Study on Effect of Baoyuan Qiangshen Tablet No. I (保元强肾 I 号片) in Prolongating Interval of Hemodialysis in Patients of Renal Disease in Terminal Stage

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ABSTRACT

Objective: To evaluate the effect of Baoyuan Qiangshen Tablet No. I (BYQS), a Chinese herbal medicine for reinforcing Kidney, activating circulation and eliminating evil Turbid factors, in prolongating interval of hemodialysis in patients of terminal stage of renal disease (TSRD).

Methods: Twenty cases of TSRD were treated with BYQS combined with hemodialysis once every 5 days and the effect was observed and compared with control group treated with routine hemodialysis once every 3 days.

Results: The increasing levels of serum creatinine, and blood urea nitrogen of BYQS group at dialysis interval were all lower than those of the control group ($P<0.01$). After 3 months' treatment, serum creatinine, blood urea nitrogen of BYQS group were lower than those before treatment, plasma albumin, lipoprotein, urine level of prostaglandin and anemia were all improved to various extent, but the creatinine clearance rate was unchanged.

Conclusions: BYQS could prolong the interval and reduce the times of dialysis by way of regulating the lipid metabolic disorder, improving pathological change of kidney and protecting function of residual kidney unit. BYQS combined with hemodialysis is a good way of integrated traditional Chinese and Western medicine in treating TSRD.

KEY WORDS terminal stage of renal disease, Baoyuan Qiangshen tablet No. I, hemodialysis

Replacement therapy is necessary in the treatment of terminal stage of renal disease (TSRD). In general, hemodialysis once every 3 days is needed for sufficient dialysis and preserve life of good quality. But this routine hemodialysis is a heavy load to the patients both physically and mentally. Infinitesimal effect could be obtained in treating TSRD by drugs, whether Western or Chinese traditional. So there is no doubt that to find out therapeutic method for prolonging interval and reducing times of hemodialysis is of important significance in clinical practice. Therefore, an integrated program of TCM-WM therapy by combining Baoyuan Qiangshen tablet No. I (BYQS), a Chinese herbal medicine, with hemodialysis once every 5 days was designed by the authors to this end, and its effect on 20 cases of TSRD patients was studied prospectively. It is reported as follows.

METHODS

Clinical Materials

According to the Diagnostic, Typing and Therapeutic Standard of Primary Glomerulopathy (1), all the 31 cases enrolled in this study conform to the terminal stage of chronic renal failure, that is, level of serum creatinine (Scr) $>707 \mu\text{mol/L}$ and creatinine clearance rate (CrCl) $<10 \text{ ml/min}$. Patients were randomly divided into 2 groups.

The BYQS group consisted of 20 cases, 17 males and 3 females, aged $25 \sim 55$ years, $32.1$ in average; course of renal disease ranging from 3 months to 20 years, $2.1$ years in average. Their primary diseases were chronic nephritis in 12 cases, nephrotic syndrome in 4 and rapidly progressing glomerulonephritis, lupus glomerulonephritis, purpuric nephritis and diabetic nephropathy in one each. 15 patients were complicated with hypertension, 5 with edema, 4 with heart failure, 3 of them had received routine hemodialysis for 1 month.

The 11 cases enlisted in the control group were 8 males and 3 females, aged $27 \sim 56$ years, $31.8$ years in average, course of renal disease ranging from 3 months to 18 years, $1.9$ years in average. Their primary diseases were chronic nephritis in cases, nephrotic syndrome in 3 and lupus glomerulonephritis and
polycystic kidney in one each. Seven cases were complicated with hypertension, 3 with edema and 2 with heart failure. None had received hemodialysis.

B-ultrasonic examination was done in all patients, and the result showed bilateral kidney shrinkage except in 3 cases (one in diabetic nephropathy, polycystic kidney and rapidly progressing glomerulonephritis respectively).

Treatment

After hospitalization, all the patients received routine hemodialysis once every 3 days 3 times successively as well as symptomatic therapy such as hypotensive agent, diuretics, treatment for adjusting water-electrolyte and acid-base imbalance and correcting heart failure. The patients were evidently improved in general condition after the above-mentioned treatment, with their heart failure corrected or markedly ameliorated, level of SCr and blood urea nitrogen (BUN) lowered thus entering into the observation period.

In the observation period, the treatment was as follows.

BYQS group: The patient received hemodialysis once every 5 days, and took orally BYQS 40 tablets every day (20 tablets twice per day), which contain Radix Ginseng 6 g, Radix Aconiti Carmichaeli Praeparata 6 g, Radix et Rhizoma Rhei 5 g, Radix Rehmanniae 12 g, Herba Epimedii 12 g, Radix Salviae Miltiorrhiza 12 g, Rhizoma Ligustici Wallchii 12 g and Cortex Cinnamomi 3 g, and was prepared by the therapeutic preparation department of the authors’ hospital.

The control group: Hemodialysis was given in routine, once every 3 days.

Except hypotensive agent, infusion of small amount of erythrocyte when necessary and symptomatic treatment, no other specific therapy would be given to either group, no strict limitation in diet was prescribed except that food containing high phosphide was forbidden. One therapeutic course consisted of 3 months.

Hemodialysis

Hemodialysis machine of DBB-22B type, made in Japan, was used for hemodialysis in both groups, the dialyser used was a copper-amine membranous hollow fiber dialyser made in Zhangjiagang Factory of Medical Equipment with hollow fiber type CR-I produced by ENKA Company, Germany. The dialytic area (1.2 m²) was used no more than 2 times. Bicarbonate was used as dialysate, with 500 ml/min in flow and 200 ml/min in blood flow, and each dialysis lasted 4.5～5 hours.

Observation

Changes of SCr, BUN, CCr, Hemoglobin (Hb), red blood cell count (RBC), plasma albumin (P-Alb), blood-lipids, lipoproteins, apolipoprotein (ApoA-I ApoB100) and prostaglandins in urea (by radioimmunoassay, using assay kit prepared by Suzhou Medical College, adopting the method in instruction of kit) before and after treatment were all observed.

Statistic Analysis

Matched-pair t-test was used for comparison before and after treatment.

RESULTS

Changes of SCr, CCr and BUN

The differences of SCr, CCr and BUN between the two groups were insignificant before treatment. Although SCr and BUN of both groups decreased after treatment, the decrement was more prominent in the BYQS group. CCr of the control group markedly decreased after treatment ($P<0.01$), while in the BYQS group the change was insignificant, so level of CCr after treatment in the latter was significantly higher than that in the former ($P<0.05$).

In order to observe the increment of SCr and BUN between two times of hemodialysis, the levels of the two parameters were measured just before two successive times of