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Effect of Shenkang injection in combined with nursing intervention on the renal function in patients with chronic renal failure

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ABSTRACT

Objective: To explore the effect of Shenkang injection in combined with nursing intervention on the renal function in patients with chronic renal failure (CRF). **Methods:** A total of 90 patients with CRF who were admitted in our hospital from May, 2015 to May, 2016 were included in the study and randomized into the study group and the control group. The patients in the two groups were given routine pressure reducing, water-electrolyte and acid-base balance correcting, and corresponding nursing intervention. On the above basis, the patients in the control group were given ligustrazine injection (200 mg) + 5% glucose (250 mL), ivdrip, 1 time/d, and alprostadil (20 μg) + 0.9%NaCl (100 mL), ivdrip slowly, 1 time/d. On the basis of the treatments in the control group, the patients in the study group were given additional Shenkang injection (100 mL)+5% glucose (250 mL), iv drip, 1 time/d. The patients in the two groups were treated for 4 weeks, and the efficacy was evaluated after the treatment. The morning fasting elbow venous blood before and after treatment was extracted. The serum Scr, BUN, Ccr, TC, TG, HDL-C, Apo-A, and Apo-B before and after treatment were detected. 24 h urine before and after treatment was collected, and 24 h urine protein volume (24 h pro) was calculated. **Results:** Scr, BUN, and 24 h pro after treatment in the two groups were significantly reduced, while Ccr was significantly elevated when compared with before treatment, and those in the study group were significantly superior to those in the control group. TC, TG, and Apo-B after treatment in the two groups were significantly reduced, while HDL-C and Apo-A were significantly elevated when compared with before treatment, and those in the study group were significantly superior to those in the control group. **Conclusions:** Shenkang injection in combined with nursing intervention in the treatment of CRF can effectively regulate the lipid metabolism disorder, delay the progression, and protect the renal function; therefore, it deserves to be widely recommended in the clinic.

1. Introduction

Chronic renal failure (CRF) is a clinical syndrome characterized by chronic and progressive renal parenchyma damage, obvious kidney atrophy, and reduced renal function which is unable to maintain the basic function, with main clinical manifestations of water-electrolyte disturbance, acid-base imbalance, metabolite retention, and malnutrition[1,2]. The unobvious clinical symptoms during the compensatory stage of CRF can often delay the diagnosis and treatment, which can further aggravate the renal damage; therefore, early diagnosis and treatment, and effective nursing intervention are particularly important[3]. Shenkang injection has efficacies of adverse qi lowering and turbidity discharging, bowel relaxing and dampness removing, and qi tonifying and blood activating, and is widely applied in the treatment of CRF, with a satisfactory effect in the clinic[4]. The study is aimed to explore the effect of Shenkang injection in combined with nursing intervention on the renal function in patients with CRF.

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2. Materials and methods

2.1. General materials

A total of 90 patients with CRF who were admitted in our hospital from May, 2015 to May, 2016 were included in the study. All the patients were in accordance with the related diagnostic criteria of CRF[5]. Those who had uremia were excluded from the study. The patients were randomized into the study group and the control group. In the study group, there were 45 cases, among which 25 were male, and 20 were female; aged from 37 to 62 years old, with an average age of (49.8±5.6); course from 1 to 7 years old, with an average course of (3.6±1.2) years. In the control group, there were 45 cases, among which 24 were male, and 21 were female; aged from 37 to 61 years old, with an average age of (48.7±5.8); course from 1 to 7 years old, with an average course of (3.5±1.3) years. The comparison of the general materials between the two groups was not statistically significant (P>0.05).

