The Effects of Prescription for Restoring Kidney Function on Chronic Kidney Failure (Renal Deficiency with Blood Stasis and Turbidity) and Its Impact on Renal Function

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Abstract: Objective: To analyze the clinical effects of Prescription for restoring kidney function in the treatment of chronic kidney failure with renal deficiency, blood stasis, and turbidity, and its influence on renal function recovery. Methods: A comparative treatment study was conducted on 72 patients with chronic kidney failure due to renal deficiency with blood stasis and turbidity, seen at the Yongchuan District Chinese Medicine Hospital in Chongqing (study period: February 2023 to October 2023). The patients were randomly divided into two groups: the control group (36 cases) received standard treatment, and the study group (36 cases) received combined treatment with Prescription for restoring kidney function. Statistical analysis was performed on changes in traditional Chinese medicine symptom scores, renal function indicators, and treatment effectiveness between the two groups before and after treatment. Results: (1) After treatment, the study group exhibited significantly lower scores for symptoms such as lumbar and knee soreness, shortness of breath, poor appetite, nausea, vomiting, and limb heaviness, as well as lower levels of blood Scr, BUN, and UA compared to the control group. The differences were statistically significant ($P<0.05$). (2) Compared to the control group, the study group showed an increased clinical treatment effectiveness rate (94.44%), with a statistically significant difference ($P<0.05$). Conclusion: Prescription for restoring kidney function provides precise clinical effectiveness in the treatment of chronic kidney failure with renal deficiency, blood stasis, and turbidity. It not only addresses symptom presentations according to traditional Chinese medicine but also corrects the metabolic function of the kidneys, optimizing clinical treatment outcomes.

***Keywords*:** prescription for restoring kidney function, chronic kidney failure, renal deficiency with blood stasis and turbidity, renal function

1. Introduction

Chronic kidney failure represents the clinical pathological manifestation of various acute and chronic kidney diseases[1]. It results from the pathological progression of the kidneys, abnormally activating the renin-angiotensin-aldosterone system, inflammatory responses, and oxidative stress reactions, leading to pathological damage in multiple organ systems. This affects the patients' quality of life and disease prognosis[2]. The implementation of active treatment has a positive significance for maintaining renal function and improving the prognosis of the disease[3]. Although supportive treatment measures such as clinical nephron protection and renal function replacement therapy can alleviate the progression of renal disease[4], their therapeutic effects are limited. Fundamental etiological factors have a limited impact on improvement. Therefore, it may be beneficial to consider a complementary approach through traditional Chinese medicine diagnostic and treatment strategies to enhance clinical treatment outcomes[5]. In this study, we aim to analyze the clinical effects of Prescription for restoring kidney function in the treatment of chronic kidney failure with renal deficiency, blood stasis, and turbidity, and its impact on renal function recovery. The research results are detailed below.

2. Clinical Data and Methods

2.1 Clinical Data and Grouping

A comparative treatment study was conducted on 72 patients diagnosed with chronic kidney failure due to renal deficiency with blood stasis and turbidity at the Yongchuan District Chinese Medicine Hospital in Chongqing (study period: February 2023 to October 2023). The patients were randomly assigned to two groups: the control group (36 cases) received standard treatment, and the study group (36 cases) received combined treatment with Prescription for restoring kidney function.

In the control group, there were 19 male and 17 female patients with an average age of (47.36±7.51) years, and the duration of chronic kidney failure was (8.94±1.49) months. In the study group, there were 20 male and 16 female patients with an average age

of (47.51±7.46) years, and the duration of chronic kidney failure was (9.03±1.52) months. There were no statistically significant differences in clinical data between the two groups (P>0.05), ensuring the comparability of the study results.

Inclusion Criteria: All patients had confirmed diagnoses of chronic kidney failure and met the clinical diagnostic criteria for "renal deficiency with blood stasis and turbidity" in traditional Chinese medicine. They had intact cognitive function, fluent language expression, confirmed participation in the research treatment plan, and signed informed consent.

Exclusion Criteria: Patients with an estimated survival period of less than 6 months, those with severe functional disorders in other organ systems, incomplete clinical data, those who withdrew from the study voluntarily or were lost to follow-up, and those with extremely poor treatment compliance were excluded.

2.2 Treatment Methods

Conventional Treatment:All patients received symptomatic kidney protection treatment. Depending on the patient's condition, they underwent either continuous blood dialysis treatment or peritoneal dialysis. During the treatment, interventions were made to regulate blood glucose and blood pressure as necessary. In cases where a patient's serum creatinine (Cr) level was less than 228.9 μmol/L, angiotensin-converting enzyme inhibitors or angiotensin II receptor blockers were administered to maintain electrolyte balance.

