Effect of Traditional Chinese Medicine on Renal Fibrosis in Chronic Renal Failure Model and Its Influencing Factors

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Abstract: Objective: To analyze the effect of traditional Chinese medicine on renal fibrosis in chronic renal failure.Methods: From January 2019 to March 2020,65 patients with renal fibrosis in chronic renal failure were collected and numbered, then randomly selected, divided into two groups ,33 patients treated with traditional Chinese medicine as observation group ,32 patients treated with western medicine as control group, the renal function level, fibrosis index, immune function were compared, and the therapeutic effect, quality of life and adverse reactions were evaluated.Results: The renal function level and fibrosis index in the observation group were better than those in the control group (P<0.05), the adverse reaction was lower than that in the control group (P<0.05), the therapeutic effect was significantly higher than that in the control group (0.05), the immune function was higher than that in the control group (P<0.05), and the quality of life was better than that in the control group (0.05).Conclusion: using traditional Chinese medicine for renal fibrosis in chronic renal failure model can effectively improve renal function, improve renal fibrosis level, promote renal function, fibrosis and so on. Therefore, it has the value of clinical application.

1. Introduction

The renal structure of patients with chronic renal failure has been irreversibly destroyed, the volume of the kidney is reduced, the renal excretion function and endocrine function have been seriously damaged, resulting in the body of uremia toxin Chuliu[1]For example, serum creatinine, urea nitrogen, and then the balance of the internal environment disorders, patients will develop metabolic acidosis, hyperkalemia, renal fibrosis, multiple organ dysfunction and other symptoms[2]Sometimes life can be seriously endangered. Chronic renal failure renal fibrosis is the progression of various chronic kidney diseases to the final outcome, at this time need to control the development of the disease, blocking the damage to renal function. For the treatment of renal fibrosis in chronic renal failure has received clinical attention in recent years, this study analyzed the effect of traditional Chinese medicine on renal fibrosis in chronic renal failure model.

2. General Information

2.1. Basic Information

the case collection began in january 2019 until the end of march 2020. a total of 65 patients with renal fibrosis in chronic renal failure in this study were collected, numbered and then randomly selected into 2 groups .33 patients in the observation group, including 19 women ,14 men, aged 34-74 years, averaged (50.29±9.25) years, and 32 controls, including 16 women ,16 men, aged 34-74 years, averaged (50.76±9.41) years. and there was no difference in sex and age between the two groups (P>0.05). All patients signed informed consent, approved by the ethics committee, inclusion criteria: all met the diagnostic criteria of renal fibrosis in chronic renal failure, in line with this study; exclusion criteria: acute renal failure, other kidney diseases, mental diseases, other malignant tumors, serious history of drug allergy, can not cooperate with this study.

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2.2. Research Methodology

Control group with western medicine treatment: oral uetuqing granule (Kangchen pharmaceutical industry, Chinese medicine accurate word Z20073256), warm boiled water rushed. Four times a day, one bag each at 6,12 and 1800 hours and two bags at 2200 hours. oral esit (hebei changtian pharmaceutical industry, chinese medicine accurate word H13022797),3-10 tablets at a time ,3 times a day.

The traditional Chinese medicine used in the observation group: the Chinese medicine formula included 30 g raw Astragalus ,10 g raw rhubarb ,15 g Salvia miltiorrhiza ,20 g Morinda officinalis ,15 g dandelion ,10 g Sophora japonica ,30 raw oysters. Decoction of water

2.3. Observation Indicators

To compare the therapeutic effects of the two groups (significant: clinical symptoms disappeared, renal function returned to normal, fibrosis disappeared, TCM signs normal; improvement: clinical remission, renal function improved, fibrosis alleviated, TCM signs improved; ineffective: clinical symptoms unchanged, renal function unchanged, fibrosis unchanged, TCM signs unchanged)[4]and renal function (creatinine, urea nitrogen) levels. CD4+,CD8+and CD4+/CD8+Immune level (blood CD4 in patients tested by fluid cells+,CD8+levels), fibrosis markers (collagen IV (C-IV), serum hyaluronic acid (HA), laminin (LN), pre-collagen III (PCIII)), and adverse reactions (dizziness, headache, nausea and vomiting, abdominal pain, diarrhea, allergies). quality of life (sleep, diet, physiological function, condition).

