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Clinical Observation and Impact on Quality of Life in the Treatment of Hypertensive Nephropathy with Jianshen Mixture

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Abstract: *Objective:* To analyze the effect of Jianshen Mixture in the treatment of hypertensive nephropathy, especially to explore its impact on patients' quality of life. *Methods:* From April 2024 to March 2025, 68 patients with hypertensive nephropathy were selected for data analysis in our hospital. They were divided into groups by lottery, with 34 patients in each group. The experimental group was treated with conventional Western medicine treatment + Jianshen mixture, and the control group was treated with conventional Western medicine treatment. The data differences between the groups were compared. *Results:* Compared with the control group, the TCM syndrome scores of the experimental group were significantly lower after treatment, the total effective rate was significantly higher, blood pressure, blood β2-MG, and urine mALB levels were significantly lower after treatment, serum IL-6, hs-CRP, and TNF-α levels were significantly lower after treatment, and adverse reactions were The incidence rate was significantly lower, and the quality of life score after treatment was significantly higher, $P < 0.05$; comparing the TCM syndrome scores, blood pressure, blood β2-MG, urinary mALB, serum IL-6, hs-CRP, TNF-α levels, and quality of life scores before treatment between the two groups, $P > 0.05$. *Conclusion:* The application of Jianshen Mixture in the treatment of hypertensive nephropathy has ideal effects. It has higher treatment efficiency, a more significant antihypertensive effect and a possible protective effect on renal function. It can help patients stabilize their condition and improve their quality of life, and has high application value.

Keywords: Jianshen mixture; Hypertensive nephropathy; Clinical treatment effect; Quality of life

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1. Introduction

Hypertensive nephropathy is one of the most common renal complications caused by hypertension. Long-term hypertension can cause patients to develop renal vascular sclerosis, renal parenchymal damage, proteinuria, hematuria, continued increase in hypertension, and gradual decline in renal function. As the disease progresses, patients may further aggravate hypertension and change the structure of the kidneys, which may eventually progress to chronic renal failure. Hypertensive nephropathy produces many complications. Once complications occur, they will have serious consequences and directly threaten people's normal lives. In the clinical treatment of patients with hypertensive nephropathy,

conventional Western medicine treatments such as blood pressure control, renal function protection, and symptomatic supportive care are generally used, but the long-term treatment effect is poor [1]. Traditional Chinese medicine proposes that hypertensive nephropathy belongs to the categories of "dizziness", "edema", and "turbid urine", and that liver and kidney yin deficiency, spleen and kidney deficiency, blood stasis, and internal obstruction are the pathogenesis of this disease. Clinical research has shown that the kidney-invigorating mixture has the functions of tonifying the kidney and spleen, activating blood circulation and removing blood stasis, diuresis and reducing swelling [2]. This study selected 68 patients to analyze the effect of Jianshen Mixture in the treatment of hypertensive nephropathy, especially to explore its impact on patients' quality of life.

2. Materials and methods

2.1. General information

From April 2024 to March 2025, 68 patients with hypertensive nephropathy were selected for data analysis in our hospital and divided into groups by lottery, with 34 patients in each group. The experimental group included 19/15 men and women, aged 45–78 (62.36 ± 8.59) years old, and the duration of hypertension was 5–20 (12.33 ± 3.59) years. The control group included 20/14 men and women, aged 46–79 (62.31 ± 8.54) years old, and the duration of hypertension was 6–21 (12.31 ± 3.65) years. Comparing the two sets of data, $P > 0.05$ was obtained.

Inclusion criteria: (1) Comply with the diagnostic criteria for hypertensive nephropathy, and the diagnostic methods are clinical symptoms, physical signs, and laboratory tests; (2) Traditional Chinese medicine syndrome differentiation of spleen and kidney deficiency and blood stasis and internal obstruction; (3) Informed consent and voluntary participation.

Exclusion criteria: (1) Combined with other kidney diseases such as diabetic nephropathy, lupus nephritis, obstructive nephropathy; (2) Severe dysfunction of important organs such as heart, liver and brain; (3) Drug allergy; (4) Mental illness; (5) Incomplete clinical data.

2.2. Method

The control group was treated with conventional Western medicine, taking irbesartan tablets 150 mg/time, once/d, for 4 weeks.

