Research on the Progress in the Treatment of Hypertensive Renal Damage

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Abstract: Hypertensive kidney damage is one of the serious complications of hypertension. In recent years, the incidence of end-stage renal disease caused by hypertensive kidney damage has increased year by year, causing great harm to human health and social economy. This article reviews the pathogenesis and treatment of hypertensive renal damage in modern medicine and the clinical and experimental research on the prevention and treatment of this disease by Chinese medicine, and provides a new strategy for rational blood pressure reduction, improvement of renal function and reduction of cardiovascular mortality.

1. Introduction

Hypertensive renal damage is a change in the structure and function of the kidneys caused by high blood pressure. Except for nocturia, there are no obvious symptoms, and patients are often not taken seriously. However, studies have shown that in patients with severe hypertension, the incidence of end-stage renal disease is more than 11 times that of normal blood pressure patients. Even if the blood pressure is 1.9 times higher than the normal high level, kidney damage caused by hypertension cannot be ignored. Early renal damage in hypertension is reversible, and early detection and appropriate treatment can delay its development. Therefore, it is important to study early renal damage in hypertension.

2. Overview of Hypertensive Renal Damage

Clinically, the changes in kidney structure and function caused by hypertension are called hypertensive renal damage, which is one of the main complications of long-term blood pressure control in patients with hypertension. Clinically, benign small arteriosclerosis and malignant arteriosclerosis can be seen [1]. Studies have shown that blood pressure is significantly associated with elevated serum creatinine, and that increased age and elevated mean arterial pressure are independent risk factors for renal function decline. According to relevant scholars, after 5 to 10 years of persistent and sTable development of hypertension, mild to moderate renal arteriosclerosis may occur. According to the survey, approximately 42% of untreated patients with essential hypertension develop renal sclerosing damage, and approximately 10% die of kidney failure. According to a 1998 clinical survey in the United States, hypertensive renal damage has become the second leading cause of ESRD, accounting for about 20%. In China, benign small arteriosclerosis accounts for the second (14.8%) and third (9%) of the causes of peritoneal dialysis and hemodialysis in ESRD patients, respectively. The number of patients entering ESRD due to renal damage caused by hypertension is increasing year by year. It is important to improve the pathogenesis of ESRD caused by hypertension and the understanding of its therapeutic measures.

The pathogenesis of essential hypertension is related to vascular, immune, endocrine, humoral abnormalities and genetic and environmental factors. The kidney also plays an important role in the occurrence and development of hypertension. The two form a vicious circle and gradually cause kidneys. The pathological manifestations of hypertensive renal damage are mainly glomerular sclerosis and renal interstitial fibrosis. The function is characterized by a decrease in renal blood flow and proteinuria. The mechanism is that 1 glomerular internal hypertension and high shear stress impair the function of vascular endothelial cells, and produce proangiogenic substances AngII,

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ET-1, thromboxane A2 and platelet-derived growth factor (PDGF), thereby promoting mesangial cell proliferation. Collagen deposition promotes the synthesis and secretion of extracellular matrix. In addition, intravesical hypertension can also damage the glomerular visceral epithelial cells, increase the permeability of the basement membrane, and cause proteinuria; 2 glomerular capillary hypertension Lead to AngII hyperthyroidism, whereby ATII induces mesangial cells to produce certain growth factors such as transforming growth factor (TGF-β1), which affects the growth and function of kidney cells through molecular regulation mechanisms, such as mesangial cell proliferation, Membrane cell collagen, fibronectin (FN), laminin (LN) and other synthesis increased, extracellular matrix increased, and eventually developed into renal sclerosis; 3 glomerular ischemia, inflammatory response, etc. Activated, activated platelets produce released vasoactive substances, chemotactic substances and mitogenic factors, and soluble inflammation is produced by inflammatory cells intrinsic or infiltrating with the kidneys. Synergism and synergy further aggravate glomerular injury; 4 Long-term hypertension promotes excessive production of reactive oxygen species (Ros) through NAD(P) H oxidase, nitric oxide synthase and mitochondria, and Ros activates oxidative stress sensitivity Enzymes, activate intracellular signaling MAPK pathway, activate nuclear transcription factors (NF-κB, AP-1, etc.), regulate the expression of various inflammatory mediators such as cytokines, chemotactic factors and adhesion factors, causing renal interstitial Inflammation and proliferation and transformation of renal fibroblasts and mesangial cells eventually lead to the formation of hypertensive renal fibrosis.