Prescription for restoring kidney function Treatment:Prescription for restoring kidney function was administered as follows: Astragalus (30g), Poria (20g), Eucommia (20g), Plantain Seed (20g), Achyranthes Bidentata (20g), Cortex Moutan (20g), Fructus Corni (20g), Chinese Yam (20g), Rehmannia (20g), Amur Cork Tree Bark (20g), and Atractylodes (20g). Additionally, leeches (5g) were included in the formula. The ingredients were decocted with water, and the resulting solution (300ml) was taken after breakfast, lunch, and dinner. The formula was administered once a day, and each course of treatment consisted of continuous treatment for four weeks. Two courses of treatment were administered consecutively. In cases of comorbid hypertension, Tianma (Gastrodia Elata) and Gou Teng (Uncaria) were added at 15g each. For patients with diabetes, Huanglian (Coptis) was added at 5g. For those with spleen and kidney qi deficiency, Dangshen (Codonopsis) was added at 15g. In cases of liver and kidney yin deficiency, Gouqizi (Chinese Wolfberry) and Juhua (Chrysanthemum) were added at 15g each.

2.3 Observation Parameters

Statistical Analysis:The following parameters were statistically analyzed to assess the treatment outcomes: traditional Chinese medicine symptom scores before and after treatment, changes in renal function indicators, and differences in treatment effectiveness between the two groups.

Traditional Chinese Medicine Symptom Scores:The symptom scores included primary symptoms, which encompassed lumbar and knee soreness, shortness of breath, poor appetite, and nausea and vomiting. Patients without symptoms scored 0 points, while those with mild, moderate, or severe symptoms were assigned 2, 4, or 6 points, respectively. Secondary symptoms included limb heaviness, and scores were assigned similarly with 0 points for no symptoms and 1, 2, or 3 points for mild, moderate, or severe symptoms, respectively. Symptom scores were assessed on the first day of treatment and the first follow-up day after two courses of treatment.

Renal Function Indicators:Blood samples were collected from patients in the morning while fasting on the first day of treatment and the first follow-up day after two courses of treatment. Laboratory tests included serum creatinine (Scr), blood urea nitrogen (BUN), and uric acid (UA). Mean values of these indicators were recorded.

Treatment Evaluation Criteria:After treatment, patients were evaluated based on the reduction in traditional Chinese medicine symptom scores compared to before treatment. A reduction of ≥60% in symptom scores and a ≥20% decrease in blood Scr were considered significant. A reduction of ≥30% in symptom scores and a ≥10% decrease in blood Scr were considered effective. Patients who did not meet these criteria were considered to have an ineffective treatment outcome.

2.4 Statistical Methods

For quantitative data, results are presented as ($\bar{x}$±s) and were analyzed using a t-test. The differences between groups were compared using repeated measures analysis of variance.For categorical data, the results are presented as (n, %), and the x^2 test (non-parametric test) was used for comparisons. Statistical analysis was conducted using SPSS 26.0 software, and differences were considered statistically significant when P<0.05 or P<0.01.

3. Results

3.1 Comparison of Traditional Chinese Medicine Symptom Scores Between the Two Groups

Before treatment, there was no statistically significant difference in traditional Chinese medicine symptom scores

between the patient groups (P>0.05). However, compared to pre-treatment scores, both groups showed a reduction in traditional Chinese medicine symptom scores. Notably, the research group exhibited significantly lower scores for symptoms like lumbar and knee soreness, shortness of breath, poor appetite, nausea and vomiting, as well as limb heaviness, when compared to the control group (P<0.05). See Table 1.

Table 1. Comparison of Traditional Chinese Medicine Symptom Scores Between the Two Groups ($\bar{x}$±s)

Traditional Chinese Medicine Symptom		Control Group/36	Research Group/36	t	P
Lumbar and Knee Soreness (points)	Before Treatment	4.85±0.98	4.73±0.94	0.5302	0.5976
	After Treatment	3.14±0.74	1.89±0.52	8.2925	0.0000
Shortness of Breath (points)	Before Treatment	4.76±0.95	4.78±0.92	0.0907	0.9280
	After Treatment	3.16±0.65	1.81±0.48	10.0245	0.0000
Poor Appetite (points)	Before Treatment	4.41±0.75	4.45±0.68	0.2371	0.8133
	After Treatment	3.13±0.58	1.85±0.42	10.7248	0.0000
Nausea and Vomiting (points)	Before Treatment	4.39±0.68	4.32±0.59	0.4665	0.6423
	After Treatment	2.74±0.62	1.63±0.38	9.1586	0.0000
Limb Heaviness (points)	Before Treatment	2.02±0.41	2.05±0.39	0.3181	0.7514
	After Treatment	1.12±0.29	0.84±0.25	4.3878	0.0000