The experimental group was treated with conventional Western medicine treatment + Jianshen mixture. The basic treatment plan of Western medicine was the same as that of the control group, with the addition of Jianshen mixture treatment. The formula included: 30 g of raw astragalus, *Poria cocos*, *Dipsacus chuandan*, *Achyranthes bidentata*, Guangyinchen, Liuxue, Fenwei grass, *Centella asiatica*, and Raw Pueraria. 15 g each of Huang and Wulingzhi, 10 g each of stir-fried *Atractylodes macrocephala*, *Loranthia sinensis*, *Codonopsis rhubarb*, whole angelica root, red peony root, and golden cicada flower. Decoct it in the traditional Chinese medicine pharmacy of our hospital. Each dose of medicine is 200 mL. Take it warmly twice in the morning and evening, 100 mL/time, 1 dose/d, and treat for 4 weeks.

2.3. Observation indicators

(1) Compare the TCM syndrome scores between the two groups. 0-3 points, a high score indicates a serious syndrome.

(2) Compare the total effectiveness of the two groups. After treatment, if blood pressure is controlled within the normal range and indicators such as urinary protein, blood creatinine, and urea nitrogen are significantly improved, it is judged to be effective; if blood pressure is basically controlled within the normal range, and indicators such as urinary protein, blood creatinine, and urea nitrogen are improved, it is judged to be effective; in other cases, it is judged to be ineffective. Total efficiency = 100% - inefficiency.

(3) Compare blood pressure, blood β2-MG, and urine mALB levels between the two groups.

(4) Compare the serum IL-6, hs-CRP, and TNF-α levels of the two groups.
(5) Compare the incidence of adverse reactions between the two groups.
(6) Compare the quality of life scores of the two groups. Measured using the Short Form of Health Survey (SF-36), higher scores indicate better quality of life.

2.4. Statistics

To participate in this research, the data generated in this article were processed using SPSS 28.0 data package. Measurement data are represented by mean ± standard deviation (SD), and t test was used; count data [n (%)], were tested by χ^2. $P < 0.05$ is considered statistically significant.

3. Results

3.1. Comparison of TCM syndrome scores between the two groups

According to the data in **Table 1**, before treatment, there was no significant difference in the TCM syndrome scores between the two groups, $P > 0.05$; after treatment, the TCM syndrome scores of the patients in the experimental group were significantly lower, $P < 0.05$.

Table 1. Comparison of TCM syndrome scores between the two groups (mean ± SD)

Group	Before treatment	After treatment
Experimental group ($n = 34$)	26.05 ± 6.56	8.01 ± 6.36
Control group ($n = 34$)	27.55 ± 7.67	13.62 ± 7.01
t	0.8666	3.4560
P	> 0.05	< 0.05

3.2. Comparison of clinical efficacy between the two groups

According to the data in **Table 2**, the treatment effectiveness of the experimental group was 94.12%, while that of the control group was 76.47%. The experimental group was higher than the control group, $P < 0.05$.

Table 2. Comparison of the total effective rate between the two groups (n/%)

Group	Effective	Valid	Invalid	Always efficient
Experimental group ($n = 34$)	20 (58.82)	12 (35.29)	2 (5.88)	32 (94.12)
Control group ($n = 34$)	14 (41.18)	12 (35.29)	8 (23.53)	26 (76.47)
χ^2	-	-	-	4.2207
P	-	-	-	< 0.05

3.3. Comparison of blood pressure, blood β2-MG, and urine mALB levels between the two groups

According to the data in **Table 3**, before treatment, there was no significant difference in blood pressure, blood β2-MG, and urinary mALB levels between the two groups, $P > 0.05$. After the two groups of patients took the medication, the blood pressure level of the experimental group was better, and the blood β2-MG and urinary mALB levels were better than those of the control group, $P < 0.05$.

Table 3. Comparison of blood pressure, blood β2-MG, and urine mALB levels between the two groups (mean ± SD)

Group	SBP (mmHg)		DBP (mmHg)		Blood β2-MG (μg/L)		Urinary mALB (mmol/L)	
	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Experimental group (n = 34)	167.75 ± 8.12	121.72 ± 2.61	101.77 ± 5.25	77.62 ± 3.91	568.44 ± 65.88	344.52 ± 37.52	88.92 ± 10.96	42.32 ± 5.78
Control group (n = 34)	169.35 ± 8.76	145.94 ± 2.33	101.65 ± 5.99	89.48 ± 4.23	569.52 ± 73.65	457.15 ± 27.85	89.77 ± 12.52	63.75 ± 7.26
t	0.7811	40.3650	0.0878	12.0055	0.0637	14.0550	0.2979	13.4654
P	> 0.05	< 0.05	> 0.05	< 0.05	> 0.05	< 0.05	> 0.05	< 0.05

3.4. Comparison of serum IL-6, hs-CRP, and TNF-α levels between the two groups

According to the data in **Table 4**, before treatment, there was no significant difference in serum IL-6, hs-CRP, and TNF-α levels between the two groups, $P > 0.05$; after treatment, the experimental group was better than the control group, $P < 0.05$.