In the treatment of hypertensive renal damage, antihypertensive drugs such as diuretics, receptor blockers, calcium antagonists, angiotensin converting enzyme inhibitors (ACSI) or angiotensin II receptor antagonists are currently used. ARB) is widely used. AIPRI, AASK and other large-scale clinical studies abroad have shown that calcium antagonists, ACEI and ARB are more favorable for hemodynamics of the kidney. ACEI and ARB have renal protection in addition to blood pressure. However, due to the complex pathogenesis of hypertensive renal damage, clinical treatment lacks specificity and specificity, resulting in more than 50% of patients in combination therapy is not ideal. Finding safe and effective complementary and alternative medical treatments has become a global focus.

3. Chinese Medicine Treatment

Traditional Chinese medicine treatment of hypertensive renal damage is mainly based on Bushen Yiqi, Huoxuehuayu, and is promoted clinically by traditional Chinese medicine oral decoction, traditional Chinese medicine injection, Chinese medicine extract and Chinese medicine prescription.

Jiang Qi [2] divided 60 patients with hypertensive nephropathy and qi and yin deficiency into the control group (Jin Shui Bao capsule oral) and treatment group (self-made Bushen Tang oral: Astragalus 30g, Atractylodes 20g, Chinese yam 15g, rehmannia 20g , Hawthorn 15g, Fructus 15g, Dodder 15g, Tortoiseshell 15g, Achyranthes 15g, Ligustrum lucidum 15g, Angelica 20g, Angelica 20g, Zhimu 20g, Salvia miltiorrhiza 15g, Mudanpi 15g, Licorice 1Og) for 2 months The clinical observation showed that the treatment group of Bushen Decoction can effectively improve the clinical symptoms, and the plasma renin activity level, 24-hour urine protein quantitation, β2-microglobulin reduction was significantly better than the control group ($P < 0.05$). Shi Zhiqin and other 84 patients with hypertensive nephropathy, liver and kidney yin deficiency were divided into control group (Western medicine comprehensive treatment + aldehyde oxide starch) and Chinese medicine group (Western medicine comprehensive treatment + Zishen Pinggan Xifeng soup: Tianma 15g , Crocodile 15g, Achyranthes 15g, Xianling spleen 15g, Astragalus 30g, Salvia 30g, June Snow 30g, Pinellia 9g) for clinical observation, the results show that Zishen Pinggan Xifeng Decoction on TCM symptom scores, blood pressure, kidney The function, blood β2-M, 24h urine protein levels were significantly lower than before treatment ($P < 0.05$ or $P < 0.01$), Hb was significantly increased ($P < 0.05$), better than the control group ($P < 0.05$). Xu Shuai [3] divided 65 patients with this disease into treatment group (conventional Western medicine treatment) and control group (addition of Bushen Huayu Decoction: Astragalus 30g, Angelica 15g, Eucommia 15g,

Achyranthes 15g, Radix Paeoniae 15g, Chuanxiong 15g, peach kernel 10g, cassia twig 10g, Ligustrum lucidum 20g, Eclipta prostrata 20g, mulberry 15g, Schisandra 15g) for 8 weeks of clinical observation, the results show that Bushen Huayu Decoction reduces the number of nocturia and improves β2 - Microglobulin, serum creatinine, urea nitrogen, 24-hour urine protein quantitative indicators have significant efficacy.

Zhao Yujuan 90 patients with this disease were randomly divided into the conventional treatment group (ACEI + CCB) and the Astragalus injection group (plus Astragalus injection) for 4 weeks of clinical observation, the results showed that the total treatment of Huangqi injection group Cholesterol, triglyceride and LDL-C were significantly lower than those in the conventional treatment group before treatment. Blood pressure, serum creatinine, urea nitrogen, blood lipids, urinary albumin excretion rate, and urinary β2-microglobulin decreased better than the conventional treatment group. . Xin Xue 68 patients with this disease were randomly divided into the control group (saline) and the observation group (danhong injection) for 30 days of pharmacological analysis, the results showed that the observation group 24 hours blood pressure, Ccr, mALB, The improvement of indicators such as β2–MG was better than that of the control group. Zhao Wei 90 patients with this disease were randomly divided into observation group (conventional treatment + Shenkang injection) and control group (control group + Chuanxiong) for 4 weeks of clinical observation, the results showed that the control group compared The group was able to significantly reduce serum creatinine, urea nitrogen, urine protein, tumor necrosis factor, interleukin and C-reactive protein levels.