2.4. Statistical Treatment

 SPSS20.0 statistical software was used to analyze, the measurement data were expressed by (x±s), the comparison by t test, the counting data by rate (%), and the comparison by chi-square test, $P<0.05$ was statistically significant.

3. Results

3.1. Comparison of Renal Function Between Two Groups

renal function of the observation group was better than that of the control group before treatment ($P<0.05$), see Table 1.

Table 1 Comparison of renal function between groups (x±s)

Group	n	Creatinine (kg)		Urea nitrogen	
		Pre-treatment	After treatment	Pre-treatment	After treatment
Observation Group	33	153.36±30.22	102.36±25.53	9.06±1.56	4.06±1.14
Control group	32	154.03±31.21	139.87±31.06	9.43±1.62	7.43±1.43
t		0.0879	5.3262	0.9381	10.5226
P		0.9302	0.0000	0.3518	0.0000

3.2. Comparison of Therapeutic Effects Between the Two Groups

87.88% of the total effective rate in the observation group was better than that in the control group ($P<0.05$), as shown in Table 2.

Table 2 Comparison of therapeutic effects between the two groups (n%)

Group	n	(n,%)	(n,%)	Invalid (n,%)	(%) of total efficiency
Observation Group	33	13(39.39%)	16(48.48%)	4(12.12%)	29(87.88%)

Control group	32	6(18.75%)	15(46.88%)	11(34.38%)	21(45.62%)
$\chi 2$		3.3470	0.0169	4.5324	4.5324
P		0.0673	0.8966	0.0333	0.0333

3.3. Comparison of Fibrosis Indicators Between the Two Groups

fibrosis index in the observation group after treatment was better than that in the control group and before treatment (P<0.05), see Table 3.

Table 3 Comparison of fibrosis indicators between groups (x±s)

Group	n	HA (μmol/L)		PCIII (μg/L)		LN (μg/L)		C-IV (μg/L)	
		Pre-treatment	After treatment	Pre-treatment	After treatment	Pre-treatment	After treatment	Pre-treatment	After treatment
Observation Group	33	248.93±73.56	142.24±30.39	199.46±38.42	143.18±30.13	237.26±53.15	156.24±40.86	126.26±30.13	87.24±20.86
Control group	32	248.02±73.48	199.51±43.58	199.45±39.43	168.69±42.38	236.09±53.11	186.95±51.03	126.13±30.14	103.95±29.03
t		0.0499	6.1613	0.0010	2.8038	0.0888	2.6824	0.0174	2.6713
P		0.9604	0.0000	0.9992	0.0067	0.9296	0.0093	0.9862	0.0096

3.4. Comparison of Adverse Reactions Between Two Groups

Adverse reactions in the observation group were 3.03% lower than those in the control group (P<0.05), see Table 4.

Table 4 Comparison of adverse reactions between groups (n%)

Group	n	Dizziness and headache (n,%)	nausea and vomiting (n,%)	Allergy (n,%)	Abdominal pain, diarrhea (n,%)	(%) of total efficiency
Observation Group	33	0(0%)	0(0%)	1(3.03%)	0(0%)	1(3.03%)
Control group	32	1(3.13%)	2(6.25%)	2(6.25%)	2(6.25%)	7(21.88%)
$\chi 2$		1.0474	2.1280	0.3826	2.1280	5.3455
P		0.3061	0.1446	0.5362	0.1446	0.0208

3.5. Cd4+Cd8+and Cd4+/Cd8+Comparison of Immunization Levels

CD4 after study group treatment+(0.51±0.05)%, CD8%+(0.24±0.04)% and CD4+/CD8+(1.63±0.25)% of the immune level was better than that of the control group (P<0.05), see Table 5.