Table 4. Comparison of serum IL-6, hs-CRP, and TNF-α levels between the two groups (mean ± SD)

Group	IL-6(μg/L)		hs-CRP(mg/L)		TNF-α(μg/L)	
	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Experimental group (n = 34)	27.45 ± 3.15	14.26 ± 4.51	9.95 ± 1.72	3.12 ± 0.92	34.88 ± 6.11	20.82 ± 4.88
Control group (n = 34)	28.05 ± 3.85	19.25 ± 3.56	10.26 ± 2.15	5.95 ± 0.86	35.62 ± 5.47	29.15 ± 3.95
t	0.7033	5.0640	0.6565	13.1031	0.5262	7.7365
P	> 0.05	< 0.05	> 0.05	< 0.05	> 0.05	< 0.05

3.5. Comparison of adverse reactions between the two groups

According to the data in **Table 5**, compared with the control group, the incidence of adverse reactions in the experimental group was significantly lower, $P < 0.05$.

Table 5. Comparison of the incidence of adverse reactions between the two groups (n/%)

Group	Constipation	Paroxysmal dry cough	Disgusting	Diarrhea	Dry mouth	Total
Experimental group (n = 34)	2 (5.88)	0	0	0	0	2 (5.88)
Control group (n = 34)	0	2 (5.88)	3 (8.82)	2 (5.88)	1 (2.94)	8 (23.53)
χ^2	-	-	-	-	-	4.2207
P	-	-	-	-	-	< 0.05

3.6. Comparison of quality of life between the two groups

According to the data in **Table 6**, after treatment, the quality of life score of the experimental group was higher than that of the control group, $P < 0.05$.

Table 6. Comparison of quality of life scores between the two groups (mean ± SD)

Group	Physiological function		Physiological functions		Somatic pain		General health	
	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Experimental group (n = 34)	52.33 ± 8.55	85.66 ± 9.22	48.77 ± 9.11	82.11 ± 8.77	50.11 ± 8.77	86.77 ± 9.02	45.66 ± 9.02	80.33 ± 8.55
Control group (n = 34)	51.88 ± 8.77	70.11 ± 8.66	47.99 ± 9.22	68.33 ± 8.55	49.66 ± 8.91	72.44 ± 8.91	44.99 ± 9.11	65.66 ± 8.77
t	0.2142	7.1681	0.3509	6.5603	0.2099	6.5904	0.3047	6.9840
P	> 0.05	< 0.05	> 0.05	< 0.05	> 0.05	< 0.05	> 0.05	< 0.05
Group	Energy		Social function		Emotional function		Mental health	
	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Experimental group (n = 34)	47.88 ± 8.66	83.44 ± 8.91	53.44 ± 9.22	87.66 ± 9.11	49.11 ± 8.91	84.11 ± 8.77	51.33 ± 9.11	85.33 ± 9.00
Control group (n = 34)	46.77 ± 8.77	67.88 ± 8.66	52.88 ± 9.33	73.11 ± 8.91	48.55 ± 9.00	70.88 ± 8.77	50.88 ± 9.22	71.66 ± 8.91
t	0.5251	7.3021	0.2489	6.6579	0.2578	6.2199	0.2024	6.2939
P	> 0.05	< 0.05	> 0.05	< 0.05	> 0.05	< 0.05	> 0.05	< 0.05

4. Discussion

Hypertensive nephropathy refers to kidney damage caused by long-term high blood pressure. There may be no obvious symptoms in the early stage, but as the disease progresses, it may lead to kidney failure and seriously affect the patient's quality of life. From the perspective of traditional Chinese medicine, hypertensive kidney disease is related to liver and kidney yin deficiency, spleen and kidney deficiency, and phlegm-dampness and blood stasis. The main principle of treatment should be to "strengthen the body without retaining evil, remove evil without damaging the body", and focus on dispelling evil and strengthening the body, calming the liver and removing dampness, tonifying the kidney and strengthening the spleen. The increased use of Jianshen Mixture for patients is consistent with the pathological characteristics of the disease, which is "deficiency in origin and excess in excess". The combination of traditional Chinese and Western medicine is used to significantly improve the clinical treatment effect of patients.