3.2 Comparison of Renal Function Parameters Between the Two Groups

Before treatment, there were no statistically significant differences between the control and research groups in terms of the blood levels of Scr (serum creatinine), BUN (blood urea nitrogen), and UA (uric acid), with P-values exceeding 0.05. However, following treatment, both groups exhibited a reduction in the levels of blood Scr, BUN, and UA in comparison to their respective pre-treatment values. Notably, the research group displayed significantly greater reductions in these parameters compared to the control group, with P-values less than 0.05. Refer to Table 2 for details.

Table 2. Comparison of Renal Function Parameters Between the Two Groups ($\bar{x}$±s)

Parameter		Control Group/36	Research Group/36	t	P
SCr (μmol/L)	Before Treatment	152.85±10.45	153.05±10.59	0.0807	0.9359
	After Treatment	139.45±9.24	125.85±8.65	6.4470	0.0000
BUN (μmol/L)	Before Treatment	8.45±0.62	8.51±0.65	0.4008	0.6898
	After Treatment	7.94±0.57	7.35±0.42	4.9998	0.0000
UA (μmol/L)	Before Treatment	341.35±85.24	341.42±86.13	0.0035	0.9972
	After Treatment	317.39±52.19	285.45±47.35	2.7195	0.0082

3.3 Comparison of Treatment Effectiveness Between the Two Groups

Compared to the control group, the clinical treatment effectiveness in the research group increased to 94.44%, and the difference was statistically significant with a P-value of less than 0.05. Refer to Table 3 for details.

Table 3. Comparison of Treatment Effectiveness Between the Two Groups (n, %)

Group	Marked Effect	Effective	Ineffective	Overall Effective Rate
Control Group/36	11 (30.56)	17 (47.22)	8 (22.22)	77.78 (28/36)
Research Group/36	15 (41.67)	19 (52.78)	2 (5.56)	94.44 (34/36)
x^2				4.1807
P				0.0409

4. Discussion

According to traditional Chinese medicine diagnostic theory, chronic kidney failure is considered as a manifestation of kidney deficiency underlying excess pathogenic factors. Kidney deficiency results in a deficiency of righteous qi due to lung, spleen, and kidney insufficiency, while excess pathogenic factors such as dampness, stasis, and toxins obstruct the meridians. This gives rise to the commonly observed TCM pattern in chronic kidney failure patients known as "kidney deficiency with blood stasis and turbid phlegm." Treatment strategies based on this pathological understanding aim to address both the root

causes and clinical manifestations, ultimately optimizing the clinical outcomes.

The research findings in this study reveal the following key points: (1)After treatment, the study group exhibited significant improvements in the TCM symptom scores, specifically regarding symptoms like soreness and weakness of the lower back and knees, shortness of breath, reduced appetite, nausea and vomiting, and heavy limbs. Furthermore, the levels of serum creatinine (Scr), blood urea nitrogen (BUN), and uric acid (UA) were all significantly reduced in the study group compared to the control group. These differences were statistically significant ($P<0.05$). (2)In comparison to the control group, the study group demonstrated a notable increase in clinical treatment effectiveness, with a rate of 94.44%. This increase was statistically significant ($P<0.05$).

Based on the analysis of the TCM symptoms in chronic kidney failure patients presenting with kidney deficiency, blood stasis, and turbid phlegm, it can be inferred that the herbal formula used in this study effectively tonifies qi, invigorates the spleen, promotes blood circulation, and clears obstructions. The herbs such as Astragalus and Codonopsis invigorate the spleen, eliminate dampness, nourish the blood, and benefit the lungs. Poria helps to regulate qi, invigorate the spleen, and supplement the blood. When combined with other herbal ingredients, these formulas tonify the spleen, boost qi, and support kidney function, facilitating the smooth flow of the body's vital energy and strengthening the foundation. Consequently, this approach actively improves symptoms like lower back and knee soreness, shortness of breath, reduced appetite, and maintains overall kidney function. The treatment effectively optimizes clinical outcomes by addressing both the TCM pattern diagnosis and the metabolic aspects of kidney function.

In summary, the use of Prescription for restoring kidney function herbal formula for treating kidney deficiency with blood stasis and turbid phlegm in chronic kidney failure has been shown to have precise clinical effects. This approach not only helps manage the TCM symptoms but also corrects the metabolic function of the kidneys, thereby optimizing clinical treatment results.

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