2.2. Methods

The patients in the two groups were given routine pressure reducing, and water-electrolyte and acid-base balance correcting. The corresponding nursing interventions were taken, including routine nursing (maintaining the ward clean and appropriate temperature and humidity, and creating a favorable environment), psychological intervention (communicating actively and establishing a favorable relationship to eliminate anxiety, fear, and other unhealthy psychology, explaining CRF related knowledge patiently to strengthen their confidence in overcoming the disease and promote their active cooperation), diet intervention (diet with low salt, low fat, high quality low protein, low phosphate, and easy digestion), and discharge guidance (work and rest, appropriate exercise, sticking to standard treatment, and regular review). On the above basis, the patients in the control group were given ligustrazine injection (produced by Henan Fusen Pharmaceutical Co. Ltd., Approval No. H20056061, 200 mg) + 5% glucose (250 mL), ivdrip, 1 time/d, and alprostadil (produced by Beijing Ted Pharmaceutical Co. Ltd., Approval No. H10980023, 20 μg) + 0.9%NaCl (100 mL), iv drip slowly, 1 time/d. On the basis of the treatments in the control group, the patients in the study group were given additional Shenkang injection (produced by Xian Shiji Shengkang Pharmaceutical Co. Ltd., Approval No. Z20040110, 100 mL) + 5% glucose (250 mL), iv drip, 1 time/d. The patients in the two groups were treated for 4 weeks, and the efficacy was evaluated after the treatment.

2.3. Observation indicators

The morning fasting elbow venous blood before and after treatment was extracted. The serum Scr, BUN, Ccr, TC, TG, HDL-C, Apo-A, and Apo-B before and after treatment were detected. 24 h urine before and after treatment was collected. A volume of 5mL sample was used for assay. 24 h urine protein volume (24 h pro) was calculated.

2.4. Statistical analysis

SPSS 18.0 software was used for the statistical analysis. The measurement data were expressed as mean ± SD, and t test was used. Chi-square test was used for the enumeration data. P<0.05 was regarded as statistically significant.

3. Results

3.1. Comparison of the renal function indicators before and after treatment

Scr, BUN, and 24hpro after treatment in the two groups were significantly reduced, while Ccr was significantly elevated when compared with before treatment (P<0.05), and those in the study group were significantly superior to those in the control group (P<0.05) (Table 1).

3.2. Comparison of the lipid metabolism indicators before and after treatment

TC, TG, and Apo-B after treatment in the two groups were significantly reduced, while HDL-C and Apo-A were significantly elevated when compared with before treatment (P<0.05), and those in the study group were significantly superior to those in the control group (P<0.05) (Table 2).

4. Discussion

The most effective measure to treat the kidney disease in the clinic is to maintain the renal microvascular function. Alprostadil can inhibit the activity and aggregation of blood platelet, and reduce the renal vascular resistance and red cell deformation in order to improve the renal microcirculation, increase the renal blood flow, inhibit the immune complex deposit, delay the speed of glomerulosclerosis, and protect the renal function[6]. Shenkang injection mainly consists of Salvia miltiorrhiza, Carthamus tinctorius, Astragalus, and Rheum rhabarbarum, and has efficacies of blood activating and meridian obstruction removing, blood supplementing and Yin nourishing, and bowel relaxing and turbidity discharging[7]. The modern researches demonstrate that Shenkang injection in the treatment of CRF can improve the azotemia, contribute to protect the residual renal function, inhibit glomerular mesangial cell proliferation, renal compensatory hypertrophy, and hypermetabolism, and regulate the

Table 1.
Comparison of the renal function indicators before and after treatment.

Groups	*n*	Time	Scr (mmol/L)	BUN (mmol/L)	Ccr (mL/min)	24 h pro (g)
Study	45	Before treatment	447.32±117.35	23.72±6.17	17.43±7.58	1.76±1.15
		After treatment	275.67±103.25*#	14.68±5.21*#	25.44±12.65*#	1.06±0.66*#
Control	45	Before treatment	448.17±112.24	23.67±5.53	18.41±8.53	1.81±0.93
		After treatment	353.61±101.45*	18.54±4.67*	22.16±8.45*	1.67±0.87*

*P<0.05, when compared with before treatment; #P<0.05, when compared with the control group.