Table 5 2 sets of CD4+,CD8+and CD4+/CD8+Comparison of immunization levels (x±s)

Group	n	Pre-treatment			After treatment		
		CD4+(%)	CD8+(%)	CD4+/CD8+(%)	CD4+(%)	CD8+(%)	CD4+/CD8+(%)
Observation Group	33	0.41±0.05	0.36±0.02	1.23±0.12	0.51±0.05	0.24±0.04	1.63±0.25
Control group	32	0.42±0.04	0.37±0.03	1.22±0.13	0.44±0.06	0.31±0.06	1.42±0.33
t		0.8887	1.5858	0.3224	5.1162	5.5503	2.8976
P		0.3776	0.1178	0.7482	0.0000	0.0000	0.0052

3.6. Quality of Life Comparison Between the Two Groups

Higher quality of life in the study group than in the control group (P<0.05), see Table 6.

Table 6 Comparison of quality of life between groups (x±s)

Group	n	Sleep (points)	Diet (points)	Physiological functions (points)	Illness (points)
Observation Group	33	70.34±5.18	68.82±4.22	69.82±5.73	66.06±5.11
Control group	32	51.82±4.04	49.82±3.16	50.71±6.41	52.58±4.88
t		16.0392	20.4975	12.6810	10.8707
P		0.0000	0.0000	0.0000	0.0000

4. Discussion

The incidence and mortality of kidney diseases are increasing due to aging, changing diet structure, obesity, heredity and so on. Chronic renal failure is a common kidney disease, which is the end-stage of renal disease. It refers to the progressive damage of renal function caused by various reasons. In essence, the kidney is damaged by a variety of causes, leading to the gradual destruction of renal tissue, renal failure, can lead to metabolic waste, hydronephrosis, nausea, vomiting, edema, electrolyte, acid-base imbalance, patients will have a variety of organs, affected by this clinical syndrome of a variety of systems. patients with chronic renal failure have a course of at least 3 months. there is also evidence of anemia, metabolic disorders, renal atrophy, renal fibrosis, etc. supporting patients with chronic renal failure. Renal fibrosis is a pathophysiological change and a common pathway of chronic kidney disease, which eventually leads to renal failure, massive inflammatory cell infiltration, tubular atrophy, activation of interstitial myofibroblasts and the resulting excessive accumulation of extracellular matrix elements, eventually replacing normal renal tissue and forming scars, leading to loss of renal function and renal failure, requiring long-term treatment of kidney disease, monitoring of renal condition, avoiding progression and delaying treatment.

TCM believes that renal fibrosis in chronic renal failure belongs to the category of "deficiency labor "," edema "," Guan GE" and other diseases. This study proves that the use of traditional Chinese medicine can improve renal function and reduce the level of fibrosis index. The therapeutic effect is 87.88%, the effect is remarkable, the adverse reaction is 3.03%, and the safety is high. And traditional Chinese medicine can improve the immunity of patients and improve the quality of life of patients. Astragalus in traditional Chinese medicine formula has the effect of strengthening the surface to stop sweating, supporting poison to produce muscle, tonifying qi and raising yang, rhubarb has the effect of promoting dampness and removing yellow, purging heat and defecating, detoxifying and eliminating carbuncle, salvia miltiorrhiza can promote blood circulation, removing blood stasis and relieving pain, preventing thrombosis, halberd days have antihypertensive, strengthening muscles and bones, tonifying kidney and strengthening yang, anti-cancer, dandelion can clear heat and detoxification, detumescence, diuretic Tonglin, Huaihua can cool blood, hemostasis, moisturizing intestines, antibacterial and cool blood, raw oysters can calm liver, tranquilizing, soft and astringent. The combination of several drugs has the effect of repairing renal function and fibrosis to achieve the purpose of treatment. And the adverse reaction of traditional Chinese medicine is low and the safety is high.

To sum up, the use of traditional Chinese medicine for renal fibrosis in chronic renal failure can effectively improve the renal function of patients, improve the level of renal fibrosis, have a catalytic effect on renal function, fibrosis and so on. And Chinese medicine effectively improve the immunity of patients, improve the quality of life of patients, so it has the value of clinical application.

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