Zhao Hongwen [4] 72 patients with this disease were randomly divided into control group (conventional treatment) and treatment group (plus ginkgo biloba extract) for clinical observation, the results showed that urine mALB, β2–MG, α1-MG were obvious after treatment. The decline was more pronounced in the treatment group. Zhao Wei 80 patients with this disease were randomly divided into the control group (conventional treatment) and the observation group (conventional treatment + breviscapine) for 4 weeks of clinical observation. The results showed that the expressions of Col IV, LN, P III P, ET-1 and MMP-9 were decreased, and the values of NO, C1 and C2 were increased. Breviscapine could effectively improve the serum fibrosis index and arterial elasticity index of patients with this disease. It is of great significance for improving renal fibrosis and vascular function. Qiu Weizhong 180 patients with this disease were divided into control group (benazepril) and experimental group (benazepril + Jinshuibao capsule) for 3 weeks of treatment, blood pressure, 24h urine protein in the experimental group. The improvement of BUN and serum creatinine clearance was significantly better than that of the control group.

Yuan Zhongxiao and other 100 patients with senile hypertension and renal damage were randomly divided into the control group (conventional western medicine treatment) and Naoxintong group (conventional western medicine + Naoxintong) for 3 months of treatment. It is shown that the Naoxintong group is more obvious in reducing mAlb, indicating that Buxin Naoxin has a significant effect on improving renal damage in elderly patients with hypertension. Ma Mei et al randomly divided 95 patients with this disease into a control group (enalapril + amlodipine + atorvastatin calcium Tablets) and a combination group (based on the treatment group + Liu Wei Di Huang Wan, Huang Qi San oral liquids were treated for 12 weeks. The results showed that the combined group was significantly better than the control in reducing the levels of mAlb, AC R, Cys-C, β2–MG, NAG, DD, FIB, IL-6 and TNF-α.

4. Western Medicine Treatment

At present, Western medicine for the treatment of hypertensive renal damage is mainly for the treatment of primary disease, and there are five main types of treatment for essential hypertension: CCB, ACEI, ARB, beta blockers and diuretics. Modern western medicine treatment research on this disease is more focused on combination therapy. Combination therapy has better curative effect on blood pressure control, improvement of renal function and prognosis of renal damage than single drug therapy. Su Ling [5] divided 128 elderly patients with early-stage hypertension with renal injury into the control group (amlodipine) and the experimental group (amlodipine + telmisartan)

for 8 weeks. The results showed that ammonia. The combination of clodipine and sultan is superior to single drug in the treatment of senile hypertension, and is suiTable for clinical use.

5. Chinese and Western Combined Treatment

Zhang Chengqiu and other 106 patients with hypertension and yin and yang deficiency syndrome early renal damage were randomly divided into control group (losartan potassium) and treatment group (Jinshuibao capsule + losartan potassium) for 16 weeks. Clinical observation showed that the decrease of Cys-C, β2-MG, CRP, UA, etc. was significantly better than that of the treatment group, and there was no difference in blood pressure between the groups. There were no statistically significant differences between FBG, TC, HDL-C and TG. Zhang Xu randomized 32 patients with hypertensive proteinuria into control group (irbesartan) and experimental group (irbesartan + astragalus) for 2 weeks. The results showed that the experimental group of patients 24 The decrease in hourly proteinuria was significantly lower than in the control group ($P < 0.05$). Dong Hua 80 patients with this disease were randomly divided into the control group (benazepril) and the combined group (benazepril + Jinshuibao capsule) for 9 weeks of clinical observation, the results showed that the two groups of blood urea Nitrogen, 24h urine protein decreased, endogenous creatinine clearance (Ccr) increased, blood pressure improved, and the difference was statistically significant ($P < 0.05$); compared with the control group, the combined group Urinary protein reduction was more pronounced at 24h ($P < 0.05$).

6. Conclusion

In summary, Western medicine treatment is mainly based on the treatment of primary disease. Traditional Chinese medicine treatment is mainly for tonifying kidney and replenishing qi, promoting blood circulation and removing blood stasis. The combination of Chinese and Western medicine is the most important research. Any drug that can improve blood urea nitrogen, serum creatinine, 24-hour urine protein, and early renal function can delay kidney damage, protect kidney function, and improve patient outcome. In recent years, hypertensive renal damage has gradually been valued by patients. This article only summarizes the treatment of this disease in recent years. It can be seen that modern research has a significant effect on the treatment of this disease, especially Chinese medicine, the combination of western medicine and the combination of Chinese and Western medicine plays an indelible role in delaying or reversing kidney damage. However, due to various causes, complex conditions, long duration of illness, difficulty in curing, large individual differences, and long treatment cycles, the disease still needs to continue to study solutions.

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