The results of this study show that the syndrome scores of traditional Chinese medicine in the experimental group are significantly lower than those in the control group. The reason for the analysis of the results is that the combination of astragalus, yam, atractylodes, and poria in the prescription can have a strong effect on strengthening the spleen and replenishing Qi. Astragalus nourishes Qi and promotes the movement of Qi and blood. The functions of yam and atractylodes are to strengthen the spleen and stomach, which can consolidate the acquired foundation [3]. The function of poria is to infiltrate dampness and be diuretic, which can promote the removal of turbid evil in the body. The patient has spleen and kidney disease. Symptoms such as fatigue, edema and other symptoms caused by deficiency of the two will be significantly relieved. The functions of dogwood, wolfberry, and Eucommia ulmoides are to nourish the liver and kidneys, which can make up for the deficiency of liver and kidney Yin. Patients may suffer from symptoms such as dizziness, tinnitus, soreness and weakness in the waist and knees. Now there is obvious relief [4]. *Salvia miltiorrhiza*, angelica root, Chuanxiong rhizome, and motherwort are effective in activating blood circulation and removing blood stasis, clearing the

patient's kidney stasis, improving renal microcirculation, and relieving the patient's traditional Chinese medicine syndrome from the root [5]. In terms of total clinical effectiveness, 94.12% of the experimental group was significantly higher than that of the control group. The reason for the analysis of the results: multiple traditional Chinese medicine ingredients in Jianshen Mixture can clearly protect the patient's kidneys. Modern pharmacological research has confirmed that astragaloside IV can inhibit the proliferation of renal fibroblasts and delay the fibrosis process. Tanshinone IIA can improve the patient's renal hemodynamics [6] and reduce the level of kidney damage markers. Using Alisma and Motherwort for patients can synergize diuresis and reduce renal water and sodium retention. After treatment, the control of SBP and DBP in the experimental group was more ideal, and the levels of blood β2-MG and urinary mALB were significantly reduced. The reasons for the analysis results: the decrease in blood β2-MG and urinary mALB confirmed that the patients had substantial protection of renal function. The blood-activating and blood-stasis-removing drugs dilated the renal blood vessels of the patients, reduced the renal vascular resistance, and significantly improved the renal ischemia and hypoxia. The tonic drugs can regulate the patients' immune function, reduce immune complex deposition, and alleviate glomerular damage [7]. The serum inflammatory factors IL-6, hs-CRP, and TNF-α were significantly reduced, confirming that Jianshen Mixture has a good anti-inflammatory effect. Astragalus polysaccharide can inhibit the activation of inflammatory pathways and reduce the release of inflammatory factors. Angelica ferulic acid can inhibit the activation of inflammatory cells. Tanshinone IIA can lower hs-CRP levels and block the inflammatory cascade reaction. Adverse reactions in the control group were mainly dry cough, nausea, etc., while 2 cases in the experimental group had mild constipation. This is because the spleen-invigorating drugs in the Jianshen Mixture can improve the gastrointestinal function of patients, reduce the stimulation of Western medicine, and the drugs for promoting blood circulation and removing blood stasis can improve patients' drug metabolism and reduce the risk of accumulation. The comprehensive result of efficacy, symptom improvement and safety are that the quality of life is significantly improved [8], TCM syndromes are alleviated, patients' physical discomfort is reduced, kidney function is protected, patients' concerns about disease progression are reduced, adverse reactions are reduced, treatment compliance is improved, and patients' physiological, social and mental status are comprehensively improved. In short, on the one hand, traditional Chinese medicine treatment works together with conventional western medicine to lower blood pressure, and the patient's physical function is significantly improved; on the other hand, traditional Chinese medicine is economical, safe, and long-term use can improve the body's immunity. After the patient's condition is stabilized, the psychological state is also improved. Long-term use has a better prognosis, and the overall vitality and function are greatly improved. It can be used as a reference.

5. Conclusion

In summary, the application of Jianshen Mixture in the treatment of hypertensive nephropathy can achieve good curative effects, effectively reduce blood pressure levels, and show significant advantages in improving patients' renal function and quality of life. It provides a more promising drug option for the treatment of hypertensive nephropathy and has high application value.

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Disclosure statement

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