting, and anti-aging effects. Red ginseng enhances qi and strengthens the spleen, and modern pharmacology verifies its main components, saponins and polysaccharides, possess immune-boosting, antioxidant, and anti-allergic properties. Together, Danggui and red ginseng play a fundamental role in the Wushe Zhiyang Pills. The auxiliary ingredients in Wushe Zhiyang Pills include *Phellodendron* bark, *Atractylodes*, tree peony bark, *Sophora flavescens*, artificial bezoar, snake bile, and *Cnidium monnieri*. *Phellodendron* bark clears heat and dries dampness, expels fire, and detoxifies sores, with modern pharmacology confirming its main components,

flavonoids and alkaloids, exhibit anti-inflammatory, antibacterial, antioxidant, and neuroprotective properties. *Atractylodes* dries dampness and strengthens the spleen, dispels wind and cold, with modern pharmacology verifying its main components, atractylodin and atractylenolide, have anti-inflammatory, antioxidant, edema-improving, and anti-itch properties. Tree peony bark activates blood circulation and clears heat, with modern pharmacology confirming its main component, paeonol, has anti-inflammatory, sedative, analgesic, and antipyretic effects. *Sophora flavescens* clears heat and dries dampness, with modern pharmacology verifying its main components, alkaloids and flavonoids, have antiviral and immune-regulating properties. Artificial bezoar clears heat and detoxifies, with modern pharmacology confirming its main components, ox bile powder, cholic acid, and taurine, exhibit anti-inflammatory, analgesic, and antipyretic effects. Snake bile clears heat and detoxifies, dispels wind, and dries dampness, with modern pharmacology confirming its main components, cholic acids and mucoproteins, have anti-inflammatory and anti-itch properties. *Cnidium monnieri* dispels wind, dries dampness, kills parasites, and stops itching, with modern pharmacology verifying its main components, coumarins and chromones, have antifungal, anti-allergic, sedative, and hypnotic effects. All these herbs are meticulously combined to treat patients with pruritus, exhibiting blood-nourishing, wind-dispelling, dampness-drying, and itch-relieving effects. In this study, the external wash formula used for traditional Chinese medicine includes *Xanthium*, which dispels wind-dampness and expels wind-cold, with modern pharmacology confirming its main component, tannins, reduce the activity of inflammatory factors like IL-6, lower histamine levels, and have anti-allergic effects. *Bassia scoparia* clears wind and stops itching, clears heat, and drains dampness, with modern pharmacology verifying its main components, terpenoids, saponins, and volatile oils, exhibit antifungal effects against pathogens like *Trichophyton mentagrophytes* and *Trichophyton rubrum*, are anti-allergic, and alleviate skin itching. *Dictamnus* root bark clears wind and detoxifies, clears heat, and dries dampness, with modern pharmacology confirming its main components, alkaloids, limonoids, and flavonoids, have anti-parasitic and antibacterial effects. Combining traditional Chinese and Western medicine for uremic pruritus patients, utilizing both internal and external treatments, can shorten the time needed to improve clinical symptoms and inflammatory responses, thereby enhancing patients' quality of life.

5. Conclusion

In conclusion, the use of combined Chinese and Western medicine therapy in patients with uremic pruritus can rapidly improve clinical symptoms.

Disclosure statement

The author declares no conflict of interest.

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