Table 2.
Comparison of the lipid metabolism indicators before and after treatment.

Groups	*n*	Time	TC(mmol/L)	TG(mmol/L)	HDL-C(g/L)	Apo-A(mmol/L)	Apo-B(g/L)
Study	45	Before treatment	5.33±0.91	2.24±0.79	1.13±0.22	1.21±0.12	1.07±0.14
		After treatment	4.45±0.42*#	1.57±0.31*#	1.36±0.25*#	1.37±0.18*#	0.86±0.11*#
Control	45	Before treatment	5.32±0.92	2.23±0.76	1.14±0.23	1.22±0.13	1.06±0.15
		After treatment	4.78±0.45*	1.91±0.21*	1.24±0.31*	1.27±0.19*	0.96±0.12*

*P<0.05, when compared with before treatment; #P<0.05, when compared with the control group.

lipid metabolism disorder to delay the progression of CRF, but can also expand the blood vessels, reduce the blood pressure, increase the renal blood flow, regulate the immunity, improve the renal tubular reabsorption, inhibit the production of ROS, strengthen the elimination of ROS, improve the oxidative stress reaction, and protect the renal parenchymal cells, which can contribute to the recovery of renal function[8,9].

In recent years, the morbidity of CRF is gradually increasing, with a complex pathogenesis, apostasis, and long course; therefore, CRF has been one of the main diseases which can threaten people's health. The modern medical researches demonstrate that glomerular endothelial cell, glomerular mesangial cell, extracellular matrix, and cytokines play an important role in the pathogenesis of CRF[10]. Due to the irreversible damage on the renal function in patients with CRF, effective interventions should be taken as early as possible to restrain the deterioration and improve the prognosis[11]. Currently, GRF is the best indicator to reflect the renal function due to its stability and small effect, while Scr, Ccr, and BUN are used to evaluate CRF. When the renal function is damaged, Scr secretion by the renal tubule is increased, and the elimination function through other ways is correspondingly increased, thus affecting the serum Scr concentration[12]. It is reported that Shenkang injection in the treatment of CRF can significantly reduce CysC, Scr, and BUN levels in CRF patients at the compensatory stage, and improve the renal function[13]. The results in the study showed that Scr, BUN, and 24 h pro after treatment in the two groups were significantly reduced, while Ccr was significantly elevated when compared with before treatment (P<0.05), and those in the study group were significantly superior to those in the control group (P<0.05), indicating that Shenkang injection in the treatment of early CRF has a significant effect.

It is reported that the lipid metabolism is abnormal in patients with CRF, showing in the elevated TC, TG, and LDL-C levels, and reduced HDL-C level[14]. The glomerular lipidosis due to abnormal lipid metabolism can cause the proliferation of mesangial cells, which can further induce endothelial cell dysfunction and the increased synthesis of extracellular matrix[15]. Apo-A can catalyze ACAT to transfer the excessive serum EC to the liver for processing, while Apo-B plays a decisive role in the metabolism of TC, TG, and LDL-C[16]. The reduced Apo-A level and restrained ACAT activity in patients with CRF can cause the elevation of TC and LDL-C, which can affect the renal blood circulation, and aggravate the renal damage, resulting in a further reduction of the renal function[17]. The results in the study showed that TC, TG, and Apo-B after treatment in the two groups were significantly reduced, while HDL-C and Apo-A were significantly elevated when compared with before treatment (P<0.05), and those in the study group were significantly superior to those in the control group (P<0.05), indicating that Shenkang injection can effectively regulate the lipid metabolism disorder, and protect the renal function.

In conclusion, Shenkang injection in combined with nursing intervention in the treatment of CRF can effectively regulate the lipid metabolism disorder, delay the progression, and protect the renal function; therefore, it deserves to be widely recommended in the clinic.

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